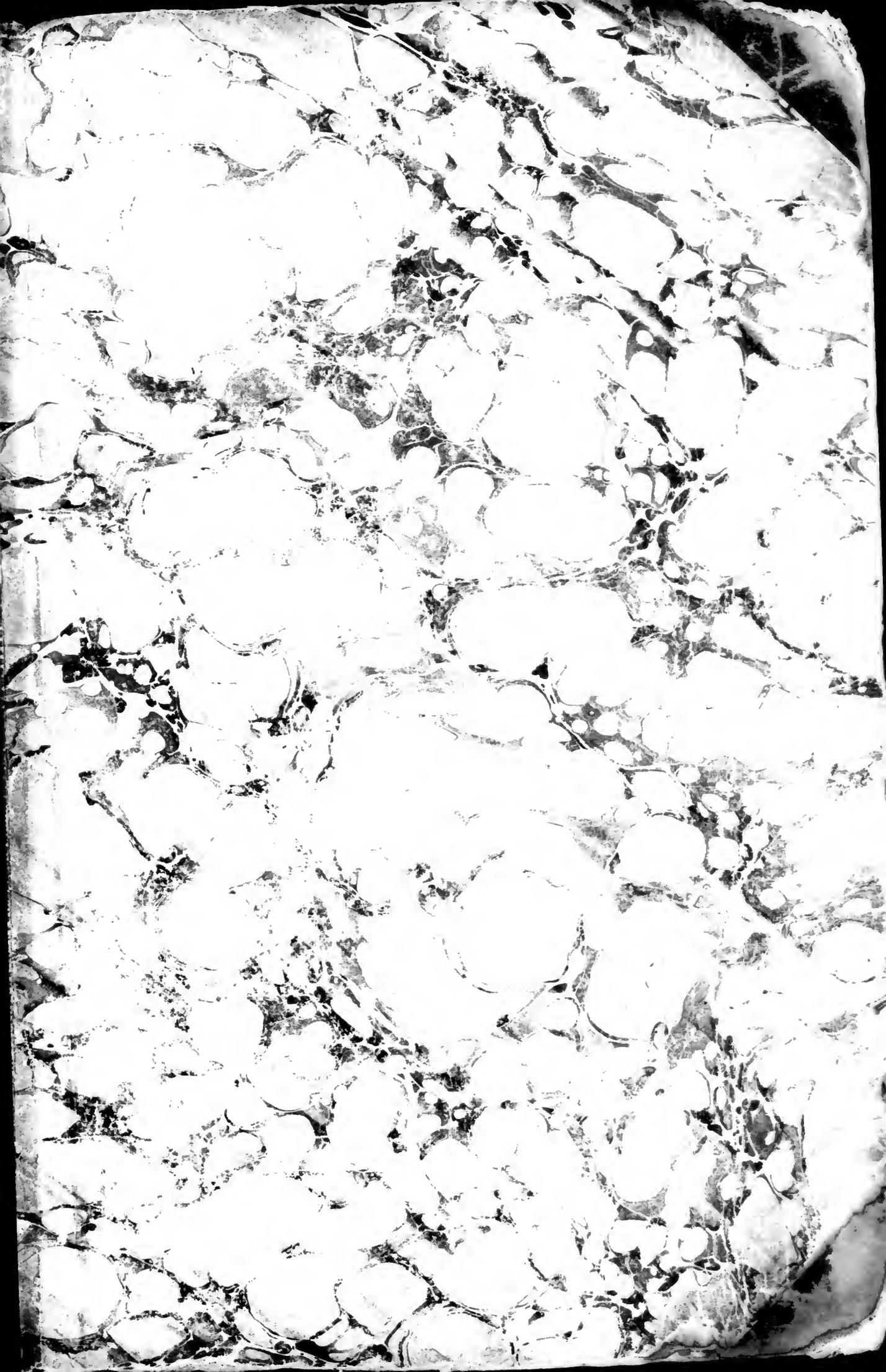


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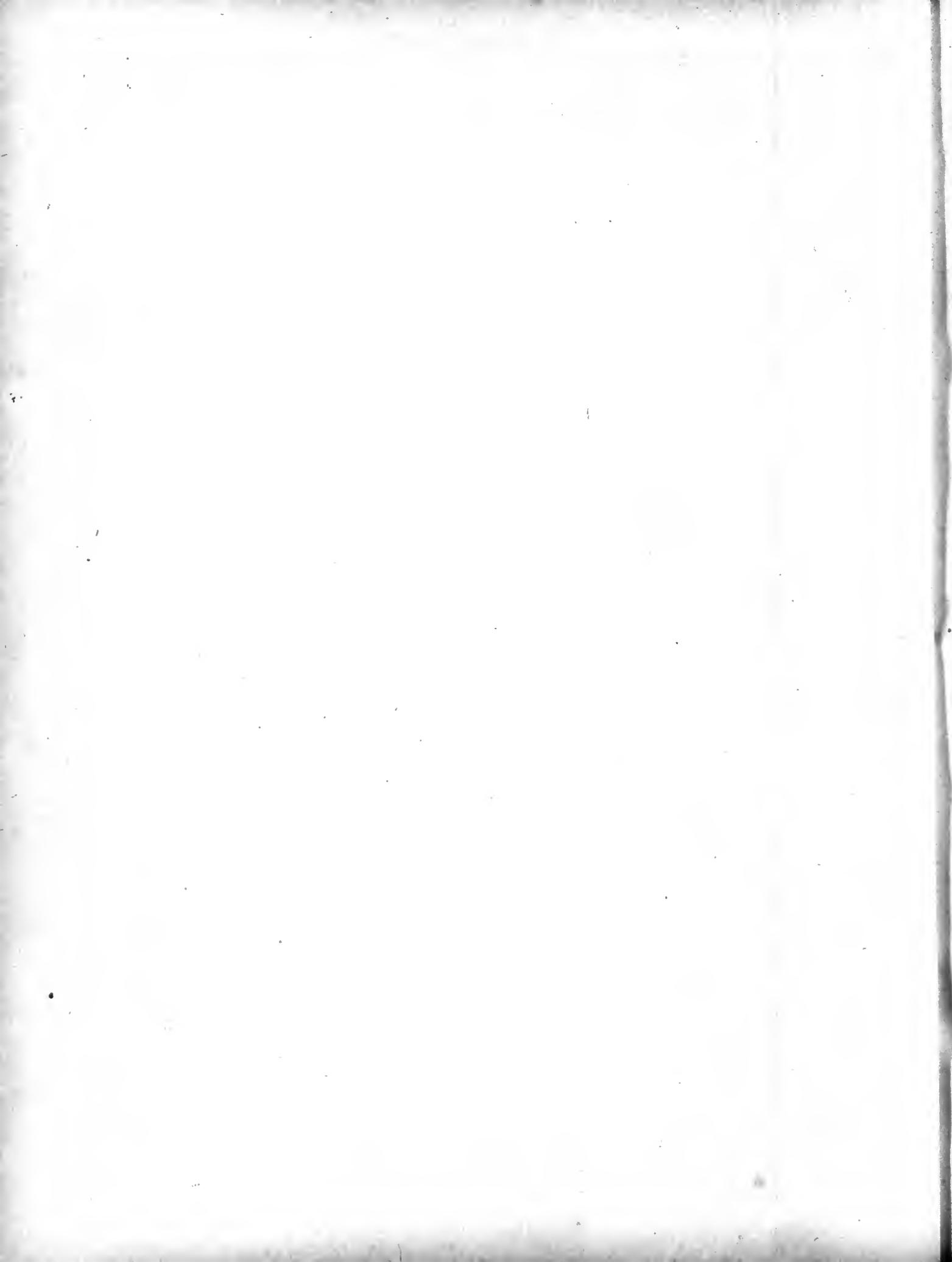
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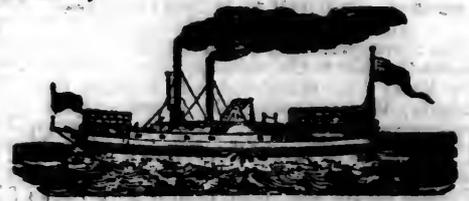
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AND MINES.



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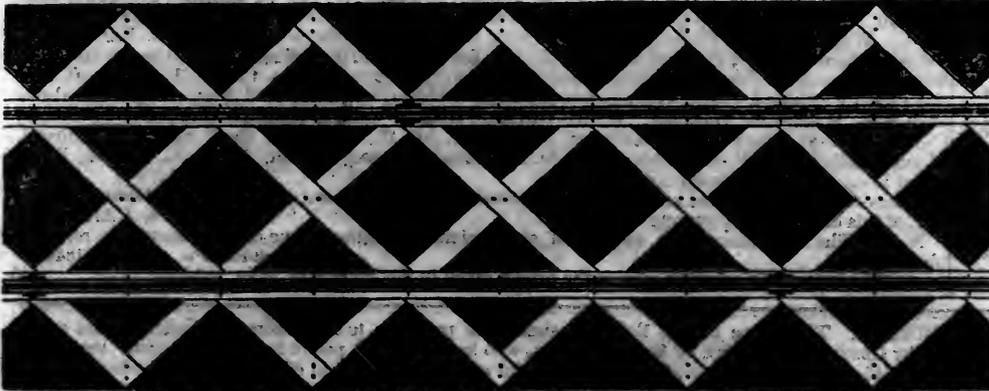
SATURDAY, JANUARY 3, 1846.

[WHOLE No. 497, VOL. XIX.

W. R. CASEY, CIVIL ENGINEER, NO. 23 Chambers street, New York, will make surveys estimates of cost and reports for railways, canals, roads, docks, wharves, dams and bridges of every description. He will also act as agent for the sale of machinery, and of patent rights for improvements to public works.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting.

HERRON'S IMPROVEMENTS IN RAIL- way Superstructure effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for *Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

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- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
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TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

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Orders for these Chimneys and Arresters, addressed to the subscribers, or to Messrs. Baldwin & Whitney, of this city, will be promptly executed.

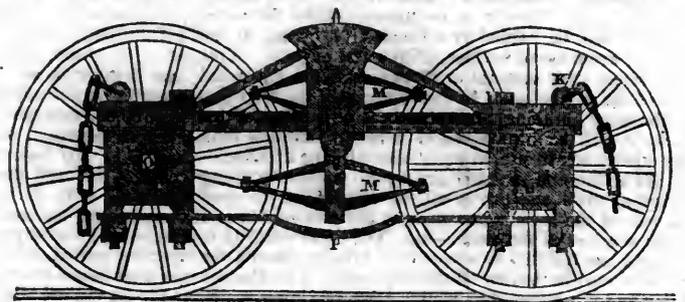
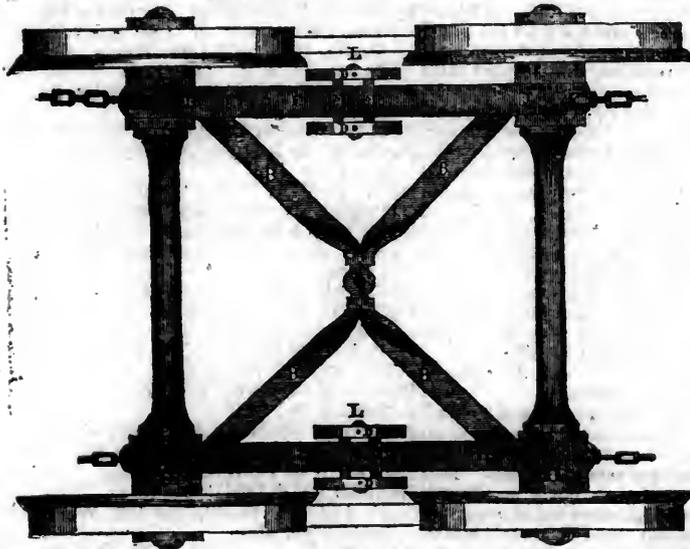
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45



BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

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CAMBRIDGEPORT, April 1, 1845.

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ANDREW C. GRAY,
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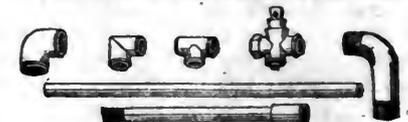
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W. Mc. C. CUSHMAN, Civil Engineer,
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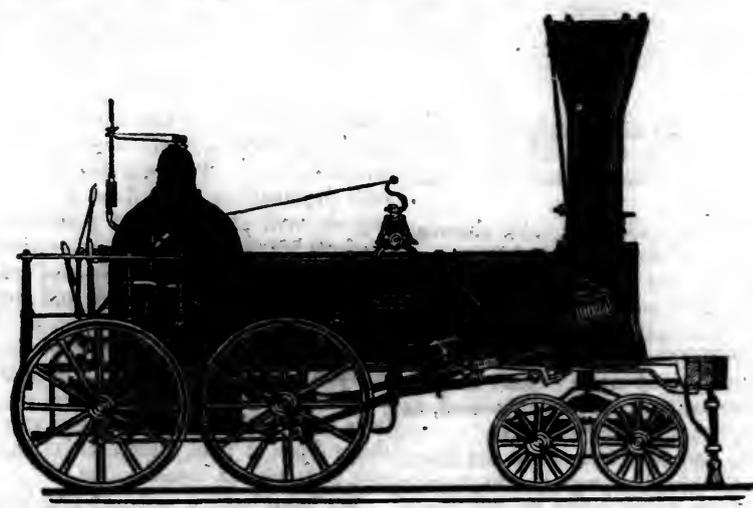
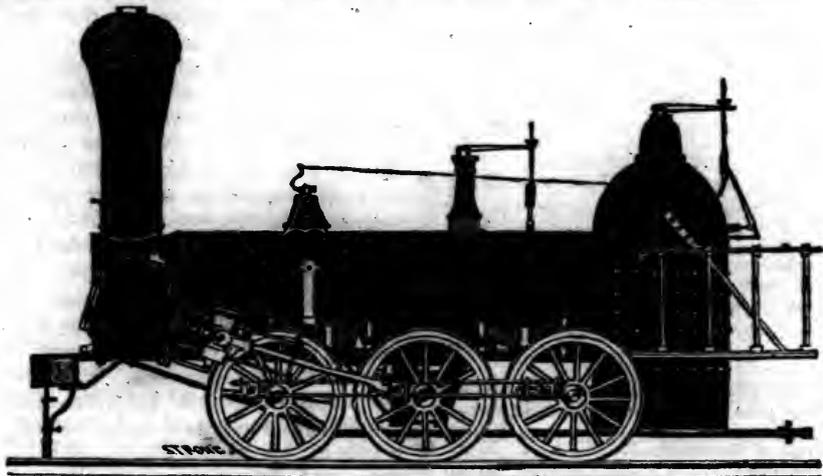
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" 4,	12½	"	"	×	20	"
" 5,	11½	"	"	×	20	"
" 6,	10½	"	"	×	18	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars.

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W. R. CASEY, Civil Engineer,

VALUABLE PROPERTY ON THE MILL Dam—For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 feet, with lathes, work benches, &c.

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing, a large air-furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS, 48 State st.,** or to **CURTIS, LEAVENS & CO., 106 State st., Boston,** or to **A. & G. RALSTON & Co., Philadelphia.**
ja45

CYRUS ALGER & CO., South Boston Iron Company.

Central, Ga., Railroad.

To the Stockholders of the Central Railroad and Banking Company of Georgia:

The accompanying report of the chief engineer will exhibit to you, in detail, the amount earned by the railroad during the year ending the 2d inst., with the expenses of the road for the year. Annexed is a statement, certified by the cashier, which will show you the monies received by the company during the year ending 2d inst., from all sources; and the monies expended upon all accounts, also the state of the company on the last-mentioned day.

The cash received during the year for profits of the road exceeds the amount earned by the company. This is owing to the fact that part of the last year's earnings have been collected in this year, and the present year's collections have, with the exception of one week, been paid in.

It will be seen that the road receipts for this year have not been so large as was anticipated. This is owing first to the shortness of the cotton crop, and, secondly, to the backwardness in bringing what has been made to market. Whilst the quantity of up-freight has been well sustained, the quantity of cotton transported has fallen short, in the last four months, over 15,000 bales. The freight on that quantity of cotton, at existing rates, would have placed the receipts of the company over \$400,000. The up-freights have been during the past autumn 5 cents per hundred, and 2 cents per foot less than last year, and the freight on cotton has been 10 cents per hundred less than during November, 1844. The quantity of cotton brought during the last cotton year, reckoning from 1st August to 1st August, was 125,497 bales. The current annual expense is detailed in the engineer's report. The amount expended on road account beside the current expense, has been as follows:

Right of way.....	640 00
Iron rails and plates.....	2,451 31
New stock.....	74,870 06
Construction of road.....	28,704 23
Account stage line.....	17,435 67

\$124,105 27

The motive power now owned by the company is considered fully adequate to the business which may offer. But it is the intention of the board to continue for a short time the building of burden cars—the wheels, axles and lumber for which are on hand. The lands required for depots have been purchased and paid for, and the buildings, except an engine-house at the midway station, and a passenger-car house at the Savannah depot, now building, have been erected and paid for.

The board now feels itself in a condition to commence the regular discharge of the debts of the company. Since your last meeting, efforts have been made, without success, to borrow money to defer the payment of what the company owes, that the profits might, to a prudent extent, go to the stockholders, in the way of dividends, reserving annually a sum to meet, in the end, the amount borrowed. Bonds, with coupons annexed, drawing

interest at 7 per cent, payable semi-annually in New York or Savannah, at the option of the buyers, have been prepared, and will be disposed of as they may be wanted, at par. The board believes that, in a short time, as much money can be borrowed in this community on these bonds as will enable the company to begin the payment of dividends. But if disappointed in this, the board cannot doubt the ability of the company to discharge the debt it owes in three years from this time.

It is intended, as the debts are paid, to issue stock by way of dividends for all such net profits of the road as are taken to pay debts, until the capital stock now on the books, at \$2,048,715, shall amount to \$2,600,000, a sum below the cost, and clearly within the real value of the road and its equipments. Such plan, it is believed, will greatly relieve the stockholders, who have waited so patiently for returns from their investments.

The liabilities and assets of the company at this time are as follow:

Liabilities.	
Circulation.....	\$42,791 00
Road tickets.....	7,735 15
Deposites.....	28,637 67
Less owned by the company	3,589 28—
Due to other banks.....	106 29
Unclaimed dividends.....	4,342 60
Bills payable.....	120,903 20
Do. acct. Brooks & Barden.	15,000 00—
Railroad bonds.....	440,097 00
Certificates to banks.....	13,311 00
	\$669,334 63

Resources.	
Independently of the railroad and appurtenances of all kinds, and also independently of the stage line:	
Discount line.....	\$74,321 19
Bonds city of Savannah.....	55,000 00
Bills receivable.....	26,615 68
Stock in bank of Georgia.....	20,780 00
Banking houses and lots.....	42,519 37
Real estate taken for debt.....	5,857 36
Due by other banks.....	202 18
Cash, Dec. 2, 1845.....	13,937 93
	\$239,233 71

After allowing for all bad debts and depreciation of real estate and banking houses, it is estimated that these assets will yield \$200,000.

The last report exhibits a table showing when the bonds of the company fall due.

Experience proves that the circulation of the bank and the deposits, even without any extension of banking business, will not go lower than \$60,000; but it is believed that the circulation, based upon capital so substantial as the railroad, may be increased, in a short time, to a considerable extent.

Since your last annual meeting, the board called the stockholders together to receive the report which you required them to make, on the subject of the extension of the road to Columbus. The meeting was held at Macon in October last. The report and proceedings of the meeting thereon are submitted herewith for your consideration. Application has been made for a charter to extend the road to Columbus, and the bill for the amendment of the charter as it has passed the senate, is also herewith submitted.

Recent events show fully the necessity for this extension. It is alone by such extension, or by a road from Barnesville to Columbus,

that we can be certain that the great thoroughfare to New Orleans and Texas will be through Savannah, Macon and Columbus. If the road be carried to Columbus, no other line of travel can ever be established to interfere with us. And independently of profits from travel, it is certain that the freights on such a road would be profitable, not only for the extension, but vastly to our existing road.

The new proprietors of the Monroe railroad seek to build a road from Barnesville to Columbus, and applications are now before the legislature to procure the necessary charter for rendering certain the construction of a railroad to Columbus. You will see by the report of October, that the board is of opinion that a railroad direct from Macon to Columbus, is preferable to a road from Barnesville to the same point; but if the various parties in interest shall continue to think and finally determine that the latter shall be the road, and shall proceed at once to build it, then it will not be necessary for this company to extend its road any further.

The board invites you to a careful examination of the report, and of the provisions of the bill now before the legislature, and desires the expression of your opinion and wishes on the subject. It will be governed in its future action on this point by the instruction it shall receive from you.

The company feels, in common with the community, the ill effects of the discontinuance of the daily mail, in steamers, between Savannah and Charleston. It believes that the postmaster-general has acted on this subject without due regard to the interests of the people of this city, of Macon, and of Columbus; and hopes that he will review his course, and adopt the plan of continuing the mail with the steamer line of Messrs. Brooks & Barden. In order that you may understand fully the efforts of the board of directors to improve the mail facilities and travel through our city and line, the correspondence of the president with the department is submitted to you. This correspondence, with such explanations as will be given on your request, will place you in possession of all the facts bearing on this subject—now one of such deep interest to all persons connected with the company's business and prospects. Considering that the corporation of the city holds near one-fourth of the stock of the company, and that so large a portion of the community is directly interested in our affairs, the board earnestly requests you to take this subject of mail transportation and travel into your serious consideration.

We have built a railroad which stretches two-thirds of the way across the state of Georgia, and which, with proper united effort on the part of the citizens of Macon and Columbus, is destined to be part of the great line of mail communication and travel from north to south. The prospect is fair for the speedy completion of the Monroe railroad to its point of junction with the western and Atlantic road, through which we may expect to receive a fair share of western freights and travel. Our communication through Charleston with the line by Wil-

mington to New York, should be kept up daily in the perfect manner exhibited by Messrs. Brooks & Barden, to show the advantages and comfort of the route through Savannah. The present is the important moment to render permanent such a daily line of steamers, and to push on to the city of Columbus. South-western Georgia, the most fertile region in our country for cotton, now asks of the legislature a charter for a railroad to Macon, that its people may find for their produce an Atlantic market; and there can be no doubt of the grant of the rights which they seek. The agriculturists of that portion of the state will unite to build that road, and it is earnestly hoped will find substantial aid from Savannah, which will derive so great advantages from their contemplated work.

Our city will find advocates and friends in all parts of Georgia to support it in proper exertions on its part to become the important city of the south. We cannot shut our eyes to the fact that already a very large portion of Georgia capital, produce and business, go to increase the wealth of our neighboring sea-port. We cannot, if we would, look indifferently or coolly on, while such efforts as we may constantly witness are made, to pass all travel and trade through the state to Charleston, thus cutting off the three cities of Savannah, Macon, and Columbus.

Denied a fair consideration in the mail arrangements of the government, and pressed by spirited rivals, we must buckle on our armor, and, with the help of a protecting Providence, and that patriotic feeling which in truth exists, though it may appear to slumber, in the hearts of all Georgians, for their ancient sea port, work out our salvation and prosperity. These remarks are made by your board in no spirit of unkindness towards those who seek to obtain the wealth which would seem, on all just principles, to be destined for us, for we are all members of the same great household; but they are intended to awaken you to the wisdom, yea, the necessity, of not looking back since you have put your hands to the plough; but rather of pressing on to the accomplishment of the great work which we have to do.

R. R. CUYLER, *President.*

From an examination of the summary of complete routes of the Danbury railroad, we find that the average cost per mile on all the routes given is \$27,594 96.

The cost of the Sound route, with the same superstructure, according to Professor Twining's report, is \$32,166 79 per mile. To this should be added \$231 08 for the increased price at which Mr. Brodhead puts the iron, &c., over the estimate of Professor Twining, which makes the real difference, in the cost per mile of the Danbury and Sound routes \$4,802 91 per mile in favor of the Danbury railroad, or more than \$336,000, on the same length of line, in favor of the inland route.

The length of the Sound route, according to Professor Twining, is 69.43 miles to the Harlem railroad.

The length of the Danbury route to the

Harlem railroad extension need not be more than 69.33 miles, and may be only 66.33, depending on the course finally adopted for the extension of that railroad. Assuming however, the same length for the two routes, there will be a difference in the first cost of more than \$336,000 in favor of the Danbury route, or more than 17 per cent. on its entire cost.—*Harford Courant.*

Canal Revenues of Ohio.—Canal tolls received during the fiscal year, ending Nov. 15, 1845.

Ohio canal	\$252,199 40
Miami canal	74,319 71
Miami Extension canal	32,007 68
Wabash and Erie canal	73,907 47
Muskingum Improvement	28,461 24
Hocking canal	4,519 73
Walhonding canal	1,183 82

Total canal tolls received - \$466,598 51

By this it is shown that the receipts at the treasury for tolls on the Ohio canal last year was \$335,268 50; this year from the same source, \$252,199 01; showing a decrease from this canal of \$83,069 48. There is also a slight reduction in the tolls on the Miami canal. There is an increase on the Miami Extension canal of \$19,952 29 over that of last year, though it has been navigated but a short time. The receipts on the Wabash and Erie canal have nearly doubled this year upon the receipts of the last. The Muskingum Improvement remains about stationary, but there is a falling off on the Hocking and Walhonding canals. The whole amount collected on all the canals in 1844, was \$504,031 08. The receipts of this year show a reduction of \$37,432 57, which is less than was anticipated from the stagnation of business, caused by the severe drought in many parts of the state before harvest time.

Right of way.—At a numerous meeting of the citizens of Bedford county, Pa., the following resolutions were adopted:

Whereas, it is in contemplation to apply to the legislature of Pennsylvania at its next session for a law authorizing the Baltimore and Ohio railroad company to extend its road from the town of Cumberland, in the state of Maryland, through the state of Pennsylvania to the city of Pittsburg. And whereas, a continuous line of railroad from the city of Philadelphia to the city of Pittsburg within the territory of the state of Pennsylvania is required by the great increase of trade between the east and west and the best interests of the commonwealth. And whereas, it is believed that a connection between Cumberland valley railroad, and the proposed extension of the Baltimore and Ohio railroad at the mouth of the Little Wills creek in this county, is the readiest and most feasible mode of obtaining such a continuous line of railroad. Therefore,

Resolved, That it is the opinion of this meeting that the interests of the commonwealth of Pennsylvania will be advanced by granting to the Baltimore and Ohio railway company the right of way for the extension of their road to the city of Pittsburg.

Resolved, That, inasmuch as the southern

and southwestern counties of Pennsylvania, which have heretofore been severely taxed for the support of the great system of internal improvements constructed by the commonwealth without deriving from them any advantages will be greatly benefited by the extension of the Baltimore and Ohio railroad to Pittsburg, it is due to them that the right of way asked should not be denied by the legislature.

Right of Way.—In the Virginia house of delegates, on Monday, the following resolution was offered by Mr. Edgington:

Resolved, That the president pro tem and board of directors of the Baltimore and Ohio railroad company be, and they are hereby respectfully requested to communicate to this house, without delay, copies of all communications transmitted to said company since the passage of the act of the 19th of February last, entitled "an act to authorize the Baltimore and Ohio railroad company to construct their road through Virginia to the Ohio river, and for other purposes," which relate to or advise the acceptance or rejection of that act.

Mr. Garnett, before the question was taken on the above resolution, wished to know what right the legislature had to call on the Baltimore and Ohio railroad company. Mr. Edgington regarded it as a Virginia company, since it held a charter from this legislature. He desired the information sought for the instruction of the legislature, that the matter might be fully understood. Mr. Lee had no objection, provided the company would not incur expense in furnishing the information. After further explanation by Mr. Edgington, the resolution was agreed to.—*Baltimore American.*

Extracts from the Message of Gov. Whithcomb of Indiana:—Since the last adjournment of the legislature, a grant of one-half of all the public lands in the Vincennes district has been made by the United States to Indiana, to aid in the extension and completion of the Wabash and Erie canal, from Terre Haute to Evansville.

The completion of this canal, however advantageous it may be to the interests of those within its vicinity, it is manifest, claims your favorable regard, as the representatives of the state at large, chiefly as a revenue measure.

And in that light it is believed to possess claims of a high character. The work, when finished, passes through a country of almost unrivalled fertility, and rapidly increasing in population. Reaching in its full length, from lake Erie to the Ohio river, it will be the longest work of the kind in the United States. It will be second in importance only to that which connects lake Erie and Hudson river, and will make one of the links in the great chain of internal navigation from the northeastern to the southwestern extremities of our growing confederacy.

It was stated in a quarter entitled to respect and confidence, at a meeting held at Terre Haute in May last, that if the state were to pay to her bond-holders by a state tax and otherwise, a portion of her public debt, it was thought that they would be prepared to take

the profits of the canal for the balance. The gentleman who expressed this opinion, is now in attendance as the representative of our foreign bond-holders and has verbally advised me that he will shortly prepare a communication offering a liberal arrangement, to be laid before the general assembly.

Cleveland, Columbus and Cincinnati Railroad Company.—The two companies of engineers who have been examining the routes for this road have returned to this city, and will at once commence making estimates on the several lines, and are preparing a report which we learn will occupy several weeks.

We understand that one line was run from this through Harrisville, Wooster, Loudonville and Mount Vernon to Columbus. Another from Harrisville through Ashland, and a few miles north and west of Mansfield, and midway between Mount Vernon and Delaware to Columbus. Another from Columbus north, through Delaware to intersect the last line; and also an examination was made of the country between the point of intersection and Mansfield, and between Mansfield and Mount Vernon. All are practicable at a moderate expense, excepting the short line between the intersection referred to and Mansfield. Columbus may therefore be reached by Wooster and Mount Vernon—by Ashland, Mansfield and Mount Vernon, and by Ashland and Delaware. The distances and cost on the different lines are not materially variant, and we may therefore infer that the selection will depend upon the most liberal subscriptions to the stock and releases of right of way.

We are told the engineers were treated throughout with great kindness and civility. They state the anxiety among the people to have the proposed road made as very great, and that large subscriptions may be confidently anticipated.

We see a notice in the Columbus papers for a meeting of the commissioners of the Columbus and lake Erie railroad company, with reference to an organization. If this be intended to head our project, we beg the directors to work on as they have begun, with energy and spirit, or they may find that delay will create obstacles difficult to surmount.—*Cleveland Herald.*

Troy and Greenbush Railroad.—It will be perceived that the winter arrangement is now complete. Eight trips a day are made each way. The river is crossed by means of a sleigh, from the steamboat office at the foot of State street. The sleigh ride is free—fare on the road 12½ cents.

The Troy and Greenbush railroad company have declared a dividend of 4 per cent. payable on the 10th of January next. This favorable result has been produced from the earnings of the road for the last six months. A surplus of 1 per cent. remains undivided. *Albany Argus.*

Utica and Schenectady Railroad.—We are informed that the directors of this company, at a meeting held a few days since, resolved to place a second daily run on their

road, which will commence on or about the 29th inst.—*Albany Evening Journal.*

Illinois Canal.—We understand, says the Ottawa Constitutionalist, from Mr. Gooding, the engineer, that the work on the whole line is now progressing very rapidly, there now being at work 1500 men, and a proportionate number of teams, carts, etc.

The basin and channel at La Salle will be pretty much completed by the 1st of January next. The force on the line is augmenting very fast.

Atmospheric Railways: Mallet's Plan.

The objects in view are to diminish the cost of the main and valve, simplify their parts, and diminish leakage which occurs to so great an extent with Clegg's valve. The main is cast with a pair of jaws, one on either side of the long slot, through which the coulters travel. These jaws are formed to a particular curve (see fig. 1.) and are cast against "a chill" by which they are obtained perfectly smooth, fair, straight, and hard, and thus the cost of "planing" the valve faces is avoided. The valve consists of a continuous hollow tube or hose, of woven hemp, coated throughout with caoutchouc, like the tube of a stomach-pump, or other such instrument. This tube is maintained full of water or brine in cold climates; and when it is closed as a valve, is forced in between the jaws of the main, and acts like a sort of continuous cork. As the coulters, etc., travel along, the tube is lifted up a few inches out from the jaws, by suitably formed rollers, and as soon as the coulters has passed, it is pressed back again into the cavity, between the jaws by a roller pressing upon its upper surface.

In place of a hollow hose full of fluid under a constant small head, or of compressed air, a compound continuous cork formed of 4 cotton ropes embedded in caoutchouc. This is, in fact, one of Brockedon's patent stoppers of indefinite length. Either arrangement would admit of sufficient extensibility in length to allow the lifting up and pressing down of the valve at the passage of the coulters without injury.

The outer surface of the valve, in either case, should be coated with an unguent, which will not act on the caoutchouc; if vulcanized india rubber be used, common palm oil will answer. Pinkus's valve was a continuous flat band of leather, and failed—because, when close, it had no tendency to keep in its seat, and its edges were thrown up by the pressure of the atmosphere on its centre part.

Hallett's valve consists of two continuous tubes full of compressed air, by the elasticity of which they are forced against each other, and the main thus attempted to be made staunch; but the serious defect appears to be, that the tendency of the atmospheric pressure upon the outside of these artificial lips is to force them assunder, so that the exhaustion of the tube tends to produce, in place of to diminish, the leakage of the valve. The present contrivance, which has something in common with both Pinkus' and Hallett's arrangements, though invented long before the latter published his plan, appears free from the dis-

advantages of either, and to possess several advantages not offered by any other valve proposed.

The letters refer in common to all the figures. Fig. 1, is a transverse section of the improved main and valve. *a a* is the main; *b b*, the valve seat, the opposite faces chilled; *c*, the tubular valve in its seat; when raised at the passage of the coulters it assumes its cylindrical form, as shown in dotted lines, *d d d*, passing over the sheaves, or rollers *m*, etc.; *t*, is the coulters seen endwise; *h*, the rib of the travelling piston.

Fig. 2, is a plan and section horizontally of the atmospheric main, *a a*; *b b* the valve seat or jaws, cast with "chilled" faces—(these are best seen in section, fig. 1.) The lengths of main are put together with abutting rabbetted flanges, or rather lugged joints, at every fifteen feet, with a flange of india rubber $\frac{3}{4}$ inch thick between, the elasticity of which allows for expansion of the main, and yet keeps the joint air-tight.

Fig. 3, is a horizontal section of the tube, and plan of the piston.

Fig. 4, is a vertical section of the tube, and elevation of the piston.

Fig. 4a, is an elevation of the entrance of the tube.

Fig. 5, transverse section of the valve as raised; fig. 6, a transverse section of it as closed; fig. 7, a transverse section on the line A B of fig. 4; and fig. 8, a transverse section on the line C D of fig. 4.

From the facility given for support of "the cone," by the "chill," for casting, the valve seat faces on the main, as thus designed, can be as readily cast in 15 feet lengths as in 9 feet, which has been the limit of Samuda's practice. *c* is the tubular valve of woven hose, covered with caoutchouc, or of caoutchouc and cotton solid: it is here shown hollow, and is maintained full of water by a small flexible tube *d*, at either end of the section of main joined to the extremity of the brass nosle and bend *e*. This little tube connects also with a small water-main *f*, laid under the ballast of the road, and in connection with a head of from 5 to 10 feet of water, by which the tubular valve is always kept full and "plump." This little supply tube is so placed as to be passed by the coulters, etc., and to permit the valve to be lifted up and pressed back again into its seat. *g*, is the travelling piston-head; *h*, the rib or frame of the travelling gear; *k*, the balance weight; *l*, *m*, *n*, *o*, the hollow-grooved rollers, made like ordinary "sheaves," which gradually lift the tubular valve out of its jaw-shaped seat, to permit the coulters to pass with the piston; the first and last of these, *l* and *o*, are narrow enough to pass up between the jaws, or into the longitudinal slot, and are of hardened steel; *r* is the roller, with a slightly concave edge or rim, which, attached to the porch of the leading carriage, *s*, presses down the tubular valve into its seat, something like forcing a continuous cork into the neck of a bottle, and so leaves the main ready for fresh exhaustion after the passage of a train; *t* is the coulters of plate iron $\frac{5}{8}$ of an inch thick, carries the rollers, piston, etc., and attached to the perch *s*.

AMERICAN RAILROADS.

NAMES OF RAILROADS.	Length in miles.	Cost.	Loans and debts.	Number of shares.	Paid on share.	1843. Income.		Div. per cent.	1844. Income.		Div. per cent.	1845. Income.		Div. per cent.
						Gross.	Nett.		Gross.	Nett.		Gross.	Nett.	
Maine. 1) Portland, Saco and Portsmouth.....	50	1,200,000				89,997	47,166	7	131,404	62,172	6			
N. Ham. 2) Concord.....	35	750,000									12			
Mass. 3) Boston and Maine.....	56	1,485,461				178,745	68,499	6	233,101	86,401	6½			
4) Boston and Maine extension.....	17½	455,703	unfin.											
5) Boston and Lowell.....	26	1,863,135				277,315	144,000	8	316,909	147,615	8			
6) Boston and Providence.....	41	1,886,135	none.	18,600	100	233,388	110,823	6	282,701	156,109	6			
7) Boston and Worcester.....	44	2,914,078				40,141	162,000	6	428,437	195,163	7½			
8) Berkshire.....	21	250,000	not stated				17,500	7	17,737					
9) Charlestown branch.....		290,260						13	34,654	13,971	5½			
10) Eastern.....	54	2,388,631				279,563	140,595	6	337,238	227,920	8			
11) Fitchburg.....	50	1,500,000	just op'n'd						42,759	26,535				
12) Nashua and Lowell.....	14½	380,000				84,079		8	94,588	34,944	10			
13) New Bedford and Taunton.....	20	430,962				50,671	24,000	6	64,998	24,000	6			
14) Northampton and Springfield.....		172,883	unfin.											
15) Norwich and Worcester.....	66	2,290,000	900,000	16,535	100	162,336	24,871		230,674	99,464	3			
16) Old Colony.....		87,820	unfin.											
17) Stoughton branch.....	4	63,075	unfin.											
18) Taunton branch.....	11	250,000					20,000	8	96,687	20,000	8			
19) Vermont and Massachusetts.....														
20) West Stockbridge.....	3	41,516	200		100						4			
21) Western, (117 miles in Mass.).....	156	7,686,202	4,686,202	30,000		573,882	284,432		753,753	439,679	3			
22) Worcester branch to Milbury.....		8,431	506											
23) Housatonic, (10 months.).....	74	1,244,123							150,000					
Conn. 24) Hartford and New Haven.....	38	1,100,000	100,000	10,000	100						6			
25) Hartford and Springfield.....	25½	600,000	400,000	2,000	100									
26) Stonington, (year ending 1st Sept.).....	48	2,600,000	650,000	13,000	100	113,889			154,724	79,845				
N. York. 27) Attica and Buffalo.....	31	336,211				45,896	7,522		73,248	48,033				
28) Auburn and Rochester.....	78	1,796,342	200,000	14,000	100	189,693	112,000		237,667	152,007	6			
29) Auburn and Syracuse.....	26	766,657			133½	86,291	27,334		96,738	52,544	6			
30) Buffalo and Niagara.....	22	200,000		1,500										
31) Erie, (446 miles.).....		5,000,000												
32) Erie, opened.....	53						48,000		126,020	59,075				
33) Harlem.....	26	2,250,000	750,000	30,000					140,685	62,399				
34) Hudson and Berkshire.....	31	575,613			50				35,029	1,789				
35) Long Island.....	96	1,610,221	392,340	29,846					153,456	58,996				
36) Mohawk and Hudson.....	17	1,317,893	400,000	10,000	100	60,948	58,780		79,804	45,763				
37) Saratoga and Schenectady.....	22	303,658				42,242	3,000	1	34,666	8,455				
38) Schenectady and Troy.....	20½	640,800				28,043			32,646	6,365				
39) Syracuse and Utica.....	53	1,115,897	none.	16,000	62½	163,701	72,000		192,061	120,992	8			
40) Tonawanda.....	43	727,332				76,227			114,177	75,865	5			
41) Troy and Greenbush.....	6	180,000												
42) Troy and Saratoga.....	25	475,801				44,325	21,000		38,502	9,971	2½			
43) Utica and Schenectady.....	78	2,168,165	none.	20,000	100	277,164	180,000	9	331,932	199,094	8			
N. Jersey 44) Camden and Amboy.....	61	3,200,000				682,832	383,880		784,191	404,956				
45) Elizabethtown and Somerville.....	26	500,000												
46) New Jersey.....	34	2,000,000												
47) Paterson.....	16	500,000									6			
Penn. 48) Beaver Meadow.....	26	1,000,000												
49) Cumberland Valley.....	46	1,250,000												
50) Harrisburg and Lancaster.....	36	860,000	645,929									77,538	9,988	
51) Hazleton branch.....	10	120,000												
52) Little Schuylkill.....	29	900,000												
53) Blossburg and Corning.....	40	600,000												
54) Mauch Chunk.....	9	100,000												
55) Buck Mountain.....	4	72,000												
56) Minehill and Schuylkill Haven.....	19½	396,117	25,000	7,019	50			12			12			
57) Norristown.....	20	800,000												
58) Philadelphia and Trenton.....	30	400,000												
59) Pottsville and Danville.....	29½	1,500,000												
60) Reading.....	94	9,457,570	7,447,570	40,200	50				597,613	343,511				
61) Schuylkill valley.....	10	1,000,000												
62) Williamsport and Elmira.....	25	400,000				20,000								
63) Philadelphia and Baltimore.....	93	4,400,000				43,043	200,000			210,000				
Delaw're 64) Frenchtown.....	16	600,000												
Maryl'd 65) Baltimore and Ohio, (1st Oct.).....	188	7,742,410	1,153,709			575,235	279,402		658,620	346,946		738,603	374,762	3
66) Baltimore and Washington.....	38	1,800,000				177,227	71,691		212,129	104,529		208,813	95,094	6
67) Baltimore and Susquehanna.....	58	3,000,000												
68) Wrightsville, York and Gettysburg.....	12½	500,000												
Virginia 69) Greensville and Roanoke.....	18	284,433	37,544	2,000	100				25,368	6,074	3			
70) Petersburg.....	63	969,880	63,000	7,690	100				122,871	72,898	6			
71) Portsmouth and Roanoke.....	78½	1,454,171												
72) Richmond, Fredericksb'g and Potomac.....	76	800,000							185,243	85,688				
73) Richmond and Petersburg.....	22½	700,000												
74) Winchester and Potomac.....	32	500,000												
N. Car. 75) Raleigh and Gaston.....	84½	1,360,000												
76) Wilmington and Raleigh.....	161	1,800,000												
S. Car. 77) South Carolina.....	136													
78) Columbia.....	66	5,671,452		34,410	75									
Georgia 79) Central.....	190½	3,000,000	500,000	22,500	100	201,464	77,456		532,871	140,196				
80) Georgia.....	147½	2,650,000				227,532	93,190		328,425	180,704				
81) Montgomery and West Point.....	89	500,000	170,000		100	248,026	158,207		248,026	147,523				
Kent'ky 82) Lexington and Ohio.....	40	450,000							35,000	15,000				
Ohio. 83) Little Miami.....	40	400,000												
84) Mad river.....	40	152,000										24,984	3,280	
Indiana 85) Madison and Indianapolis.....	56	212,000	50,000			22,110	8,639	8	39,031	10,065	9½			
Canada. 86) Champlain and St. Lawrence.....	15						12,000		58,000	24,000				

Correspondents will oblige us by sending in their communications by Monday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.

Saturday, January 3, 1846.

The American Railroad Journal as it was and as it is.

This number commences the *fifteenth* year of its publication. Very few indeed of the most intelligent, at the time of its commencement, anticipated the *half* of what has been accomplished in the construction, improvement, and capacity of railroads.

Great however as have been the advances made in the system—so great indeed that many people are of the opinion that it has reached its maximum—we are now only beginning to understand its susceptibility of improvement; and are therefore only now prepared to carry it forward with facility and success.

At the period when this Journal was commenced, the wonder seemed to be that any one of sane mind should for a moment think of finding materials for such a periodical; but how completely have things changed in fourteen years—the difficulty now is to select, from the mass of matter, in relation to the subject which comes before us, that which shall be most useful to the cause. A better illustration of the progress of railways need not be desired than a comparison of the *first* number of the Journal with the last; and it may well be asked by its friends what may not, rather than what may be accomplished within the next period of fourteen years! How important then that those having the direction of railroads should be early apprized of all improvements in the construction or management of them. A single paragraph sometimes contains the elements of economy, and safety, the two great objects so desirable to those who own, and those who use such works. There are many "very small matters" which are of great importance; and as it has been recently observed to us by a professional gentleman, "we venture to say that more meritorious projects have been totally ruined from want of system and proper management of *very small matters*, or more properly speaking from mismanagement of *details*, than from any other cause." It is therefore important that there should be a medium for communicating the details of improved management, economy and safety, and that medium should be sustained by those who are interested in the subject, which includes *all* who own and who use railroads.

It is quite important to railroad companies to be early apprized of improvements in even small matters, by which they may promote economy of management, and safety of passengers; but it is equally important to those who travel to be familiar with all improvements in the system calculated to promote

their own safety—that they may be able to know at a glance whether those roads, on which they may be called to travel, have adopted such improvements as experience has shown to be important and essential. With a *well sustained* and widely circulated periodical, issued frequently, and devoted to the success of the system, they may be, at the expense of a few shillings, constantly informed of what is passing, and improving, either in construction or management of *road and machinery*, as well in *Europe* as in this country; and thus be enabled to profit, not only by their own experience, but also from the investigations and experience of the thousands of able minds now devoted to the improvement of the system.

Improvements in machinery and construction of railroads often require to be illustrated by *engravings*, which are expensive. We have now before us foreign journals, containing important articles in relation to railroads, and especially the *atmospheric system*, with numerous illustrations, the engraving of which on wood, will cost not less than \$150, which alone puts them, or most of them, beyond our reach, because the present income of the Journal will not warrant us to incur the expense. *This should not be so—and would not be*, if the numerous railroad companies in the United States were *all* to do as a *few*—about 15 *only*—*have done*, viz: authorize the publication of their ordinary *advertisements* in the Journal at—or take as many copies of it as would be equivalent to—*twenty* dollars a year. Or if the *directors and shareholders*, who ought to know of all improvements as they are made, were *one in ten* of them to take it—or if one in a *thousand* of those who *travel* on railroads, and therefore ought to be able to see at a glance if the cars have a "*safety beam*," or other apparatus, to prevent disaster and *death*, in case of the *breaking* of an *axle*, were to pay for it we should be able to give a much greater quantity of reading matter and also, when important, to accompany it with the necessary illustrations.

Although but about *one-half* the number of railroad companies, or advertizers, indicated in our recent circular, (*thirty* at \$20 each,) as *necessary* to warrant the commencement of another volume, have authorized us to insert their advertisements; and notwithstanding the expenses during the past year, in consequence of the *increased size*, and *more frequent* publication, have *exceeded* the entire receipts from its subscribers—as we think we do not mistake the indications of the times, and have an unwavering confidence in the steady and rapid advancement of the railroad cause, to an extent little anticipated by the many—we have resolved to continue the Journal another year, and to endeavor to make it so *essential* to those interested in the cause, that they *cannot afford* to do without it. To enable us however to render it more useful to its readers, and at the same time to insure an income from it which shall

not only cover its necessary expenses, and enable us to give numerous engravings and other useful improvements, but also, *hereafter* to give us a *fair return* for our labors, we now put the price at *five dollars a year*; and we are willing to risk its future prosperity upon the ready acquiescence of its present subscribers in this—to us, and to the increasing efficiency of the work—*essential* measure, as we are sure the *gain* will be theirs.

To those directly interested in the construction and management of railroads, who have received it during the past *fourteen years*, or indeed any portion of that period, we do not fear to appeal for testimony as to its having been *worth its cost*; and yet we desire, at the same time, to express to them, with grateful emotions, our *abiding* obligations for their continued confidence and support through the long journey in which they have borne us company; and for the kindness with which they have overlooked our many errors. The future is before us, and we can only say that our best efforts will be given to make the Journal useful to the cause, and acceptable to its patrons. It will be hereafter issued on Saturdays, instead of Thursdays, at *five dollars a year in advance*.

The Atmospheric Railway.

We gave in number 51, Dec. 18, a letter from a gentleman long resident in London, in which he speaks of this new system of propulsion as gaining rapidly upon, and as likely, at an early day, to outstrip its immediate predecessor, the locomotive, as that wonderful machine did the stage-coach. We find, also, in our London journals of recent dates, descriptions, with illustrations, of six different plans, viz., *Clegg and Samuda's, Nickel's, Pibrow's, Mallet's, Julien and Vallerio's, and Pinkus, improved*. It is said that Mr. Pinkus, an American, formerly resident in Philadelphia, was the original inventor of the system, and that those now in use, and most of the numerous other plans proposed, are *modifications* of his original plan, whilst he has himself made much greater improvements upon that plan than any other person who has given attention to the subject, as his present plan dispenses with one of the main tubes, and yet allows the working of a *double track*, trains running in opposite directions at the same time.

A description of the plan of Clegg & Samuda, with illustrations, estimates of construction and working, with copious extracts from the investigation before the committee of Parliament, was published in the Railroad Journal for August and September, 1844. Since then several new lines have been authorized upon this plan, and the work has been progressing gradually upon them; and five miles have been put in successful operation on the Croydon and Epsom line, on which the movement is often at the rate of 40 to 50, and sometimes even 70 miles an hour. Such, indeed, has been the success of the experiments upon this line, that the works on other lines are urged forward with great spirit, and a portion of the South Devon atmospheric railway, which is to be 52 miles long, will soon be completed; and then we shall have additional means of testing its utility.

There is, we believe, at this time over *two hundred and fifty* miles of atmospheric railway in course of construction in England, and they are also making experiments, we understand, upon it in France, Hamburg, and in Austria; so that we shall not have to wait long to have it thoroughly tested, without incurring any expense ourselves. When the

system shall have been brought to a high state of improvement in Europe, we will in this country give it the "finishing touch," and then bring it into use upon some of our high grades and undulating lines. In order, therefore, to keep our readers apprised of the progress made with it in Europe, we shall republish from the English journals several of the plans now before us, with their illustrations, even though the cost of the wood engravings will be very considerable, not less probably than one hundred dollars, perhaps more. It is, however, too important a matter to be omitted, nor can it be well understood without the illustrations. We shall, therefore, give such as we deem best calculated to diffuse just ideas in relation to its value, and rely upon the readers of the Journal to sustain us in so doing.

We give "Mallet's" plan in this number, and shall have "Nickel's" ready for our next; and probably at an early day, "Pinkus's," with his *atmospheric locomotives and double track, with one tube.*

THE RAILROAD AND CANAL DISCUSSION IN VIRGINIA.—In no part of the United States does there seem to be so great a want of *practical working talent* as in Virginia. Her men of ability seem most of them, to have been occupied up to the present time, with federal politics, and to have given hitherto, little attention to subjects on which the welfare and prosperity of their state most essentially depend. It can be ascribed to this cause only, that there should be at this time any question among her leading men, as to the *kind of improvement* they should adopt for commanding a large portion, and *probably a larger portion than any other route can*, of the trade and travel of the west. It is evident, from an inspection of the map, that the shortest and most favorable route for a railroad between the Atlantic and western waters, is to be found along the valley of the *James and New rivers*, the waters of which interlock in the valley of Virginia thus admitting of a railroad throughout the whole distance of *easy grades* adapted, like the Reading railroad, to heavy trade as well as travel; and yet a discussion has been gravely going on for some months past in the Virginia newspapers, whether it be not better to construct in lieu of an improvement for which the state has a line *so peculiarly adapted*, which would be in every respect the preferable one, and by far the most economical, a continuous canal of doubtful practicability, and the summit level of which would probably sometimes be dry in summer; and also, in consequence of its great elevation, a larger portion of the year interrupted by ice than even our Erie canal, which would be of enormous lockage, and of corresponding expense!

Magna est veritas et prevalebit. We are glad to see truth has prevailed in Virginia, and that at a recent meeting of the James river and Kanawha company at Richmond, it has been determined to terminate the canal at Buchanan, and to apply to the legislature to authorize a railroad from that point by the best route to Guyandotte.

We trust this wise decision may be followed up by action by the legislature. We hope so for the country at large, as well as for the state of Virginia, for no work that we know of would do more to bind together the states of this confederacy, and therefore none is more strictly national than the one in question; while it would confer on Virginia, inappreciable benefits. Being the shortest and most favorable route for travel between the Ohio and Atlantic, and passing by the celebrated mineral springs of Virginia, it would become at once the great thoroughfare of western travel, while it would pour into the

James river canal the tobacco, the hemp, the flour and other products of the west, and receive from it the dry goods and merchandize destined to Cincinnati, Louisville and St. Louis, bought by western merchants in New York, and sent by water to Richmond, and thence by this great line of improvement to the Ohio river, as cheaply and as expeditiously as by any other route. Viewed in this aspect and as affording an important facility to the trade of New York, the improvement in question should be regarded as one of much interest to this city, by our intelligent merchants, who will, we hope, at the proper time, lend a helping hand, if necessary to promote it, in the event of its execution being devolved on an incorporated company.

If the citizens of Virginia are wise, they will prosecute at once this great work, which would pay a liberal per centage on its cost, render the millions expended on her canal immediately productive, vivify the interior of the commonwealth and build up her metropolis. Every day that she delays it, is so much done towards fixing the trade and travel of the west in other and less eligible channels, and thus impairing to a greater or less extent her great natural advantages and unrivalled facilities. We are encouraged by the language of the governor in his late message, a portion of which we give in a recent number of the Journal, to believe that the right spirit is coming over the people of Virginia and that action will follow.

Hartford, Danbury & New York Railroad.

We have received, and thank Messrs. Godwin, Howe and Cowles, "executive committee" for their able "Report on the business and surveys of the contemplated New York and Hartford railroad, via Danbury," accompanied by a map, with the description and estimates of the engineer Edward H. Broadhead, esq., of the cost of this truly important work. We say important, as it is designed to connect the city of New York with Boston by a—comparatively—short interior line, on which there is no chance of foreign aggression or interruption to passengers or the mails by drawbridges or ferries. Munitions of war and freight can be carried with certainty at all seasons. This is not all; the construction of this railway, in addition to placing us in direct connection with Boston from the heart of this city, will throw open to us the whole valley of the Connecticut river above Hartford, "numbering one million of population," and the valley of the Housatonic to Stockbridge. The importance and value of this trade it is difficult to estimate. Already a railway is completed from New Haven by Hartford and Springfield to Northampton; destined at no distant day to reach Burlington the Canada line, etc.

Our limited space this week, prevents us giving in full, the details of statistical facts relative to the manufactures of the five counties in connection with this road. These details, prepared with great care, are made up from the tables prepared by authority of congress in 1840. We give the results of table A, showing of the trade and manufactures of the counties of Hartford, New Haven, Litchfield, Fairfield and Tolland, viz:

Population in 1840.....	212,593
Factories, furnaces and mills.....	1,639
Persons employed.....	15,603
Value, hardware, machinery and metals.....	\$3,981,420
" wool, cotton, silk and mixed goods.....	2,987,063
" hats, leather, paper, etc.....	4,689,633
" cordage, carriages, furniture, etc.....	3,661,104
Total value of all manufactures.....	15,319,220
" capital invested in do.....	9,487,973

Number of mercantile houses.....	1,223
Capital in trade and commerce.....	6,057,955
Total capital in trade and commerce.....	15,545,928

Table B gives the statistics of the following sixteen towns, viz:—Hartford, Wethersfield, New Britain, Farmington, Bristol, Plymouth, Water-town, Woodbury, Waterbury, Middlebury, Oxford, Southbury, Newtown, Brookfield, Danbury and Ridgefield, through which the road passes, has

Population.....	51,223
Factories and mills of all kinds.....	425
Persons employed in do.....	6,386
Capital in manufactures.....	\$3,914,914
Value of manufactures.....	6,408,992
Capital in trade.....	2,680,995
Total capital in trade and manufactures.....	6,595,909
Total tonnage.....	89,041
Tons of exports.....	34,180
Tons of imports.....	54,861
Estimates of travel by public conveyances.....	98,519

Table C gives a similar exhibit of the following twenty-two towns, eleven north and a like number south and within two miles of the line, viz: East Hartford, East Windsor, Manchester, Glasten-bury, Middletown, Southington, Wolcott, Prospect, Bethany, Derby and Reading on the east and south and New Fairfield, Roxbury, Washington, Bethlem, Litchfield, Simsbury, Harwinton, Burlington, Avon, Bloomfield and Canton on the north of the line which presents the following results.

Population.....	46,146
Factories and mills of all kinds.....	477
Operatives employed.....	4,175
Capital in manufactures.....	\$2,58,910
Value of manufactures.....	3,435,929
Capital in trade.....	680,270
Total capital.....	3,039,180

By the foregoing tables it will be perceived, that, without Middletown and Derby, there will be 108,156 persons, one-third the population of Connecticut, 942 factories and mills of different kinds, employing 11,000 operatives, producing annually near \$11,000,000 of manufactures and employing \$10,000,000 of capital, that will, on the construction of this road to connect either with the Harlem or New York and Albany railroads, present sufficient local business to pay an interest of above seven per cent. on the liberal estimate of its cost and equipment, \$1,790,708.

The long travel from New York to Boston, by Norwich, Stonington and Point Judith is stated at 175,000 persons. Of this number only 27,222, are estimated in the following table of income and expenses.

16 towns on the surveyed lines; 11 towns east and south; 17 towns north—44 towns.

Existing tonnage of the route.....	134,959
Existing travel of the route.....	167,041
Amount to be counted on as through, tons.....	43,929
" " " passengers.....	63,968
Eastern long " " ".....	27,222
Total amount.....	\$211,033
Passengers and freight to and from the Housatonic railroad; estimated at.....	10,000
Mails, Express, etc.....	15,000

Showing for the gross annual receipts.....	\$236,033
Deduct from this expenses of every kind, for maintaining and operating road.....	82,500

And there remains for the net annual income of the railroad.....\$153,533 Which, upon a capital of two millions, shows an excess of \$3,533, over seven and a half per cent.

The committee truly say "that these estimates will be regarded as exaggerated, your committee can hardly believe, as they are based on business and travel that now exists." It is well known that railroads double and even quadruple business; in fact they universally create their own business. It is but reasonable to believe that this region, the bee hive of New England, will rapidly extend their manufactures on being placed within three or four hours of the commerce of this city. The report of the committee is replete with information. It extends over 29 pages and, we think, must command the attention of capitalists who desire a safe investment.

We are forced by our space, to be brief in noticing the report and estimates of Mr. Broadhead.—These estimates and minute details occupy 77 pages. The towns named show the general direction of the road, which will be found in no place to vary three miles from a direct line, starting from Hartford via Danbury, to intersect the valley line of the Croton river by Owensville, and its tributaries, as surveyed by the New York and Albany railroad company.

The distance from the city hall by White Plains, Owensville and South East, to Hartford, is 124 miles. By Ridgefield, Poundridge and Bedford, 120 miles. Both routes are preferable in grades and curves to either the New York and Erie or the Western railroads. On the latter there are 42 miles of from 40 to 83 feet grades per mile; 18 miles from 60 to 83 feet, and 14 miles from 74 to 83 feet. The smallest curve on the Western is 882 feet, while on the road to Hartford there is no curve of less than 1000 feet and in this state of 2000 feet radius. The following table is the summary of inclinations and distances via North Farmington, North Bristol and Danbury to South East.

Inclination in feet per mile.	Distance in miles.	Ascent in feet.	Descent in feet.
Level.	8-4753		
0 to 10	2-4250	8-225	6-000
10 to 20	3-7500	30-000	26-050
20 to 30	3-7000	72-700	17-600
30 to 40	2-6500	70-900	30-000
40 to 50	5-0750	66-000	175-100
50 to 60	37-8847	1357-250	902-450
Totals.	63-9600	1605-075	1157-200

Surveys and full estimates at liberal prices are made on three routes. We give the central estimate. Nos. 10, 11, 12, 13, 14 and 15, the sections west of the Naugatuck being the same on the several lines. The cost on the three lines varies from \$26,360 to \$29,174 per mile. The estimate for the central line is \$27,997.

Farmington North Route, by the way of North Bristol route to State line at South East.

No. of divis. forming complete route	Length.		Amount.
	Miles.	Chains.	
1	8	13	79,981 34
5	4	49-78	64,054 73
6	2	06	5,704 58
7	2	53	33,342 64
9	3	02	94,819 21
10	6	15	123,451 06
11	6	32	117,953 25
12	12	44	195,295 64
13	7	70	147,086 56
14	5	00	47,359 34
15	5	32	17,912 06
Fence.....			39,487 80
Land damage.....			50,000 00
Equipments.....			230,600 00
Superstructure.....			543,660 00
Totals.....	63	76-78	\$1,790,708 81
Per mile.....			\$27,997 32

This estimate is based on the weight of the iron for a T rail 50 lbs. to the yard, or 94½ tons to the mile, the price, \$70 being eight dollars per ton more than the estimate of professor Twining for the

sound route from New Haven to Harlem river.—Yet the average estimated cost for the interior, is less than by the sound route. The plan for the superstructure is to be the best now in use in this country, and to cost \$8,200 per mile for a single track.

It is proposed to build permanent iron bridges 120 feet span, after the plan of S. Whipple of Utica, over the Naugatuck and the Housatonic rivers.—The Naugatuck iron bridge is estimated to cost \$32,944; the Housatonic \$42,174.

As these bridges are above navigation the expensive draws required on the sound route will be avoided. It is estimated that the saving in time will make up for the difference in distance. The cost per mile according to prof. Twining's report, exceeds the interior route, above \$4000, with a much greater extent of perishable material in wooden bridges. This will be avoided by the plan of iron bridges. There is another consideration of no small importance to which we would draw attention, viz: the risk and delay to passengers, from the numerous draws on the sound route, while the coasting craft and steamboats that are to be interfered with by the railway, may get entangled in the draws so as to prevent certainly in the delivery of the mails.

There will be no difficulty in running, by the interior route, the distance to Boston within 9 hours. In every point of view, and particularly in the event of a war with England, this road for the defence of this city should claim the attention of the general government, as completing the only link that is wanting for a continuous line of protected sea board railway from Maine to Washington.

Central Railroad, and Banking Co. Ga.

We find in the Savannah Republican the annual report of R. R. Cuyler, president, and L. O. Reynolds, chief engineer of this company. From these reports we learn that the total receipts for the past year amount to \$368,450 75, or \$40,026 74 greater than the previous year and, had the transportation of cotton been equal, during the months of September, October and November, to that of the corresponding period of last year, the receipts would have been still further increased about \$30,000; but, owing to a short crop the receipts for the last quarter of this year fell considerably below those of last year, even though the first eight months exhibit a large increase.

This road is completed as far as authorized by its charter, 190½ miles to Macon; and has cost near \$3,000,000. The total indebtedness of the company is stated at \$669,334 63, and its resources, in addition to the railroad and its equipments complete, at \$239,233 71—or, deducting for losses or contingencies, say \$200,000. It is proposed to issue bonds, drawing 7 per cent, payable at a future day, for this indebtedness, and thus be able to commence paying dividends to the stockholders, and at the same time to create a sinking fund for the redemption of the debt; or, if not successful in disposing of the bonds, to pay off the debt directly from the earnings of the road, which, it is stated, may be done in three

years—and to issue stock to the shareholders for the amount of profits thus appropriated, which will increase the amount of stock from \$2,048,715 to \$2,600,000—an amount much below the actual value of the road and equipments; as its earnings will, in less than three years, pay 10 per cent on its cost. It would do this even without the benefit of the contemplated important extensions, viz: the completion of the Monroe road, 101 miles, to Atlanta, where it will connect with the Western and Atlantic road to the Tennessee river; and also the road either from Macon, or from Barnesville to Columbus, about 100 miles, which is resolved on, thus reaching the best cotton growing region of Georgia. With these extensions and connections completed, the Central railroad must become one of the most productive roads in the country, a result richly merited by the steady and never faltering perseverance of its proprietors and officers.

We give in this number the report of the president, which evinces the right spirit, in the right place; and we have not a doubt of their entire success, and of ultimate ample and satisfactory returns to the shareholders who have so long persevered in their noble work. We shall give in our next the report of the chief engineer, as we have received it, unless we receive a copy in pamphlet, with tabular statements of receipts and expenses. We like to see the details. They are always instructing.

For the American Railroad Journal.

Kyanizing Timber.

In the Journal of the 13th of November, you published an interesting account of a successful experiment on the Taunton and New Bedford railroad, by which 17,000 spruce sills, kyanized in the summer of 1840, were found upon a careful inspection last summer, to have endured the five years' use and exposure without any evidence of decay, or deterioration; "a single stick, selected indiscriminately, being taken out of the track, with a view to a critical examination. It was split open and presented as sound an appearance in every respect as new wood. The spike holes were sound, and the wood as elastic as the first day the spikes were driven."

The result of this invaluable experiment should be widely disseminated, and promptly acted on by the proprietors of every railroad that is intended for its legitimate use, and not merely as the base of a "fancy stock."

Nor is the experience acquired on the Massachusetts railway all we have to rely on in a question of such vital interest to the prosperity of railroads; you will find that there has been at least one other equally successful experiment made in the state of Maryland, and of two years' anterior date, as appears from the following notice, by the committee on publication, in the Journal of the Franklin Institute, February, 1844, page 99, viz:

"James Herron, civil engineer, has deposited at the hall of the Franklin Institute, a section of a Kyanized chestnut sleeper from the Baltimore and Susquehanna railroad, which was prepared in July,

1838, laid in August of the same year, and taken up for the purpose of examination in August, 1843, having been in actual service for five years, as is attested by Robert S. Hollins, secretary for the company."

"This interesting section, which may be seen at the hall, is in a perfect state of preservation; and it is stated by the officers of the company, that all the *Kyanized* sills are, without a single exception, as sound as the specimen referred to, while the unprepared sleepers of the same lot of timber have all decayed."

"The great benefit which seems to have been experienced in the case before us, from *Kyanizing* chestnut sleepers, is strictly conformable to experience upon several English railways; but this is the most striking example of the advantage of mercurial antiseptics that has fallen under our notice in the history of American railways, and on that account we call attention to it."

Besides the section above referred to, Charles Howard, Esq., president of the company, had, at Mr. H.'s instance, three more of the *Kyanized* sills taken up in January, 1844, and the half of each sill attested by the secretary of the company, forwarded to the Institute, where they may now be seen.

Those *Kyanized* sills are much harder than chestnut wood is known to be in its natural state, bearing a strong resemblance to oak in resisting the saw, and edge tools. They have been closely scrutinized by powerful microscopes, but not a trace of decay is discoverable; and a galvanic test, applied by a member of the Institute, showed the presence of the mercury in the centre of the sill.

The directors of the Baltimore and Susquehanna railroad, being convinced by this experiment, of the entire efficacy of the mercurial process, and having also ascertained, by extensive trials on large quantities of timber, that the sulphates of copper and iron tended to the destruction of the timber, instead of its preservation, they had suitable tanks constructed about eighteen months ago, and commenced the regular preparation of timber with corrosive sublimate.

For this valuable experiment, we are indebted to Isaac R. Trimble, Esq., C. E., who was then chief engineer of the Baltimore and Susquehanna road.

South Carolina was, however, probably the first to make an experiment of Mr. Kyan's process, as will be seen from the report of T. Tupper, Esq., president of the Charleston railroad, bearing date the 30th June, 1838, in which it is stated, "that experiments were then being made under his direction, for the purpose of testing the efficacy of a preparation of corrosive sublimate in giving greater durability to timber used in the construction of railroads, etc."

Mr. T. goes on to describe the success of the process in England: but at what time in 1837 or 1838 he commenced those experiments does not appear.

The result of those experiments we may gather, though rather imperfectly, from the official report of Col. James Gadsden, president of the South Carolina railroad, [which is now the title of the corporation,] to the stockholders, February 11th, 1845. He states the average durability of pine timber in a railroad does not exceed five years; and goes on to say:

"The durability of timber is a subject of deep interest to railroad companies; particularly as timber superstructures are beginning to claim a preference to those made of materials of a less yielding or elastic character; and has engaged the attention for many years of the successive boards of directors of the South Carolina canal and railroad company.—The process of *Kyanizing*, which was tested to a small extent, seemed to act favorably on the fibres of the

wood to which applied; but the problem yet remains unsolved, whether the additional durability imparted is compensated by the extra expense incurred. The experiment with the mineral process recommended by Dr. Earle, and for which an appropriation was made by the South Carolina railroad company, Mr. Lythgoe, [superintendent of road,] thus remarks:—"I regret to say the process of Earlizing sap timber will not answer the purpose intended, as we are now compelled to take all we have used out of the road, as soon as we possibly can, in consequence of its having become so soft and decayed, as to allow the iron to imbed into it, thereby injuring the iron to a considerable extent."

In all those early experiments, a very extravagant price was paid for corrosive sublimate, and if the management of the process be not conducted with care and skill, the cost of preparing the timber will be doubled or even trebled; as may be seen from the official reports of the United States engineers, in which it is stated to have cost, for the common soaking of the timber, from 12 to 18 cents per cubic foot; whereas, it will be seen in the American Railroad Journal, of the 27th of November, and in the Journal of the Franklin Institute, of December, 1845, Mr. Herron states the cost of impregnating the timber for his patent track upon the Reading railroad, in the more effectual manner by hydraulic pressure, at five and one-twelfth cents per cubic foot.

PRO BONO PUBLICO.

We are indebted to an esteemed correspondent for the foregoing communication in relation to the results of experiments in *Kyanizing*; and we shall feel greatly obliged to Mr. Howard, president of the Baltimore and Susquehanna railroad company, and to Col. Gadsden, president of the South Carolina railroad company, for any additional facts which they may possess in relation to this important matter. Seven years' experience and over, which they have both had in the use of Kyan's process, must have put them in possession of information of immense importance to railroad companies and others; and, as we recently gave currency to doubts as to its success and value, we now desire to give the utmost publicity to the results of experience, both in this country and in Europe. We have recently examined the specimens of chestnut cross ties, from the Baltimore and Susquehanna railroad, referred to above, now at the museum of the Franklin Institute, and found the timber as perfect, and apparently more solid than newly seasoned timber of the same kind. It was however taken out of the road more than two years since, and has not during that period been in a situation to decay as when in the track. We, therefore, renew the request for information from those who have made the experiments.

We have now in our possession a cross section cut from one of the sills, deposited with the Franklin Institute—for which we are indebted to the kindness of Wm. Hamilton, Esq., actuary of the institute—and shall be pleased to exhibit it to those who take an interest in the matter.

Boston Water Commissioners Report.

We have received, through the politeness of John B. Jervis, Esq., one of the board, a copy of the report made by the commissioners to the city council, in relation to supplying the city of Boston with pure water.

Examinations and estimates of three different sources of supply are given, together with chemical examinations of eleven differ-

ent samples of water, by Benjamin Silliman, Jr., of Yale college, which render the report exceedingly valuable in a scientific point of view, as well as interesting to the people of Boston, who will be able hereafter to know the qualities of the water used by them, as well as the source and cost of supply. Crowded as our columns are we give the following extract from the report, showing the comparative cost, and supply, of the three sources, by which it will be seen that the Boston people can drink "good and wholesome water" at a much cheaper rate than we of Gotham.—Much good may it do them; they deserve, for their enterprize and public spirit, all the advantages they enjoy, or can command.

From the Report of John B. Jervis and Walter R. Johnson, Esqrs., Commissioners for supplying the City of Boston with pure Water.

The commission has not been able to give any very specific attention to the question of damages for land and water rights. The former cannot be very important on either line, at least the amount cannot be material to a decision on the question as to which should be adopted. In regard to the latter, it was our intention to examine the facilities for constructing a compensation reservoir to supply Concord river with an equivalent for the water diverted from Long Pond. But time did not permit. It appears, however, from the general formation of the country, and from information obtained under the authority of your committee, that there are facilities abundantly adequate for this object. This method of compensating for the diversion of a running stream was successfully adopted in the works for supplying the city of Edinburgh with water. The stream there taken to supply the city was occupied to drive mills below the point where the water was taken, and compensation was made by furnishing an equal quantity by means of a reservoir. This is no doubt the true method for compensating Concord river, for the case under consideration, and it is believed to be of easy accomplishment.

The conditional contracts which we are informed by your committee have been made by the agent employed for this purpose, provide ample sites for such compensation reservoirs as will be necessary.

From the information above stated, and the knowledge we have of the land that will be required, a general estimate has been made, that will not, probably, be very far from the actual cost of the several routes.

In relation to Long Pond.

The proposition of Mr. Knight for the outlet mill power	\$100,000
The proposition for sites suitable and regarded sufficient for compensation reservoirs	20,000
Estimated cost of works to improve said reservoirs	10,000
Land required for aquaduct and reservoir	35,000
Total for Long Pond plan	\$165,000

In relation to Charles River.

Water right by proposition of the owner at Watertown	50,000
Land required for aquaduct and reservoir	20,000

Total for Charles river plan \$70,000

In relation to Spot Pond.

Proposition of the owner	60,000
Land required for aquaduct and reservoir	15,000

Total for Spot Pond plan \$75,000

It would not be necessary to take the whole stream, either at Long Pond or Charles river, in the first instance, or for some years to come. But the city should have the entire control of the stream, from which it derives its supply. Any partner or joint ownership will entail controversies and embarrassments, that will more or less interfere with the enjoyment of the city portion of the right, and which should not be permitted in a matter of so much importance as the proposed work. We therefore recommend the extinction of the whole water right at the outlet of Long Pond, or of Charles river, whichever shall be adopted.

Adding the preceding estimate for land and water rights, the total cost of delivering the water of the several sources on Beacon hill will be as follows:—

<i>Spot Pond.</i>	<i>Estimate.</i>	<i>Quantity</i>
Gen. estimate of work,	\$561,897	of water in
Estimated cost of land and water rights	75,000	wine gal's.
Total	\$636,897	per day,
		1,500,000

Charles River.

*General estimate	\$1,923,536	
Estimated cost of land and water rights	70,000	
Total	\$1,993,536	7,500,000

Long Pond.

General estimate	\$1,681,599	
Estimated cost of land and water rights	165,000	
Total	\$1,846,599	7,500,000

Reducing the above to their respective rates of cost for 1,000,000 of gallons per day, we find the result as follows:—

Cost from Spot Pond per 1,000,000 is	424,598
“ Long Pond “	246,213
“ Charles River “	265,805

From the above it appears that to provide for a supply of 7,500,000 gallons per day,

* The cost of introducing 7½ million gallons per day from Charles river, exclusive of land and water damages, is—

To Corey's hill	\$1,280,990
To Corey's hill reservoir	53,244
From Corey's hill reservoir to the city	589,402

Total to Beacon hill \$1,923,536

The cost of introducing 7½ millions per day from Long Pond, exclusive of same damages, is—

To Corey's hill	\$1,038,953
To Corey's hill reservoir	53,244
From Corey's hill reservoir to the city	589,402

Total to Beacon hill \$1,681,599

each million gallons obtained from Spot Pond† will cost \$158,793 more than the same quantity will cost from Charles river, and \$178,385 more than the same quantity will cost from Long Pond.

Herron's Patent Railway Track.

We desire to call the attention of railroad companies to the advertisement of Mr. James Herron, C. E., on our first page. It relates to a matter of great and growing importance; and, if it possesses the merits claimed for it, deserves and will command the attention of those most interested, (the stockholders,) in its adoption. We examined, in 1844, a short piece of track on the Baltimore and Susquehanna railroad, laid upon this plan by Mr. Herron, which had been in use for several years, with very little expense of repairs, and was still in good condition; we have also recently passed over, and examined with some care, three miles of track laid by Mr. Herron on the Reading railroad, over which more than 820,000 tons of coal had passed during the last year, which appeared to be in at least as good condition as the other part of the same track, laid in the ordinary way, with crossings on rubble stone; and, indeed, when passing over it in the cars, we could perceive a decided difference, there being much less jar, and the cars running more quietly and pleasantly, even though the other part of the road is in excellent adjustment, considering the tonnage it has borne.

This three miles of track has been kept in adjustment, since the 9th of April last, by two common laboring men only; and I was told by the foreman that he could remove a timber from the track, and replace it in a few minutes, without interfering with the trains.

[Williamsport and Elmira Railroad Convention.]

Pursuant to notice, a convention of delegates from Pennsylvania and New York assembled at Elmira on the 3d instant. David Hudson, of Geneva, was president, assisted by several vice-presidents; and A. S. Thurston and L. Covell, of Elmira, and James Freeland, of Philadelphia, were secretaries.

Mr. Chester B. Evans presented to the meeting an able report, which concluded with the following resolutions:—

Resolved, That in the selection of a railroad route, the public interest, as well as the interest of the stockholders, require that the route presenting the most level surface and the shortest distance should be adopted, provided the object intended by the construction of the road is thereby attained.

Resolved, That the contemplated road from the village of Williamsport to the village of Elmira, and the continuation of the same road to the head of the Seneca lake, will

† It will be remembered that Spot Pond can furnish but 1,500,000 gallons per day.

connect at the most important points the New York and Erie railroad, the canal, the Buffalo and Albany railroad, and lake Ontario, at Sodus bay, with the canals and railroads of Pennsylvania.

Resolved, That in a national point of view this road is of great importance, as it is the most direct route from the northern frontier to the capital of the Union.

Resolved, That the importance of reaching by railroads and canals the coal and iron regions of Pennsylvania, is becoming more and more apparent to the citizens of the central and western parts of the state of New York and the counties bordering on lakes Erie and Ontario; and that while we have no objection to the efforts now made to accomplish this object by other routes, and should rejoice to see railroads constructed for the accommodation of the public, we are convinced that nature has designated this route as the most direct, the cheapest, and affording the greatest facilities for trade, commerce and travel.

Resolved, That a railroad from Geneva, at the foot of Seneca lake, to the navigable waters of Sodus bay, on lake Ontario, a distance of twenty-two miles, would form an important link in the great chain of communication between the north and south, and afford new and great facilities for trade and commerce.

The Western and Atlantic Railroad.

We noticed, a few days since, a singular blunder in the publication, by a Georgia paper, of the report of the engineer on this road for 1844, as the report for 1845. The Georgia Journal of the 21st ult., published at Milledgeville, contains the true report just made to the governor, and it is altogether a different document from that published in the Savannah Republican. We see in it nothing indicating a necessity for a suspension of the prosecution of the work to Chattanooga. The engineer urges the importance of extending the road at once to Cross Plains, and that he looks to a connection ultimately with a railroad reaching from Nashville to Chattanooga is fairly to be inferred, from the fact that he states that at the end of this year a traveller leaving Washington city for Nashville may reach there by this road in two days less time than by any other route. We are gratified to find that there is nothing in the report calculated to interfere with the vigorous prosecution of the proposed road from Nashville to Chattanooga.

Worcester Railroad.—A meeting of this corporation was held yesterday afternoon, at the United States hotel. The committee appointed to take into consideration the expediency of uniting with the Western company, reported unanimously in favor of the measure, and the report was ordered to be printed in pamphlet form, for distribution among the stockholders. A committee of five, consisting of Messrs. Walker, Hathaway, Denny, Andrews and Leeds, was then appointed to make a detailed report of the cost, condition and prospects of the two roads; and the directors were instructed to cause this latter report also

to be printed, and appended to the former.— The meeting then adjourned to the second Monday in January. The Western railroad corporators meet this afternoon upon the same subject, and at the same place.

Cleveland and Columbus Railroad.—Mr. C. Williams, the engineer engaged in the survey of this road, has so far completed the examination of the two principal routes that he is enabled to give the length and grade of each. That which he terms the western route, passes through Ashland, and runs 3½ miles north of Mansfield, in Richland county, the present terminus of the Mansfield and Sandusky city railroad. The distance is estimated at 141 miles. The eastern route passes through Wooster, Loudonville and Mt. Vernon. The length of this line is 143 miles. Mr Williams expresses himself highly satisfied with both routes; they offer facilities greatly beyond his expectations. The maximum grade on either does not exceed 40 feet to the mile in overcoming the summit, which is 728 feet above the level of the lake, and in no case will it be necessary to make a curve of less than 3000 feet radius. We consider the gentlemen engaged in this enterprize extremely fortunate in securing the services of Mr. Williams; his judgement and enterprize will secure them all the advantages which the country over which the route passes may offer.—*Ohio State Journal.*

Railroad Grievance.—Complaint is made of the refusal of the Camden and Amboy railroad company to carry freight on the road from Trenton to New Brunswick. All transportation between the towns on the New Jersey railroad and the towns west of New Brunswick is taken round by New York and the Amboy road. The Trenton Gazette says, "before the railroad was made we could go to New York for \$1 12½ or \$1 50. We are now charged \$2 50. It costs us \$1 25 to go to New Brunswick. Our trade with New York is greatly increasing, but the high fare, and the rules of the company respecting freights, are serious drawbacks upon it.

Railroad Iron.—We learn from the Danville Intelligencer that the Montour iron co. have supplied the quantity of railroad iron wanted at this time by the Lancaster and Harrisburg railroad company, and are now making and forwarding to the city of New York, for the Erie railroad company. They also have contracts to supply iron for some short roads in Schuylkill county; also, a road in one of the eastern states. For some time past the work of making railroad iron at the works of the Montour company has proceeded day and night, with remarkable steadiness, producing rails that are as perfect as it is possible to make them.—*Philadelphia Ledger.*

State Patronage to Railroads.—A bill has been introduced into the legislature of South Carolina, which provides that whenever any body of stockholders shall subscribe three-fifths to the stock of any railroad company, then the state will aid by a subscription to the other two fifths. The bill met with considerable opposition in the house of representatives—the opponents urging the dangerous

tendency of pledging the faith of the state to such enterprizes. The friends of the bill, on the other hand, entered largely into the arguments of public benefit which would accrue from its passage. The bill was finally passed, and sent to the senate, by a majority of 6 votes only—58 yeas and 52 nays.

New Railroad Project.—The city council of Natches have called a meeting of the citizens of that place for the purpose of inviting examination into the expediency of extending the great line of Atlantic railroad, commencing at Savannah or Charleston, S. C., and ending at Montgomery, Ala., so as to strike Natches. The immense trade and travel, says the Free Trader of that city, which will soon be setting towards Texas, will make a project of this kind not only feasible, but perfectly practicable, of great convenience to the public, and profitable to the stockholders.—*Macon Telegraph.*

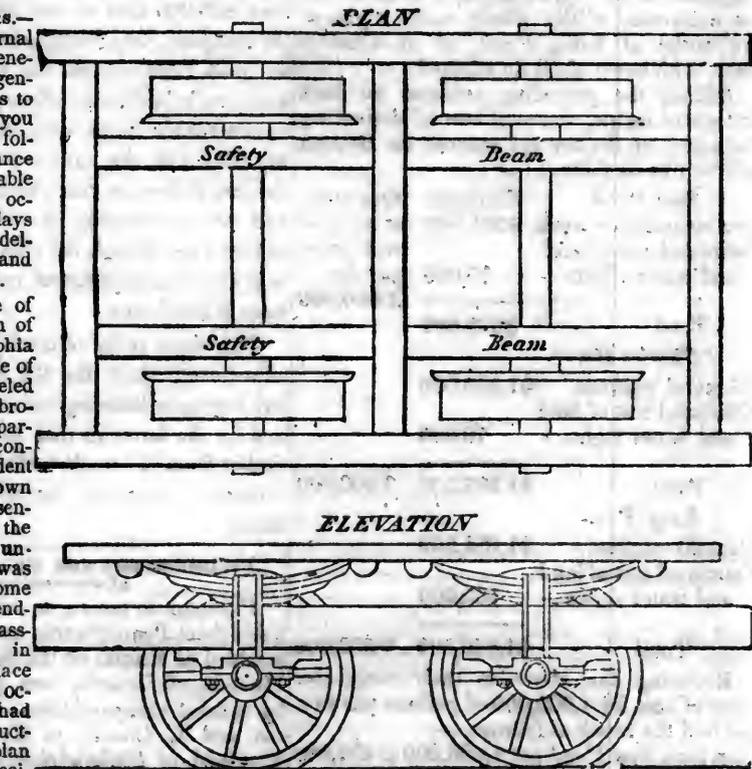
New Haven and Hartford, and Western Railroads.—The arrangements for the daily conveyance of passengers between Albany and New York, have already been announced. We are now authorized to say, that when, for any cause, the Hartford train does not connect, at Springfield, with the Boston train for Albany, an extra train will be immediately despatched with the New York passengers for Albany.—*Albany Citizen.*

Connecticut River Railroad.—The railroad from Springfield to Northampton is now completed, and a locomotive went over the route to Northampton meadows for the first time on Friday last. The cars commence running regular trips this week, connecting with the morning and afternoon trains at Springfield, to and from Boston, Albany and New York. The fare between Northampton and Springfield has been fixed at 50 cents.—*Springfield Gazette.*

KITE'S PATENT SAFETY BEAM.

MESSRS. EDITORS.— As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheeled passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.



Wilmington, Del., Sept. 23, 1840.
The undersigned takes pleasure in attesting the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.
In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.
JOHN FRAZER, Agent,
GEORGE CRAIG, Superintendent,
JAMES ELLIOTT, Sup. Motive Power,
W. L. ASHMEAD, Agent.
A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 1 Hanover st., N. York.

NEW YORK AND HARLEM RAILROAD COMPANY.—Winter Arrangement.

On and after Monday, November 3d, the cars will run as follows: Leave City Hall for Harlem (125th street,) Morrisiana, Fordham, Williams' Bridge, Hunt's Bridge, Underhill's Road, Tuckahoe, Hart's Corners, and White Plains—7:30 and 10:30 a.m., and 1 and 3:30 p.m.

Extra trains for Yorkville, Harlem, Morrisiana, Fordham, and Williams' Bridge, leave 27th street 7 a.m. for Williams' Bridge. Leave City Hall 9 a.m. (to Harlem only) and 11:30, 2:30, and 4:30 p.m. for Williams' Bridge.

Leave White Plains for City Hall—8:10, 11:10 a.m., and 1:45, 4:10 p.m.

Leave Tuckahoe for City Hall—8:20, 11:20 a.m., and 1:55, 4:20 p.m.

Leave Williams' Bridge for City Hall—7:45, 8:45, 11:45 a.m. and 12:45, 2:15, 3:45, 4:45, and 5:45 p.m.

Leave Morrisiana for City Hall—8:10, 9:10, and 10 a.m., and 12:10, 1:10, 2:40, 4:10, 5:10, and 6:10 p.m.

The freight train will leave City Hall at 12:45 p.m. and leave White Plains at 11:10 a.m. All freight must be at the City Hall between the hours of 10:30 a.m. and 12:30 p.m. The White Plain trains will stop, after leaving the City Hall, only at the corner of Broome street and the Bowery, Vauxhall Garden and 27th street.

An extra car will precede each train, 10 minutes before the time of starting from the City Hall, and will take up passengers along the line.

The City Hall and 27th street line will run every 6 minutes from 7:30 a.m. to 8 p.m.

The City Hall and 27th street night line will run every 20 minutes from 8 to 12 o'clock.

On Sundays the trains will be regulated according to the state of the weather.

THE LONDON RAILWAY RECORD.
Edited by Mr. JOHN ROBERTSON, A. M., (connected from the commencement with the Weekly Railway press of England.)

The *Railway Record* is acknowledged to be the leading English Railway Journal, and is published twice a week in London, namely on Wednesday and Saturday. It contains copious and correct reports (by special reporters) of all railway meetings in the United Kingdom; ample Share Lists and Traffic Tables, showing the length, cost, capital and selling prices in the principal markets, with Editorial articles on the leading Railway topics of the day. The *Railway Record* contains also, a complete resume of French, Belgian and other foreign Railway affairs.

Subscriptions 13s. per quarter, to be transmitted in advance to Messrs. Dawson and Sons, Ca^o London. Office 153 Fleet street, London.

BOSTON COURIER, DAILY, SEMI-Weekly and Weekly.

The *Daily* edition of the *Courier*, presents to merchants and others, an extensive medium of advertising. The circulation of the *Semi-Weekly Courier* (published on Mondays and Thursdays) is believed to be more extensive than that of any other similar Boston Newspaper. This publication embraces all the reading matter of the *Daily*, the Foreign and Domestic Markets, Review of the Boston Market, Prices current, and Ship News, prepared with great accuracy. The *Weekly Courier* contains as much of the matter of the *Daily* as can be crowded into a sheet of the same size, without ship news, prices current or advertisements.

Our extions to obtain and publish authentic information on all topics proper for the columns of a newspaper,—the state of trade, the prices of merchandise, the current news of the day, and the political movements in the various sections of the country—will not be abated. The marine department of the *Courier* has been inferior to none in copiousness or accuracy of detail, and it will be our endeavor maintain its reputation in this respect.

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For the *Weekly Courier*, for one year..... 2.00
JOSEPH T. BUCKINGHAM.
EBIN B. FOSTER.

BALTIMORE AND OHIO RAILROAD.

MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7 and

Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.
Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13 1y

CENTRAL RAILROAD-FROM SAVANNAH TO MACON. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods..... 13 cts. per cubic ft. On brls. wet (except molasses and oil).....\$1 50 per barrel. On brls. dry (except lime).... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred. On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd. On molasses and oil.....\$6 00 per hhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, 40 Gen'l. Supt. Transportation.

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m. Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 26 miles. Fare \$1 25. On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort. The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above. 35 1y

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BOSTON AND PROVIDENCE RAILROAD.

Passenger Notice. Winter Arrangement. On and after Monday, Nov. 3, the Passenger Trains will run as follows:

For New York—night line, via Stonington.—Leaves Boston every day, but Sunday, at 4½ p.m.

Accommodation trains, leave Boston at 8 a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m.

Dedham trains, leave Boston at 9 a.m., 3, 5½ and 10 p.m. Leave Dedham at 8 and 10½ a.m., and 4½ and 7 p.m.

Stoughton trains, leave Boston at 12 m. and 4 p.m. Leave Stoughton at 8:20 a.m.; and 2½ p.m.

All baggage at the risk of the owners thereof.

N.B. The last train to and from Boston and Dedham, will be omitted in case of a severe snow storm. W. RAYMOND LEE, Supt. 31y

BRANCH RAILROAD and STAGES Connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NEW YORK AND ERIE RAILROAD

LINE. For Middletown, Goshen, and intermediate places. Two daily lines each way, as follows:

For passengers, the new, and commodious steamboat St. Nicholas, Capt. Alex. H. Shultz, will leave the foot of Duane street daily, [Sundays excepted,] at 7½ o'clock, A.M., and 5 o'clock, P.M., through in five hours. Returning, the cars will leave Middletown at 6, A.M., and 4½, P.M. For further particulars inquire of J. Van Rensselaer, Agent, corner of Duane and West streets.

H. C. SEYMOUR, Superintendent. Stages run from Middletown daily, in connection with the afternoon line, to Bloomingburg, Wurtsboro, Monticello, Mt. Pleasant, Binghamton, Owego, Port Jervis, Honesdale, Carbondale, etc.

On Monday, Wednesday, and Friday, to Dundaff, Montrose, Friendsville, Lenox, Brooklyn, etc. 31 1y

BALTIMORE AND SUSQUEHANNA

Railroad. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a.m., and arrives at 6½ p.m. Arrives at York at 12½ p.m., and leaves for Columbia at 1½ p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62½. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3½ p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc.

Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day on any passenger train.

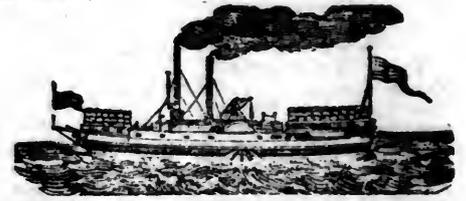
D. C. H. BORDLEY, Supt. Ticket Office, 63 North st. 31 1y

DAVIS, BROOKS & Co., 30 WALL ST.

Have now on hand and for sale, 200 tons 2½ x ½ inch Flat punched Rails, Bars 18 feet each. 100 tons Heavy Edge Rails, 90 tons per mile. 30 tons 2½ x ½ inch Flat Rails. Also—A STEAM PILE DRIVER, built by "Dunham & Co." which has never been used, and cost originally \$5000. 320 2m

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 2.]

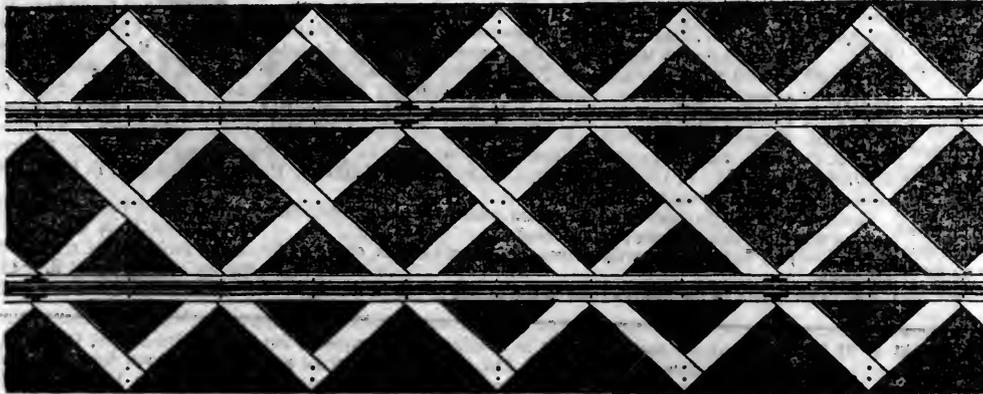
SATURDAY, JANUARY 10, 1846.

[WHOLE No. 498, VOL. XIX.

W. R. CASEY, CIVIL ENGINEER, NO. 23 Chambers street, New York, will make survey estimates of cost and reports for railways, canals, roads, docks, wharves, dams and bridges of every description. He will also act as agent for the sale of machinery, and of patent rights for improvements to public works.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting.

HERRON'S IMPROVEMENTS IN RAILWAY Superstructure effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for *Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON,
Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill; etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
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ENGINEERS and MACHINISTS.

J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
KITE'S Patent Safety Beam. (See Adv.)
FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
ROSS WINANS, Baltimore, Md.
CYRUS ALGER & Co., South Boston Iron Company.
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PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, *Agent.*

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, *Agent.*

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Supt Hartford and New Haven Railroad; W. R. M'Kee, Supt Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Supt New Jersey Railroad Trans. Co.; J. Elliott, Supt Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Supt Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Supt Macon Railroad, Macon, Ga.; J. H. Cleveland, Supt Southern Railroad, Monroe, Mich.; M. F. Chittenden, Supt M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, or to Messrs. Baldwin & Whitney, of this city, will be promptly executed.

FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

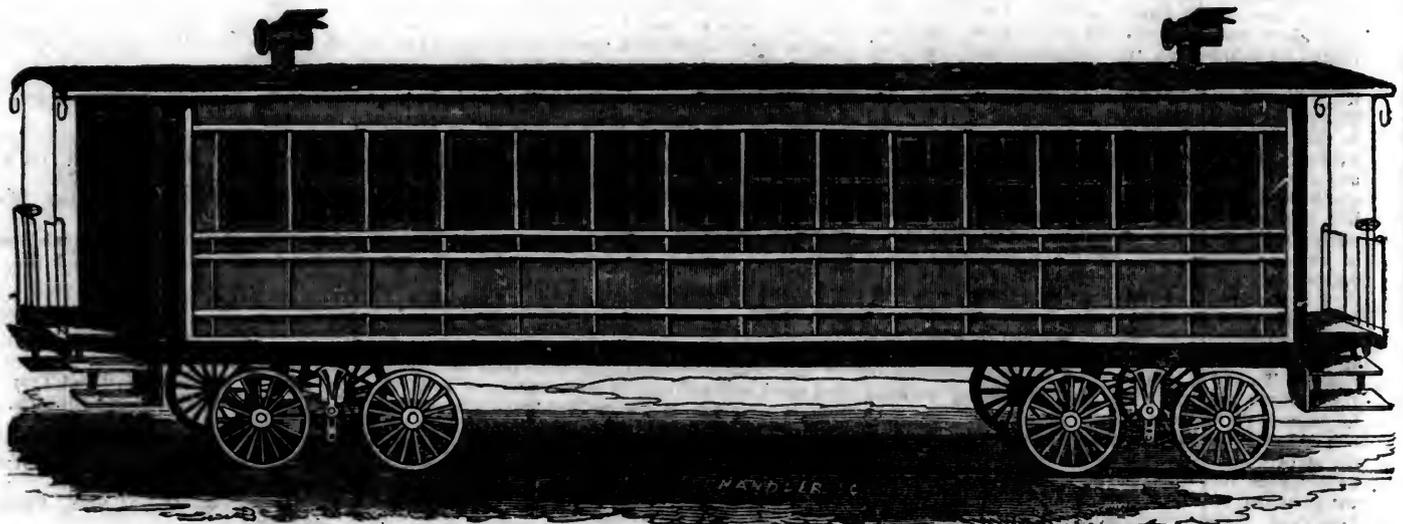
*** The letters in the figures refer to the article given in the Journal of June, 1844.

ja45



BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern, and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All order punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

RAILROAD IRON AND LOCOMOTIVE
 Tyres imported to order and constantly on hand
 by **A. & G. RALSTON**
 Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
 Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,**
 President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS.
 etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
 Albany, N. Y.
 Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

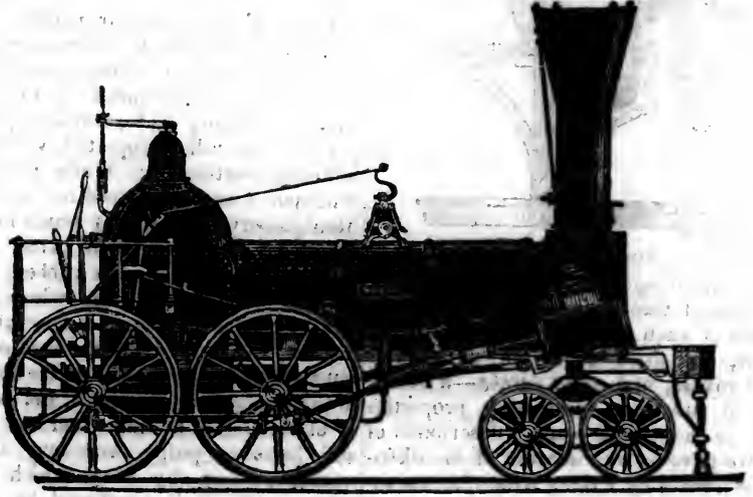
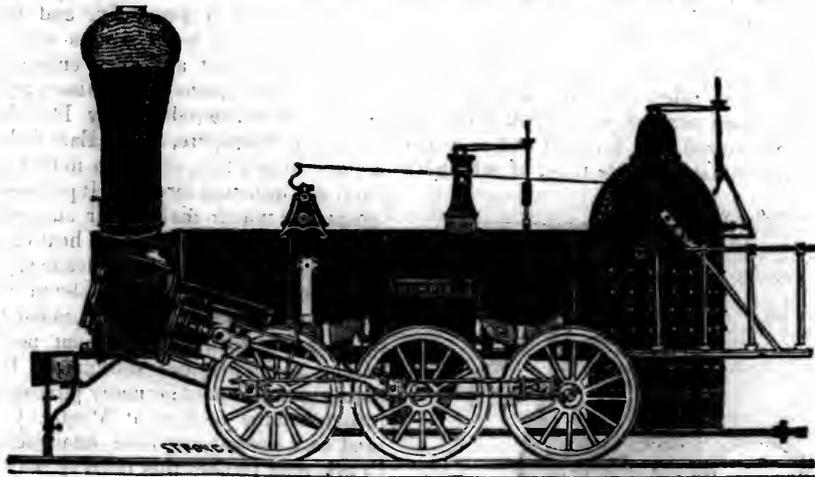
TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.
WELDED WROUGHT IRON TUBES
 From 4 inches to 12 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Corks, T. L. and other fixtures to suit, fitting together with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER PLACES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS,
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NORRIS' LOCOMOTIVE WORKS.
 BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	Number	Diameter of Cylinder	Stroke
1	15 inches	20 inches	Stroke.
"	2,	14	" " " × 24
"	3,	14½	" " " × 20
"	4,	12½	" " " × 20
"	5,	11½	" " " × 20
"	6,	10½	" " " × 18

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order; and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

RAILROAD IRON.—THE MARYLAND AND NEW YORK IRON AND Coal Company are now prepared to make contracts for Rails of all kinds. Address the Subscriber, at Jennon's Run, Allegany County, Maryland,
WILLIAM YOUNG,
 President.

TO IRON MASTERS.—FOR SALE.—MILL SITES in the immediate neighborhood of *Biluminous Coal and Iron Ore*, of the first quality, at Ralston, Lyoming Co., Pa. This is the nearest point to tide water where such coal and ore are found together, and the communication is complete with Philadelphia and Baltimore by canals and railways. The interest on the cost of water power and lot is all that will be required for many years the coal will not cost more than \$1 to \$1 25 at the mill sites, without any trouble on the part of the manufacturer; rich iron ore may be laid down still more cheaply at the works; and, taken together these sites offer remarkable advantages to practical manufacturers with small capital. For pamphlets, descriptive of the property, and further information, apply to Archibald McIntyre, Albany, to Archibald Robertson, Philadelphia, or to the undersigned, at No. 23 Chambers street, New York, where may be seen specimens of the coal and ore.
W. R. CASEY, Civil Engineer,

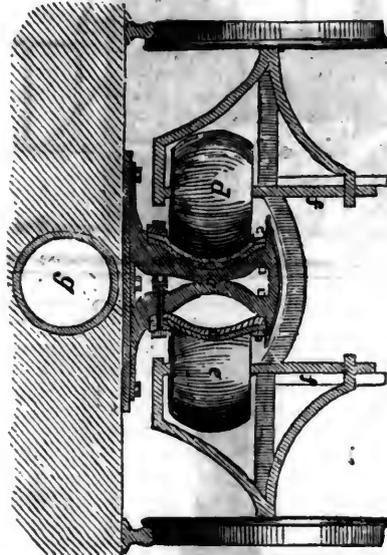
VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet; with the following buildings thereon standing.
 Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.
 Pattern shop, 35x32 feet, with lathes, work benches, &c.
 Work shop, 86x35 feet, on the same floor with the pattern shop.
 Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.
 Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.
 Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.
 Locomotive shop, adjoining main building, fronting on Parker street, 51x25 feet.
 Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:
 Boiler house 50 feet long by 30 feet wide, two stories.
 Blacksmith shop, 49 feet long by 20 feet wide.
 For terms, apply to **HENRY ANDREWS, 48 State st.,** or to **CURTIS, LEAVENS & CO., 106 State st., Boston,** or to **A. & G. RALSTON & Co., Philadelphia.**
CYRUS ALGER & CO., South Boston Iron Company.

Mr. Hudson's Railway Policy.—There is so much of truth, and justice, and good liberal sense in Mr. Hudson's policy that we cannot refrain from adding our testimony to that of the able editor of the Railway Chronicle in the following paragraph in its favor, and to say that we hope others may profit by it. We have marked Mr. Hudson's address, on taking his seat at the board of the Eastern Counties' from which we shall make some extracts if we can spare room for them.

Mr. Hudson's speech at the Eastern Counties realizes all the hopes we held out to the shareholders, when we earnestly advocated his elevation to his present commanding position as chairman of a continuous group of lines extending nearly from the centre of Scotland to the heart of London! We will not do his speech the injury of garbled extracts, nor will we load it with eulogy. We simply recommend its perusal to our readers as a fair epitome of the principles of the Hudson policy. "Benefit the public, and you benefit yourselves," "Promote your own interests, but carry with you the interests of all whom it affects." "Do good to yourselves, but take others along with you in your prosperity, instead of thriving at their expense." This, which we have uniformly advocated as the do-as-you-would-be-done-unto policy, is Mr. Hudson's; and it is the secret of his success. So long as he adheres to it he deserves prosperity and the praise of all good men.

Nickell's System of Atmospheric Propulsion on Railways.—Great as has been the advance of science during the past fifty years, and much as it has tended to the altered condition and habits of society, daily experience would lead us to believe—what is, indeed, by many broadly asserted—"that we are yet only in our infancy;" that although the immutable laws of nature may be generally understood, and the power which they offer for the use of man known, still that they are most erroneously applied, at enormous loss, expense, and danger, where all should be harmony, economy, and safety. To our present railway system these observations most particularly apply; the first application of wooden rails in coal districts, for facilitating the horse's draught with his heavy burden, led to the development of the system to supersede the common roads. The invention of the locomotive engine, the most ingenious and splendid application of steam power since the days of Watt, and which will equally immortalize its inventor, succeeded; and improvement on improvement followed, until at the present day, after a lapse of only fifteen years, sixty or seventy miles per hour has been accomplished—while, in the early stages of its history, it was boldly laid down by some engineers that it could never reach twenty; but, with all its promising advantages, it was soon discovered that enormous expense and danger were its characteristics. Other systems of propulsion were sought for, the power of the atmosphere was applied, and fully carried

out, and numerous inventions, consisting of the use of both compressed and rarified air, have since been patented in nearly every kingdom and state both in the old and new worlds. Among these is the one under notice, having neither longitudinal valve—or racks, wheels, or pinions—and which for safety, economy, absence of friction, and power, would appear to stand second to none. Leakage is impossible, except from accident to the tube. The principle strikes us as being a truly Archimedean one. In mechanics, it is well understood that a screw is only the wedge in another form; and here, the compressed air acting on the leader of a train, in the form of the wedge, we are presented with a beautiful illustration of that enormous power which Archimedes so successfully and so miraculously wielded. We will now endeavor to explain the principle for which patents have been secured. A close tube or main, is laid under ground or along the side of the railway, as in other systems, in connection with the fixed engines, and which is charged with compressed air; between and on a level with the rails is a double tube, of which the



following is a section and description:—*a*, is a strong iron flange, cast in lengths, jointed and continued throughout the line, forming the inside of each tube; *b*, and *c*, are diaphragms, composed of layers of leather, strong canvass, and *gutta percha*—a newly discovered substance, possessing properties superior to caoutchouc—and a description of which we gave in our account of the distribution of prizes, by Prince Albert, at the society of Arts, in June last—and which form the outer side of the tubes, which, when inflated, are elliptical in section; *d*, *e*, are smooth wheels or pinions turning on the perpendicular axes *f*, *f*, between the wheels, and strongly attached to the driving carriage by suitable frame work. It will now be seen, that while these tubes remain empty, the wheels, *d*, *e*, will press the diaphragms against the flanges, as at *b*, and remain at rest; but, on opening the valve in connection with the reservoir tube before mentioned, the tubes behind the carriage become inflated as at *c*, which wedging against the wheels, forces the

train along with enormous power and velocity. One great advantage of this system appears to be, that the most accurate knowledge of the power at command is always possessed; the reservoir tube, being once charged to any number of atmospheres required, and the proportion between that and the elastic driving tubes accurately known, the power at command is at once discovered, in proportion to the trains, as no leakage, no loss, can take place, and carriages can start every five minutes. Another, and the most paramount advantage, is, its perfect safety; the wheels running firmly against, and even in, the elliptic flanges, makes it next to impossible to run off the rails, and collisions can never happen.—We have thus been particular in describing this ingenious but simple mode of propulsion, from the advocacy we have adopted of the atmospheric system generally, and from our wish to do justice to all parties who are devoting their talent and their energies to the subject. The *gutta percha* above mentioned is a substance, introduced by Dr. Montgomery, from Singapore, in the East Indies; it is a gum from a tree, of which in that province there are immense forests. It possesses many properties which make it far superior to caoutchouc; it is uninjured by heat or acids, is elastic, but possesses more tenacity; and at 212 deg. Fah. can be mouldered into any form, or two pieces can be kneaded together with the fingers, and the joint becomes as strong as the original substance. It is now being manufactured for many purposes, where caoutchouc is useless, at Messrs. C. Keene and co.'s several extensive establishments in York road (where this railway may be seen in operation,) to a considerable extent.

Gutta Percha—In our notice of Messrs. Nickell and Keene's improvements on the atmospheric railway system, we alluded to a new substance introduced by them for the valves. Having had several inquiries respecting its peculiar properties, we subjoin the following particulars: *Gutta Percha* (from Singapore) was introduced last year by Dr. Montgomery, E. I. C., for which he received the medal of the society of Arts. In many respects it resembles india rubber; is obtained from certain trees, from which it exudes at all times of the year. It is soluble in turpentine, and forms with it a kind of varnish, but peels off from metals. At the temperature of the atmosphere, it is hard, and only slightly elastic, but at boiling water heat it softens, and becomes pulpy, and may readily be mouldered into any form, which it retains when cold. It is unaffected by acids and chemical re-agents generally, and is not altered by exposure to damp or atmospheric changes. It may be formed into threads, and cloth woven from it; and, to prepare the threads, it is only necessary to heat it, and press it through plates with small holes, when it passes out in a vermicelli form, of whatever shape the hole is, but in this state it is not very strong. Cloth woven from it, and mixed with flaxen thread, is exceedingly strong. In many cases it will advantageously supply the place of leather.—*London Mining Journal.*

The Price of Iron in France.—The price of iron is on the rise at Paris in a progressive manner. The iron of Champagne, called "half rock," made by coal, is worth 400fr., or 16l. the 1000kil. The drawn and flattened iron of Chatillonnais has been firm at 15l. 8s. In consequence of a meeting held by the principal iron merchants of Paris, it is the intention of carrying the price to 16l. Some houses, who have a few good samples, the assortment of which is generally wanting in Paris, keep their prices very firm. The flattening forges in the environs of Paris are in too full work either to replace the supplies which are wanting, in consequence of the interruption of the arrivals, or for re-passing under the cylinders any considerable quantity of the iron from Aveyron, of old make, so as to improve it, and convert it into the current samples of the market in general. In consequence of the carpenters of Paris having returned to full work, after entering into a satisfactory agreement with their masters, the iron nail trade has rapidly increased, and prices become higher.—*London Mining Jour.*

Coal and Iron in Egypt.—Referring to an article in our paper of last week on this subject, we have since learned that Mr. John Petherick, Jun., who was despatched by the pacha of Egypt some months since to Sinai and Stony Arabia, and from thence to Nubia, by way of Petra and Mecca, in search of coal, has, much to his dissatisfaction, been obliged to return to Cairo, when within three day's journey of Petra, in consequence of the tribes of Allouin Arabs being at war with each other. On one occasion, he found himself suddenly in a battle-field, hotly contested by two adverse tribes, and it was only by joining the defeated party, with his escort, that they were preserved from being entirely despoiled of all their effects and camels, and probably left to perish in the desert. In Stony Arabia, and as far as he could penetrate, there is not the slightest indication of coal formations. His next route is Upper Egypt.—*London Mining Journal.*

Prosperity of the Iron Trade.—The business at the Dowlais Iron Works has so increased, that two new blast furnaces are to be blown in immediately, and an advance of two pence per ton is to be given to the bailers; the old furnaces, which were out of blast, have all been thoroughly repaired, and are now ready for blowing in. The weight of the sledge hammers used by the men at the iron works is very little known; they are from 84 lbs. to 87 lbs. weight, and half of our strong able-bodied agricultural laborers could scarce lift, much less strike with them a true and efficient blow: this, however, more the result of practice than any extraordinary strength in the men.

Great Western Railway.—It is stated that the dividend for the next half year will be 4½ per cent., or after the rate of 9 per cent. per annum. The increase of receipts from the week ending July 6, to the 23d, November, is nearly 40,000l. over the corresponding period of last year. The estimated increase for the next five weeks over the corresponding

period of the last half year, is put down at 10,000l. The gross increase, therefore, will be 50,000l. upon the half year. The dividend required to be paid on the additional call of 5l. on the old shares, and 2l. 10s. on the new quarter shares (for it is understood a dividend will be declared upon the latter at the next half-yearly meeting,) will absorb 14,625l., leaving 35,375l. unappropriated—and, therefore, applicable to the increased dividend alluded to. It should be observed that there has to be deducted from the increased receipts the increased expense consequent upon the opening of the line to Gloucester. The extent of this new portion of the Great Western railway is, however, twelve miles only, and the working expenses incurred upon it can take but little from the increased receipts of 50,000l. upon the half-year.

Distances on the Mississippi. From Pittsburg.

To Wheeling.....	91 miles.
" Marietta.....	172 "
" Guyandotte.....	298 "
" Portsmouth.....	346 "
" Maysville.....	392 "
" Cincinnati.....	449 "
" Louisville.....	581 "
" Shawneetown.....	830 "
" Mouth of Ohio.....	970 "
" Memphis.....	1184 "
" Natchez.....	1743 "
" New Orleans.....	2047 "

Vermont Central Railroad.—The Vermont Central railroad has been located from Windsor, which is some miles (14 we believe,) below the mouth of White river. This, therefore, is to be added to our paragraph of last week. A further investigation, we also learn, is to be made of the gulf route, through Williamstown, by the engineers.

The directors, we learn, have concluded a contract for the grading and masonry of the whole road, from Windsor to the lake, with Messrs. S. F. Belknap and co., and the work will be forwarded with as much despatch as practicable.—*Bunker Hill Aurora.*

The Rutland people appear to be looking in a new direction for a railroad communication with our city:

A meeting of the citizens of Rutland and vicinity was held at the Town hall, in Rutland, on Thursday, Nov. 13, in favor of the construction through that town of the proposed Worcester and Greenfield railroad. A committee was appointed to take the necessary measures to secure that object.—*Bunker Hill Aurora.*

The Boulogne and Amiens.—At the Boulogne and Amiens meeting it was stated that the receipts amounted to 12,706,952f. (608,277l.) and the expenditure to 807,166f. (32,365l.) leaving a balance of 11,897,789f. (475,911l.) 4 per cent. was to be paid to the shareholders till the opening of the line, which is expected to take place by the spring of 1847.

Michigan Railroad.—We have two railroads in operation. The Central, now in operation to Battle creek, will in a few weeks be continued to Kalamazoo, 140 miles in length, and the Southern railroad which is in operation to Hillsdale, about 67 miles.

An Abstract of the Blast Furnaces, with Amount of Produce in Great Britain.

Counties.	Total fur.	In blast.	Out.	Produce pr. week.	Yearly make.
Staffordshire.....	108	81	27	3503	171,735
Derbyshire.....	19	14	5	436	19,184
Yorkshire.....	34	22	12	752	35,308
Scotland.....	25	17	8	645	29,200
South Wales*.....	109	81	27	4461	223,520
Shropshire.....	49	36	13	1723	86,320
North Wales.....	14	8	6	303	13,100
Cumberlandt.....	4	—	—	—	—
Gloucestershire... 3	—	—	—	—	—
Durham.....	2	—	—	—	—
Lancashire.....	4	—	—	—	—
Leicestershire.....	1	—	—	—	—
Ireland.....	2	2	—	60	3,060

Total..... 374 261 103 11,883 581,376

* No returns from four furnaces. † No returns from Cumberland, Gloucestershire or Durham.—*London Mining Journal.*

The legislature of Tennessee have passed a bill for the construction of a railroad from Nashville to Chattanooga. A railroad is already constructed from the Atlantic seaboard in Georgia to Cross Plains, from which place to Chattanooga the distance is only 35 miles.

Freight of the Western Railroad.—A communication in the Pittsfield Sun, states that there passed the station at that place, during the month of November, 3163 freight cars, all loaded at Albany and intermediate stations, for stations east of that, containing 12,650 tons of merchandize, and requiring 150 engines to train the same; averaging 420 tons daily, and for each engine 84 tons, independent of nearly the same weight of cars.—*Springfield Republican.*

French Academy of Sciences—Sitting of November 24.—M. Arago read a long communication from E. Boucherie on the preservation of wood for building and other purposes. It is now four years since M. Boucherie communicated to the academy a series of experiments, proving that he had discovered a cheap means of forcing into the pores of wood liquids capable of giving to it great durability and entirely new properties. Since that time many patents have been taken out in France and England for different modes of preserving wood, and each discovery has been proclaimed as infallible, as Kyan's process was thought to be for a time. Of all these discoveries, however, one only has been practically worked to any extent, viz: Payne's process, which consists in forcing out the air and juices of the wood by an exhausting pump, and supplying the vacuum by a mixture of iron and lime. As to M. Boucherie the public, although thankful to him for the activity with which he had demonstrated his theory by experiments, had begun to infer that he had (in the presence of Payne's process, a patent for which has been taken in France by Mr. Banner, who is at this moment forming a company for working it on a large scale) abandoned all idea of turning his discoveries to a practical account. It would appear, however, from the present communication to the academy, that M. Boucherie has not been idle.—He has on the contrary, been continuing his experiments, and submitting them to the test of time, in order that any objections which might be offered should be replied to by facts. In November, 1842, one hundred pieces of

wood of different kinds of the length and size used for railroad sleepers, were prepared by M. Boucherie. It is known to all persons who read the account given at the time of M. Boucherie's process, when he presented his first paper to the academy, that it consists in the introduction of solutions by a sort of filtration. A tub containing the liquid is placed in contact with one end of the wood; the pressure produced by raising the level of the liquid a little above that of the wood suffices for its perfect impregnation, with the exception of the central part or heart. Some of these pieces of wood were left in their natural state; others were impregnated to only half their length, and others in the entire length. The liquids used were pyroligneous acid, sulphate of copper, chlorurate of sodium and mercury. The wood was buried in the ground, at the depth of a few centimetres, in an enclosed yard at Compiègne, where it remained nearly three years. On taking it up recently, the prepared wood was found perfectly sound, and that which had not been prepared entirely rotten. As the process of preparation, interment, and disinterment was performed in the presence of the authorities of Compiègne, who have given a certificate to the effect stated by M. Boucherie, no doubt can be entertained as to the results obtained. M. Boucherie's mode of preserving wood is not very expensive, and it is attended with this great advantage; the cheaper sorts of timber, which are never used in their natural state for railroads or building purposes on account of their want of durability, may, he says, be used with a much better effect, when thus prepared, than the dearest timber in its natural state, and thus, even after deducting the cost of the process of preservation, the saving is very great. We confess, however that we are by no means convinced as yet that M. Boucherie's process, which is in fact but a modification of that of Kyan, Marjery, and others, is the best. Within the last few days we have seen in the journals a paragraph stating that the directors of the Paris and Rouen railroad have been compelled to take up, in consequence of decay, some of the sleepers which had been prepared by the introduction of metallic salts. The mode of impregnation may not have been the same as that of M. Boucherie, but the results must be nearly the same. Payne's process is essentially different. He places the wood to be prepared in a receiver, where the air and juices are driven out by exhaustion, and the cavities are then filled up with a material that is comparatively indestructible. The cost of the operation must, besides, be quite as small if not smaller than with the process of M. Boucherie.

Congress of Engineers and Manufacturers in France.—We perceive by the *Montieur Industriel* that several of the most eminent engineers and manufacturers have formed the project of holding a congress, or general meeting, of the leading scientific men throughout France, for the purpose of discussing the improvements that may be made in mining operations, machinery, manufactures, and the

general interest of the country, which will be represented by their respective members. The provisional committee has not yet been entirely formed; but every day there are new accessions of the most scientific men who are sending in their adhesion and strong approval of the formation of an association which may render such eminent services to every branch of industry, unconnected with any political feeling or danger to the state. As soon as the list is complete, it will be then decided by a council when the first congress shall be held. In the mean time many names of distinction have been put down as members of the provisional committee; among which figure several peers of the realm, extensive holders of mines, forges, the constructing of machinery, and many other perfections in the metallic, as well as the manufacturing industry of the different departments. It is expected that this will be one of the best attended of any association that has ever been projected or established in Paris, or any other part of France, being purely of a scientific nature, confined to the improvement of the resources of the country now that such a rapid progress is making in every branch of national industry in England, Belgium and Germany.

Iron Trade.—Notwithstanding the increased consumption of iron which must arise from the carrying out our numerous railways, as well as fulfilling export orders, there has been, during the past week, a tendency to a decline wholly unaccountable; in Scotland particularly makers have been more inclined to sell, and some thousands of tons of pig iron have changed hands at 75s. per ton; one parcel of 1000 tons was done at 72s. 6d., and we have heard of as low as 70s. having been accepted. Welsh has retained its price from 95s. to 110s., and railway bar has been obtaining £12 per ton; the consumption continues to be very large, while prices remain lower than those of the corresponding period of last year, which may in a measure, be attributed to the absence of all transactions for delivery next year, which must materially have increased the amount of business. In Staffordshire and Wales generally, prices remain firm, and manufactured iron keeps its position in the market. It is expected the works in operation will be unable to meet the demand, and in France, with the certainty that they must shortly import largely from England or elsewhere, prices are gradually advancing; railway iron is now selling in that country for from £14 to £16 per ton, and at that figure there is not sufficient to meet the demand.

Canals into Railways.—The canals are making good preliminary bargains, in the hopes that parliament may mercifully sanction them. A special general meeting of the proprietors of the Grand Surry canal conversion has been held, to consider the propriety of selling the canal, docks, etc., to a railway company, projected to run in competition with the canal. The terms of the proposed agreement were, that the price of the canal (excepting debts, money owing and due, etc.)

be 250,000l., to be paid as under—1,000l. on sealing the agreement; 9,000l. against next February, with power on the part of the canal company, if they see fit, to extend that date till July; 140,000l. six months after the railway company shall have received their act of parliament, when they are to take possession; 50,000l. at twelve months after giving possession on the purchase money unpaid; 50,000l. two years after giving possession, interest to be charged as before, making the total purchase money of 250,000l. A Mr. Simpson was not satisfied with the conditions named, and moved, as an amendment, that 10,000l. be paid down instead of 1,000l. But the original motion was carried almost unanimously. The Andover canal has been sold to the Manchester and Southampton railway company for 30,000l.

The Highest Speed yet with Locomotives. The London Railway Record, of 22d Nov., has the following statement of an extraordinary performance on the Great Western railroad from Exeter to London, 194 miles in three hours and fourteen minutes running time, or 4 hours and 9 minutes including stops—which is about 54 miles an hour; or allowing for loss of time in getting up and slacking speed, 60 miles an hour. Higher speed for a short time has been attained, but we do not recollect of any instance where it was so long maintained.

On Monday a special train on the Great Western railway, conveying several of the directors from Exeter to London, accomplished the distance, 194 miles, in 4 hours and 9 minutes, including the usual stoppages, and, in addition, to a stoppage of twenty minutes between Exeter and Bristol. This makes the time during which the train was in motion about 3 hours and 14 minutes, or about 54 miles an hour; and deducting the time lost in slacking and getting up speed, the speed was about 60 miles per hour.

The difference—Railroad and Turnpike Dividends.—The following statement, taken from the Baltimore American, of dividends declared by Turnpike and Railroad companies, is a fair illustration of the benefits of the two modes of travel and transportation.

The Baltimore and Reisterstown Turnpike Company has declared a half-yearly dividend of one per cent.

The Baltimore and Washington Turnpike Company has declared a half-yearly dividend of one per cent.

The Baltimore and York Town Turnpike Company has declared a half-yearly dividend of one per cent.

The Petersburg Railroad Company has declared a semi-annual dividend of three per cent.

A Race.—The Portsmouth Journal gives an account of the chase of a fox by the locomotive on the Eastern railroad. Poor Reynard ran like the wind for a mile or more, but was finally overtaken, and as he turned his head to escape from his pursuers, was struck by the engine wheel and crushed to death.

AMERICAN STATE WORKS AND CANALS, ETC.

STATE WORKS.		Length in miles.	Cost.	1843.		1844.		The State Canals are all 4 feet deep, and the locks are 13 to 17 feet wide, and 60 to 90 feet in length.
				Income.	Expend.	Income.	Expen.	
N. Y.	1 Black river canal.....	35	1,524,967	The six millions paid to the canal fund from auction and salt duties are not included in the estimate of cost. The Genesee valley and the Black river canals require large sums for their completion, the interest of which additional sum is much greater than the estimated gross income of these canals when finished. The sums required to complete these two canals are \$2,000,000 and \$600,000, making their total cost when finished \$5,553,000 and \$2,400,000; an expenditure incurred on estimated incomes (admitted to be liberal,) of \$39,000 and \$14,000 respectively. The total receipts from the works of Pennsylvania for 1843 were \$1,019,401; for 1844 \$1,164,326, and the cost about 30 millions. The receipts for 1844 were as follows: Canal tolls, - - - - - 578,404 Railroad tolls, - - - - - 252,855 Motive power, - - - - - 319,590 Trucks, - - - - - 13,477 of which \$585,922 is from 118 miles of railroad, and \$578,404 from 550 miles of canal. The canals of Ohio are supported by a property tax of 5 1/2 mills on the dollar. There are 853 miles of canal in the State, which yielded in 1843 \$471,623, and in 1844 \$515,393, the cost, 1st Jan. '43 being \$15,577,233. The increase of '44 over '43 is only \$43,770, though the year '44 has exhibited a greater increase throughout the country than ever before known. These 21 millions on sundry works, yield no income whatever. The central railroad yields above 6 per cent., and is the only State work—the Erie canal excepted—which is able to stand alone.
"	2 Cayuga and Seneca.....	21	237,000	16,557	10,953	24,618	14,443	
"	3 Champlain canal.....	64	1,251,604	102,308	.....	116,739	.....
"	4 Chemung.....	23	684,600	8,140	14,486	14,385	12,740	
"	5 Chenango.....	97	2,420,000	16,195	15,967	22,179	15,960	
"	6 Crooked lake.....	8	156,777	461	3,674	1,498	3,951	
"	7 Erie—enlargement of.....	363	12,648,852	1,880,316	.....	.....	.....
"	8 Genesee valley.....	120	3,739,000	.....	.....	.....	.....
"	9 52 miles opened, cost \$1,500,000.....	.....	.....	12,292	13,819	19,641	15,557
"	10 Oneida lake.....	6	50,000	225	2,239	621	1,636	
"	11 Oswego.....	38	565,437	29,147	22,742	56,165	28,599	
Pa.	12 Beaver division canal.....	25	.....	.....	.....	7,381	5,386
"	13 Delaware canal.....	60	.....	.....	.....	109,278	22,870
"	14 French creek.....	45	.....	.....	.....	.....	.....
"	15 Seneca river towing path.....	.....	69,276	.....	.....	381	.....
"	16 Columbia railroad.....	82 1/2	4,204,969	.....	.....	443,336	205,067
"	17 Eastern division.....	36	.....	.....	.....	179,781	138,915
"	18 Juniata canal.....	93	.....	.....	.....	.....	.....
"	19 Portage railroad.....	36 1/2	1,828,461	.....	.....	351,102	248,943
"	20 Western division canal.....	105	.....	.....	.....	.....	.....
"	21 North branch Susquehanna canal.....	73	.....	.....	.....	101,949	57,633
"	22 West ".....	72	.....	.....	.....	.....	.....
Ohio	23 Hocking canal.....	56	975,130	4,757	.....	5,286	4,139
"	24 Miami canal.....	85	1,660,742	68,640	38,826	77,844	22,341	
"	25 Miami extension.....	105	2,856,636	8,291	.....	12,723	14,741
"	26 Miami northern division.....	35	322,000	.....	.....	unfin'd.	.....
"	27 Muskingum.....	91	1,627,318	23,167	.....	29,385	15,027
"	28 Ohio.....	334	4,600,000	322,754	123,398	343,711	113,210	
"	29 Wabash.....	91	3,038,340	35,922	6,400	49,589	12,817	
"	30 Walhonding.....	25	607,269	838	39,005	1,977	1,238	
"	31 Western road.....	31	255,015	7,254	1,782	8,747	2,929	
Ind.	32 Sundry works.....	.....	11,000,000	.....	.....	.....	.....
"	33 Maume canal.....	.....	.....	.....	.....	.....	.....
Ill.	34 Sundry works.....	.....	10,000,000	.....	.....	.....	.....
Mich.	35 Central railroad.....	110	1,842,308	149,987	75,910	211,170	89,420	
"	36 Southern railroad.....	68	936,295	24,064	7,907	60,341	70,000	

CANALS.		Length in miles.	Cost.	1843.		Div. per cent.	1844.		Div. per cent.	Value of stock.	REMARKS.
				Gross.	Nett.		Gross.	Nett.			
	Blackstone.....	We may, perhaps, at some future time be enabled to give the particulars of all these canals. The Chesapeake and Ohio canal is not yet completed to the coal mines, hence its trifling income. The enlargement of the Schuylkill canal has been commenced. The Morris canal was lately sold for one million, about one-fourth of its cost.	
	Bald Eagle Navigation.....	25	400,000	.....	.....	.....	.....	.....	.....
	Beaver and Sandy, (part).....	.....	1,000,000	.....	.....	.....	.....	.....	.....
	Charleston, (S. C.).....	.....	.....	.....	.....	.....	.....	.....	.....
	Chesapeake and Ohio.....	184	12,370,470	47,637	.....	.....	.....	.....	.....
	Conestota.....	12	300,000	.....	.....	.....	.....	.....	.....
	Delaware and Chesapeake.....	13	.....	.....	.....	.....	.....	26	.....	
	Schuylkill.....	108	3,500,000	279,795	102,221	.....	190,693	120,624	31	
	Farmington.....	.....	.....	.....	.....	.....	.....	.....	.....
	James river and Kenhawa.....	.....	.....	.....	.....	.....	.....	.....	.....
	Middlesex.....	.....	.....	.....	.....	.....	.....	.....	.....
	Port Deposit.....	10	200,000	.....	.....	.....	.....	.....	.....
	Delaware and Raritan.....	43	2,900,000	99,623	53,327	.....	131,491	84,455	.....	
	Southwark.....	.....	300,000	.....	.....	.....	.....	.....	.....
	Tide Water.....	45	2,900,000	.....	.....	.....	.....	.....	.....
	Union.....	80	2,000,000	.....	.....	.....	.....	.....	.....
	Morris.....	101	1,000,000	.....	.....	.....	.....	.....	26 1/2
	Dismal Swamp.....	.....	.....	.....	.....	.....	.....	.....	.....

CANADIAN CANALS.		Length in miles.	No. of locks.	Lockage in feet.	Size of locks.			Width of canal.		Estimate.	Expended to Sept. 1843.	Income.	
					Length of chamber.	Width.	Depth on mitre silt.	Bottom.	Surface.			1843.	1844.
	The Welland canal.....	.....	.....	.....	feet.	feet.	feet.	feet.	feet.	3,948,572	2,485,572	64,658	.....
}	Main trunk from Port Colborne to Port Dalhousie.....	28	31	328	150	26 1-2	8 1-2	45	81	.....	.....	.....	.....
	Junction branch to Dunville.....	21	1	6	150	26 1-2	8 1-2	35	71	.....	.....	.....	.....
	Broad creek branch to Port Maitland.....	1	1	6	200	45	9	45	85	.....	.....	.....	.....
	The St. Lawrence canal.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
}	Galops and Port Cardinal.....	2	2	7	200	45	9	50	90	.....	.....	.....	.....
	Rapid Plat.....	4	2	11 1-2	200	45	9	50	90	672,498	973	.....	.....
	Farren's point.....	3-4	1	3 1-2	200	45 1/2	9	50	90	.....	.....	.....	.....
	Cornwall, passing the Long Sault rapids.....	11 1-2	7	48	200	55	9	100	150	865,372	1,665,663	.....	.....
	Beauharnois, do. Coteau, Cedars and Cascades road.....	11 1-4	9	82 1-2	200	45	9	80	120	1,190,087	275,426	.....	.....
	Lachine, do. Lachine rapids.....	8 1-2	5	44 1-2	200	45	9	80	120	old canal	400,000	29,288	.....
	Elargement of do.....	.....	.....	.....	.....	.....	.....	.....	.....	1,001,333	64,439	.....	.....
	Total from lake Erie to the sea.....	12	57	525	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Chambly.....	66	9	74	120	24	6	36	60	200,000	440,000	1,409	.....

COAL COMPANIES.		Length in miles.	Cost.	1843.		Div. per cent.	1844.		Div. per cent.	Value of stock.	REMARKS.
				Gross.	Nett.		Gross.	Nett.			
	Delaware and Hudson.....	16	2,800,000	930,203	196,702	10	130
	Lehigh.....	20	6,000,000	31

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AMERICAN RAILROAD JOURNAL.

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Saturday, January 10, 1846.

Advance in the price of the Journal.

☞ We desire to acknowledge our obligations to those of our subscribers, who have already, since the commencement of the new volume, given us renewed evidence of their appreciation of our labors, by sending in their subscriptions for the year 1846. We refer to the subject for the purpose of calling the attention of the subscribers generally to the *advance in the price* of the Journal—that they may act in accordance with it, in remitting for the new volume. We hope to retain all the names now on our books, and to increase the number many fold; but we desire that all should fully understand the *present terms*, that no one may hereafter feel aggrieved when the bill is presented at FIVE DOLLARS.

☞ In remitting for the current year, it will be well to send for missing numbers of the past year.

Harlem Railroad—Monthly Statement.

The following comparative statement of receipts in 1844 and 1845, on the Harlem Railroad, shows a regular increase in every month of the year, and an aggregate increase of \$36,752, or a fraction over 26 per cent. upon last year's business.

HARLEM RAILROAD—MONTHLY RECEIPTS,

	1844.	1845.	Inc'se 1845
January,	6,642	10,015	3,403
February,	6,625	7,425	800
March,	7,980	10,750	2,770
April,	10,183	12,070	1,887
May,	14,853	17,777	2,889
June,	15,068	17,978	2,910
July,	17,243	20,444	3,207
August,	15,700	20,055	4,355
September,	14,377	17,558	3,181
October,	11,308	17,245	5,947
November,	10,652	13,895	3,243
December,	10,018	12,189	2,160
Total,	\$140,684	\$177,437	\$36,752

This is nearly or quite equal to the increase, upon an average of the best roads in the country; and shows what *may* be done by energy, and an effort to afford the people, who pay, a *proper and just* accommodation. A similar increase during the year 1846 will give \$223,561, which will meet the current

expenses, of repairs and working the road—say \$100,000, and give nearly six per cent. on the entire outlay of \$2,150,000 or 7 per cent. upon its loans, and 5 per cent. upon its stock—and in 1847, it will give at the same ratio of increase, \$281,686—or over 7½ per cent. upon the cost, after allowing \$116,000 for working, repairing and improving the road. This, it should be borne in mind, will be the result—even if it should not be extended beyond White Plains, with spirited and energetic management—and an evident disposition to consult the convenience and interest of the people who *desire* to use it. It will, however, be extended 28 miles, to Somers, in May next thus more than doubling its length, and of course developing the resources of a new region of country, and bringing new elements into play, and new inducements to our citizens—whose coach its cars, and whose steeds its locomotives are—to extend their jaunts still further into the country, and many more of them to avail themselves of its accommodations. We may therefore safely conclude that the income of that part of the road now in use, will be very nearly, if not quite, \$250,000 for 1846. This, however, will much depend upon the promptness and energy with which the road is managed.

It is said by many, and often truly, that short roads are not as profitable as those of greater length; yet this is not always the case, as is very forcibly illustrated by the Dublin and Kingston road, which is only six miles long, and cost £354,733, or over £59,000 per mile. This road extends along or very near the coast; and Kingston is, we believe, but a small village, a place of resort and amusement for the people of Dublin, rather than of residence, until this railroad was built. It has now become the residence of great numbers of people of small means, who can live there, and along the line of road more comfortably, and at less expense, than in the city of Dublin. This change has been brought about by judicious, energetic, and *accommodating* management; by starting the trains at 6 o'clock in the morning, and every half hour during the day, until 11 o'clock at night, at 1s, 8d, and 6d for 6 miles, according to the *class* of cars—thus enabling the poor people, and all classes, to avail themselves of the pleasures of an excursion, or the advantages of country residence, and still attend to business in the city. The principle adopted by *this* company was to "afford the greatest amount of accommodations for the lowest possible amount of compensation" that would yield a fair return upon the investment; and the result has

been entirely successful. In 1842 they divided 5 per cent., in 1843 6 per cent., and in 1844 *nine* per cent. upon the *enormous* cost of their road! So may the Harlem Road, by *similar good* management, divide *nine*, and or *ten* per cent. within three years—even without reaching Albany. But to accomplish this desirable object the people must be *led into the habit, by example*, of erecting small, cheap, tasty cottages, with flower and vegetable gardens all along the line, in Westchester county. Only make it *fashionable*, and there will be no difficulty in studding the whole line of road with cottages and country seats—and thus of filling the cars to overflowing—and then of course follow ample dividends.

ALBANY, however, is the great object in view. An easy, rapid and *certain* communication at all times, all seasons, with the interior of our own, and neighboring States—Connecticut and Massachusetts, via Danbury and Hartford, and as well as via the Western Railroad, and even up into Vermont by the way of Pittsfield, Bennington and Rutland, to Burlington. *These* are the sources—in addition to the immense pleasure-travel of this city, and the rapidly increasing way-business along the line, when the road shall be completed—from whence its business is to be derived. And they are ample—abundant to make it one of the most profitable roads in the country if it shall be properly constructed and judiciously managed, with an eye single to affording the most, best, and cheapest possible accommodation to the people, consistent with a fair return upon the investment, thus making them feel that they cannot do without it, instead of allowing them to be irritated by petty annoyances, and thus raising up enemies unnecessarily. The people in the country, along the line, must also be accommodated with facilities for coming to market with their milk, vegetables, pigs and poultry; and they must have some place besides "all out-doors" in this city to stop at, and start from—a depot—a *central depot* is essential. The *present* depot is a beautiful one in a handsome day, but in a "dirty day" it needs "extensive repairs."—These things will naturally follow, however, with the extension and completion of the road to Albany; to which point *we hold the managers bound*, either to proceed with all due diligence—*absorbing*, or extinguishing by fair and amicable arrangements, the rights of their predecessors, the "New York and Albany" company—or to yield "the right of way" to those who will construct a good road, on which *six* hours would be quite too long time for the journey. *We are for a*

road to Albany—and we think the interior route is the one on which it ought to be made, as it will develop important resources through a region of country rich in minerals, a fertile soil and ample water power, unemployed and unappreciated, simply for lack of direct and easy access to and from market. Our motto is, "give unto those who have not, but take not from those who have an abundance." Our system of leveling is upward, by filling up the valleys, rather than building upon the hill-tops and mountains; or, in other words, construct railroads through the interior, where your field of operations has two sides to it, instead of along the margin of the best river and sound navigation in the world; where they must constantly encounter all sorts of rivalry and competition, and without the ability to create their own business, as they are sure to do when constructed through a rich agricultural or mineral region, abounding in good water-power. Local, or individual interest must, or should yield, in such matters, to the general interest. We may charge more than half the unsuccessful and ruinous projects in railroad operations in this country, to local and individual influences overruling the truth of the instruments and the judgment of the engineer.

Preservation of Timber. Kyan, Payne and M. Boucherie.

We have recently published several articles in relation to the preservation of timber; and have given the result of some exceedingly valuable experiments, where the timber has been long enough in use to give a fair, though not a thorough test.

The experiment on Kyan's plan, made on the Baltimore and Susquehanna railroad, in August, 1838, under the direction of Isaac R. Trimble, Esq., upon chestnut cross ties, which were taken up in January, 1844, after more than five years' use, and found perfectly sound, may be considered a very good test, but we hope soon to have further information in relation to this interesting experiment, as it is now more than seven years since the sills were put down, and we hope to obtain one of them entire, and directly from the road, when we next visit Baltimore; and also from Mr. Trimble the detail of the application, viz: the amount of mercury used to a given quantity of timber, the length of time during which the timber was immersed, etc.

The experiment made on the Taunton and New Bedford railroad, with Kyan's process, in 1840, of 17,000 spruce cross ties, is another very important test, as all who are familiar with spruce must be aware that when laying upon the ground, exposed to wet and dry, it is one of the least durable kinds of

timber that grows in this country; and if it can be preserved in use, for ten years only the cost of preparation will be many times saved, and the expense of repairs materially reduced. We shall also endeavor to obtain, for illustration of the effects of the process, a full sized sill from the lot put down in the Taunton road, when we visit it next spring; together with the details of preparation, for publication.

In addition to the different plans of preservation heretofore before the public, we have now another by M. Boucherie, as described in the following article, taken from a foreign paper, a description of this process will also be found in the Railroad Journal, vol. XIII, page 91—or the number for August 1, 1841—where will also be found many other interesting facts in relation to the preservation of timber, collected and arranged by Mr. Jas. Herron, C. E.. We should not know where to find, in the same compass, as much information on the same subject. We shall endeavor to obtain further details in relation to this new process from Major Poussin, of Paris, who will be able to give valuable information, and whose statements will be relied on.

The following letter from our esteemed correspondent in London, came to hand during our absence, or it would have appeared entire, two weeks since, when a short extract from it was published. It has lost nothing however, of its truth, force and true American feeling by the delay and we therefore give it, with the single remark that if as much true American feeling and humanity existed among the whole race of politicians—by trade—we should be in no danger of war.

"All the commercial and monetary classes look with the utmost anxiety to president Polk's message on the 1st Dec., fearing that it may contain the same style of matter as he uttered on the 4th March last, and that war may be the inevitable consequence.—War, cursed insane war! War between two kindred nations who may do each other the greatest possible injury without benefiting themselves in the slightest possible manner! The advocate for war ought to be considered the *'hostis humani generis'*—a pirate—to be shot down without trial or compunction. If our people indulge in the expensive luxury of war, how can the magnificent and vastly important railway schemes between Portland and Montreal, between Boston and Montreal, between Boston and Ogdensburg, between the Hudson and lake Erie, between Philadelphia and Pittsburg, between Baltimore and the Ohio, between Richmond and the Ohio, between the South Carolina and Georgia railroads and Nashville and then on to Memphis; and many other vastly important works? I ask how are all these public works which are to confer inestimable benefits upon our vastly expanded empire to be carried on, if we are so lunatic as to have war? We are not yet prepared for war, and the only rational and efficient mode of preparing is to have all these important, and other lines of improvement made, and to have the electro-magnetic telegraph from Portland to Charleston and Savannah and on to New Orleans; and from Philadelphia to

St. Louis and on to Chicago, for the purpose of concentrating our resources and overcoming the disadvantages we labor under from having our population and our wealth scattered over such a widely expanded country. These two modes of improvement, together with one uniform (5 cents) rate of postage throughout the United States, would do more to enable us to fight efficiently than 100,000 of the best disciplined soldiers, 50 ships of the line and 100 frigates and 25 powerful war steamers. Let us postpone this cursed war for at least five years, to enable us to make the above indicated improvements, and then there will certainly be a little more reason to justify our Hotspur's in advocating this anti-christian, anti-common-sense, and anti-everything else that is rational and wise custom of murdering each other for the purpose of benefitting a few officers of the army and navy and a few contractors. Most sincerely do I hope our countrymen will have the good sense to preserve peace.—This people are decidedly peaceably inclined, if our executive will not defy and taunt them. I send you a number of railway papers and I hope all the testimony given regarding the atmospheric will find a place in your excellent paper. In our poor and mountainous country where we cannot afford the great expense of road formation so as to reduce down to gradients of less than 45 feet in the mile the atmospheric, which does not require deep cutting or tunnels, is the very thing for us. With the Frenchman's "Halette's" valve instead of the present valve used I consider the atmospheric must carry the day and before many years entirely supercede the locomotive railway." Ever yours,

G. R.

Atmospheric Railway.

We gave, in our last, a description, with illustrations, of one plan—M. Mallet's—by a vacuum. In this number will be found a very concise description of another—Nickol's plan—in which the propelling power is condensed air, applied on the principle of the wedge. In our next we shall give a full description of Clegg and Samuda's plan, now in operation on the Croydon line, as will be seen by the annexed extract from the London Railway Chronicle, of 15th November. We can well imagine that it was an "exciting and interesting event"—an event, to witness which, we would sooner have crossed the Atlantic, than to witness any other event which has been chronicled since the trial of locomotives on the Liverpool and Manchester road in October, 1829—or 16 years ago!!! Who will tell us—and make us believe it too—what, as a mode of travelling, will outstrip the atmospheric in 1865?

We shall endeavor to give a description of the different plans, from time to time, as they reach us; but the next two or three numbers of the Journal will contain a full account of the Croydon line—five miles of which are now in use—with such engravings as will enable the reader to obtain a good idea of its construction and operation. The description is by the editor of the Railway

* And politicians who have nothing to lose but all to gain, should have been added. Ed. R. R. J.

Chronicle, who speaks from his own observation; and who appears to be in reality what he represents himself to be, "neither with the headlong advocates, nor with the wholesale opponent of the system"—but "an admirer of the application of an elegant principle," he may therefore be considered good authority, and his statements are entitled to, and will have, weight with the reader.

We intend also to give copious extracts from the minutes of evidence given before an able committee of the house of commons, which had power to send for persons, papers and records, and continued the examination from the 1st to the 11th, inclusive, of April last. During that examination, many of the ablest engineers of the kingdom, including Stephenson, Brunel, Vignoles, Cubit, Lock, and others, were on the stand; from whom many important facts in relation to railroad matters were elicited, some of which we shall be enabled to give our readers the benefit of.

For this report we are indebted to the kindness of Mr. A. B. Quimby, of Philadelphia, who recently received a copy of the report in full, with copious index.

The editor of the Chronicle thus describes what he calls a RAILWAY RACE:

"A railway race is a sufficiently exciting and interesting event; but it is rarely witnessed, and scarcely ever in perfect safety. Between a pair of well matched locomotives it would be sufficiently exciting; but between a new system, like the atmospheric, and its rival, the locomotive, the character and reputation of both systems for speed depending on the issue, a well matched contest would be of no common interest. In this case we were lucky enough to see such a race; and we believe any of our readers who leave Lonon bridge station at twenty minutes past two, and take an atmospheric ticket, may any day see the same. We were standing at the Forest Hill station, preparing to start, when it was announced that the *Dover express train* was in sight! Immediately we (the atmospheric train) made preparations to start, and were just in the act of starting from rest when the locomotive train 'wisked' past us at, probably, some 35 miles an hour. We started, but before we got into motion at any velocity the *Dover train* was a mile ahead of us, and was evidently gaining rapidly in speed.—However, on we went like a whirlwind, and it soon became evident that we were gaining on our rival. Three or four minutes decided the race. We passed the express train at a rate exceeding her own by 15 or 20 miles an hour. Our velocity could not then be less than 60 miles an hour. It was easily and steadily maintained, and we were over the Brighton viaduct and considerably beyond it before the *Dover* reached it. But considerably before this time the brakes were put on, and the vacuum destroyed by the valve, to avoid danger in running in upon the workmen round the sharp curves; and when we

reached Croydon, in 6½ minutes, it was found that the journey, as a whole, had occupied more time than it has frequently been performed in.

"Our own opinion, from what we have seen, is, that on a tolerably level road, with a 15 inch pipe, a light passenger train of seven or eight carriages and a vacuum of 24 inches, 60 miles an hour may be easily maintained on an atmospheric railway. So, no doubt, it ought. That such an apparatus may be employed in many circumstances, with great public advantage, who can doubt?"

"Our opinion is also, from these data, that with an 18 inch pipe, velocities of 75 miles an hour may be obtained on the atmospheric system, and practically used for purposes of ordinary conveyance. The atmospheric system is therefore destined to play an important part in railway affairs."

The following extract from a letter dated Pittsfield, December 27, 1845, shows that western Vermont has no idea of being confined within their own borders. The people of that region are made of the right kind of material, and we can now almost see railroad cars on their way from Montreal and Burlington to New York direct.

The Pittsfield and North Adams railroad is now under contract at reasonable prices. There was considerable competition, we understand, yet everything passed off satisfactorily to all parties.

"You will perceive by the enclosed circular* that western Vermont is moving in the matter of railroads. This is an important movement, and will result in a union of the Rutland road with the western Vermont railroad, making a continuous line of railroad from New York to Montreal. The line from Burlington to Montreal may be considered as certain of construction, for there are three great lines from Boston centreing there, all in process of construction. The Rutland people have raised a million of dollars on this road, but principally (say \$800,000) for that part between Rutland and Burlington, and it is their intention to put that part or all of it under contract immediately. It will be seen at a single glance upon the map that this great line from New York to Montreal will soon be perfect. The Harlem road is now being built to a point within a few miles of the Housatonic—the Housatonic connects with the Boston and Albany road at Stockbridge—the latter in connection with the Pittsfield and North Adams, now under contract, make the line perfect to the north line of the state of Massachusetts. From Rutland, as I said before, the line is unquestion-

* The circular referred to was a call for a meeting at East Bennington, on the 2d inst., in relation to a continuation of the railroad from North Adams northward.

ably certain of being built to Montreal; and there only remains that portion between Bennington and Rutland, say 70 or 80 miles, to form the perfect line; this last portion is now beginning to attract public attention. The people of western Vermont are moving, and with such assistance as they ought to receive from those roads to be particularly benefited, the project will surely be accomplished. The Harlem, the Housatonic and the Boston and Albany road, or the shareholders of each of them are deeply interested in this matter."

Extract from a letter dated "Savannah December 25, 1845."

"I have delayed writing that I might be able to communicate the information of the final consummation of the purchase of the Monroe railroad by the company of New York and Boston capitalists. * * The road has been turned over to the new company, who are making preparations with great energy to put it in repair and have it in full operation in as short time as possible. A new charter has been granted by the legislature, changing the name to 'The Macon and Western Railroad Company,' cutting off the banking privileges, giving permission to build a branch to Columbus and West Point, fixing the capital at \$1,500,000, instead of \$1,000,000 as in the old company.

"I have the fullest confidence that the work will be pressed with vigor, and that the road will be in complete order, and fully equipped with motive power and cars for the business of the next season.

"The character of the gentleman at the head of the company, (Capt. Daniel Tyler, late president of the Norwich and Worcester railroad,) and the ability of the new stockholders to supply the means, justifies this confidence. The effect which this movement will have on the business of this city, and particularly on the Central railroad will be very beneficial; and the terms on which the purchase of the road has been made, render it a most excellent operation for the stockholders.

"With respect to a branch southwardly, the parties who have the matter in hand avow their intention to go on with it in a short time. They must, however, explore and examine the country before deciding on the proper route for the road. They have the privilege of building a branch from any part of their road to Columbus and West Point, with a provision that they shall go to Columbus, prior to the exercise of the right to go to West Point.

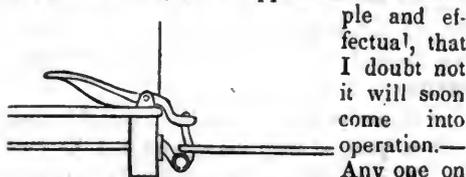
"The legislature of this state have, by a most decisive vote, refused permission to the Georgia road to build a branch from Atlanta

to West Point. The wisdom of this decision is most apparent. Georgia has expended three millions of dollars in building a road to bring the trade of the Tennessee valley into the state. South Carolina has, by her Hamburg road, availed herself for Charleston of at least half the advantages which Georgia intended for her own sea port; and if a road were built from Atlanta to West Point—which would be nothing less than an extension of the state road to Montgomery—the other half might go to Mobile. The principle of self preservation alone, therefore, has governed her councils, and I trust she will ever adhere to her present policy.

"A good line of transportation for the travel will be afforded, as soon as the branch of the Macon and Western road is completed, via Macon and Savannah."

The following description of a plan for detaching a train of cars, or a single car from a train is taken from the Railway Chronicle of October 4th.

Having lately observed in your Journal several suggestions for the prevention of accidents, I will, with your leave, submit to your notice one, which appears to me so simple and effectual, that I doubt not it will soon come into operation.—Any one on



looking at the sketches, will see what I propose is, to have the draw-bar so made that by means of a person's foot applied to the end of a lever, he may disconnect one carriage from another without stopping the train. Now, the guard's carriage is generally next the luggage-van

(at least so in our neighborhood;) and if he should, by any means, become aware of an accident desiring instant stopping of the train without being able to communicate such to the engine driver, he has nothing else to do than put his foot on the lever and the train becomes at once detached from the engine, in time no doubt, as it has been proved in many instances, to prevent an accident that would otherwise occur.

Central Georgia Railroad.

We gave in our last the Report of R. R. Cuyler, Esq. President of this Road, and we now give the Report of L. O. Reynolds, Esq. the Chief Engineer.

From these reports we find the "Central road" in a prosperous condition; with a fair prospect of a large increase of business, at an early day, first by the completion of the Monroe, or as it is now called, the "Macon and Western" Railroad, and then by the branch

to Columbus and West Point. The first will be in use next season; and the others within three years; when the shareholders in the central road will reap a rich return for their investments, and be well paid for their heroic perseverance under the great difficulties through which they have passed. By the time that these extensions shall be completed, the spirit of progression will have opened the way for further extensions, to Nashville in one direction, and to New Orleans, or the Mississippi River in an other—thus making the Central Railroad a part of one of the great lines from the Atlantic to the Mississippi.

ENGINEER'S OFFICE CENTRAL RAILROAD, }
Savannah, Dec. 3, 1845. }
To R. R. Cuyler, Esq., President :

Sir:—The period has arrived when it becomes my duty to present you with a report of the operations of the road for the year ending 30th ult., and its condition at that period. The following table exhibits the earnings of the road for the year:

Earnings of the road for the year ending November 30, 1845.

DATE.	No. of passenger-gers.	Passage money.	Freight and U. S. mail.	Total earnings.	Total for same period prev. year.
Dec. 1844	1,206	\$4,576 28	\$30,310 46	\$34,886 74	\$31,253 63
Jan. 1845	1,345	4,755 05	30,660 16	31,415 21	29,758 47
Feb. "	1,041	4,649 75	32,137 65	36,787 40	25,704 62
Mar. "	1,138	5,351 13	33,897 46	39,248 59	25,867 86
April "	1,179	4,891 50	27,795 44	32,686 94	17,676 87
May "	1,402	5,673 00	27,639 23	33,312 23	20,092 59
June "	1,414	4,379 00	9,523 49	13,902 49	10,808 04
July "	1,153	4,707 98	18,821 10	23,529 08	12,103 64
Aug. "	787	3,953 86	12,985 37	16,939 23	18,181 36
Sept. "	1,132	4,770 95	25,409 58	30,180 53	35,410 95
Oct. "	1,624	6,820 87	35,219 14	42,040 01	50,962 72
Nov. "	1,400	5,580 74	27,941 56	33,522 30	50,603 31
Totals.	14,611	60,110 11	308,340 64	368,450 75	328,424 01

* The receipts from the U. S. mail is \$1,715 per month, or \$20,580 per annum.

It will be perceived from the above table, that the earnings exceed those of the previous year by \$40,026 74.

The total number of bales of cotton transported during the year is 114,641, against 77,437 the previous year.

The shortness of the cotton crop in that part of the state which is tributary to our road, has had the effect of diminishing the receipts of the last quarter of the year. If we had transported the same amount of cotton during that period, as we did during the corresponding period of the previous year, the earnings of the road would have been increased about \$30,000—and amounted to nearly, or quite \$400,000.

We had made provision in motive power, cars, and outfit generally, for a full business, both ways, and as our upward freight has been equal to that of the last year, we have been obliged to run trains of empty cars, on our down trips, for a great portion of the last

quarter of the year. The number of passengers has decreased during the year compared with the previous year; this may be accounted for by the circumstance of our having had during the previous year, several thousands who attended religious, political and military meetings, while we have had none during the last. Our night trains have had the effect also of diminishing the number, though there is a greater proportion of through passengers, and the receipts have been increased from that source.

We have been remarkably successful in our night running; no accident of any importance to the trains has occurred; and their regularity has been fully equal to that of the day trains. The expenses have been somewhat increased, as we require three trains instead of two to be constantly in service, with an additional conductor, and engine crew.

The road throughout its whole extent, is in as good order as at any previous period; and the trains, have, during the whole of the past year, performed their trips with great regularity and freedom from accident.

The whole distance performed during the year by all the engines, is 223,241 miles.—We are entirely relieved from the difficulties arising from the breaking of axles—an accident of the kind now very rarely occurs.

The expense of maintaining and working the road during the year, has been as follows:

Maintenance of Way.—Including timber, spikes and all other materials, labor, salaries of superintendent and assistant; with all other expenses of repairs of road, bridges, wells, cisterns, turn-outs, turn-tables, etc.....	\$78,286 58
Maintenance of Machinery and Motive Power.—Including all work and materials for repairs of engines, machinery in shops, wages of runners and firemen, oil and tallow for engines, fuel and water for do., salaries of superintendent and master machinist, etc.....	54,460 49
Maintenance of Cars.—Including all materials and labor upon cars, oil and tallow for do., salary of superintendent and master carpenter.....	8,573 00
Transportation Expenses.—Including train hands, labor at depots, clerks, agents at way stations, labor at do., salary of superintendent, insurance on cotton and damage.....	42,505 25
Incidental Expenses.—Including printing, stationery and miscellaneous expenses not embraced under other heads.....	3,061 07
Total.....	\$186,886 39

We have done, in addition to the ordinary repairs of track, a large amount of work on the bridges and culverts, during the past year, and have renewed the spikes on several miles of the lower end of the road, on which the original spikes were too light.

The several additional works mentioned in my last report, as being necessary to render the road complete, have been nearly accomplished. We have erected during the past year, a new and commodious car shop, a convenient passenger house and offices at the Savannah depot—built an additional cotton yard with the necessary tracks, turn-outs and tables, at the Macon depot, added four of Baldwin's improved engines to our motive power, besides rebuilding the "Georgia" in our own shops; making our number now twenty, all of which are in working order except the

"Macon," which is dismantled. We have also embanked about one mile of the road which was built on trestle work, and intend to continue the operation on a moderate scale during the current year.

The engine house at the centre of the road is nearly completed—when finished, it will contribute much to the facility and economy of working the road; a house to shelter the passenger cars at the Savannah depot, has also been commenced; this is very necessary to protect the spare cars from the weather while not in use. Our present number of burthen cars is 180; we have on hand, and in a state of forwardness, the wheels, axles, springs, and other materials, to increase the number to 200, which, it is thought, will be sufficient for any press of business that may be expected for some time to come.

A reduction of the regular force for keeping the track in order, will be made for the approaching year, but a considerable number of hands will be required during the year on the bridges.

A reduction of expenses will be made in the machinery and motive power department, and in the car department.

Our operations have suffered less during the past autumn months by sickness than heretofore, and I doubt not that the whole line of road is improving in healthiness.

During the past year, I have made an experiment of substituting iron cross-ties for our present wooden sleepers. In renewing the sleepers as they decay, we use no other timber than cypress—this is not to be obtained near the road above the Ogechee river, and we are obliged to transport the sleepers from the lower portions of the road, which increases the labor and expense.

I have long entertained the opinion, that a much smoother track could be attained by removing entirely the sleepers, which support the string pieces at intervals, so as to give the string pieces a continuous and uninterrupted bed of earth. I am now convinced of the correctness of this opinion. The plan is as follows:

The string pieces (6 by 12 inches,) are laid on an even well rammed surface, and in length of from 30 to 60 feet at the joinings, a bolster piece of the same scantling, as the string piece and three feet long, is placed lengthwise immediately under the joint, and the string piece pinned to it. The iron rails of the ordinary T pattern, are laid along the centre of the string piece, and the track is kept in gauge by the iron tie, a piece of flat bar iron half an inch thick by two inches wide; this tie is let flatwise into the string piece flush with its upper surface under the rail, and the ends bent into the form of a hook, grasp the outside of the bottom web of the rail at the joint. The rail is confined in other respects as usual with the ordinary hook spikes. The track is filled even with the top surface of the string pieces. We have laid about 700 feet in the manner above described, on a portion of the road where the earth was springy, and it was difficult to keep the track in adjustment. It has borne the transit of the trains for several months past,

and keeps in much better order than the wooden sleepers. The following statement shows the comparative expense of a mile of road with iron cross-ties, as above described, and with wooden sleepers, for 20 years:

<i>With iron cross-ties for one mile:</i>	
352 iron bars, 18 lbs., each, at 4 cents per lb.	\$253 44
Bending the ends and preparing them, at 4 cents each	14 08
330 bolster pieces under the joinings of string pieces [6 by 12 inches, and 3 feet long] at \$7 per thousand feet B. M., to be renewed 3 times in 20 years	166 32
Putting in 352 ties	57 12
Amount	\$496 24
<i>With wooden sleepers for one mile:</i>	
660 cypress sleepers, allowing them to be left sound at the end of 20 years, will have to be renewed three times; then 1980 ties at 25 cents each	495 00
Putting in 1980 ties	471 24
Amount	\$966 24
Difference in favor of iron cross-ties in a period of 20 years, per mile	475 28
The first cost of substituting the iron for the wood is, per mile	379 00
First cost of renewing the wooden sleepers	322 00
Difference	\$57 00

You will thus perceive that in a period of 20 years, a saving of \$475 would be effected, while the additional first cost is only 57 dollars per mile. The cost of putting in the ties, both of iron and wood, is estimated from actual experiment.

I have said nothing in the above estimate, of the saving which would be made in the labor of keeping the track in adjustment; this would not be less than \$10 per mile per annum, and would swell the difference in favor of the iron ties to nearly \$700 per mile in the period of 20 years.

I think the subject worthy of the attention of the board of directors. In the arrangement of the details of the plan, in making this experiment, I am happy to acknowledge my indebtedness to the judgement and ingenuity of Mr. William M. Wadley, one of our contractors for repairs. I am sir, very respectfully, your obedient servant.

L. O. REYNOLDS, *Chief Engineer.*

Right of Way.—We find the following remarks of the Pittsburg Journal, in relation to the "right of way" to the Baltimore and Ohio Railroad, in the Baltimore American. There is much truth in a few words—and it is to be hoped that the people of Philadelphia will appreciate them in time: It would be better for Pennsylvania to give a million of dollars to bring the road to Pittsburgh and to prevent its termination at Parkersburgh. The Journal says:

"It is evident that the Philadelphians are sincerely anxious and anxiously sincere now, about connecting their city with the West, by means of a Railroad. It is quite time that they should be awake to their own interests, and prepare for effectual competition with other Atlantic cities, for the trade of the West. We are sure they are in earnest now, and we rejoice that it is so, for the interest of Philadelphia cannot suffer a decline with-

out injury to Pittsburgh, and she must suffer unless soon connected with the Ohio River by Railroad.

"The continuous Railroad via Harrisburgh, will do much to restore to Philadelphia her ascendancy in trade and commerce, but that alone will not suffice. She must, to perfect her approaches to, and connexion with the West, prevent the tapping of the Ohio River by Railroad at any point so far down, as to cut off communication by the River with the Western terminus of the Philadelphia and Pittsburgh line.

"The Baltimore and Ohio Railroad must not be allowed or be driven to tap the river at Parkersburgh, but invited by liberal legislation to come to Pittsburgh, and thus leave the navigation of the river open to both lines alike. We maintain that the tapping of the river at Parkersburgh by Railroad would be disastrous to Pittsburgh, and fatal to the project of a Railroad from Philadelphia to Pittsburgh. It would be absolutely equivalent to draining the river to Parkersburgh, so far as the trade with the lower country could be affected. If the Philadelphians will add to their projected continuous Railway to Pittsburgh, advocacy of such liberal and enlightened legislation, as will induce the Baltimore and Ohio Railroad to bring their Western terminus to Pittsburgh, then all will be well."

Central Vermont Railroad.—The Burlington Free Press of the 2d inst. says:

"We announced a few days since, the commencement of this work, near Windsoe. We are now pleased to announce the presence of the contractors for this end of the route, and that a gang of men are now at work between this and Montpelier. Preliminary arrangements are making for prosecuting the work with vigor, and two thousand hands will string the line at the earliest period the season will allow."

Accident on the Troy and Greenbush Railroad.—A mau walking on the Railroad, near the village of Bath, was knocked down and run over, by the engine one evening last week, and killed. Name unknown. If people will thus hazard their lives, they must abide the consequences.

The following is the increase in the first twenty weeks of the present half-year in the traffic of the following lines, as compared with the same period of 1844:

Chester and Birkenhead	£2680
Eastern counties	30631
Edinburgh and Glasgow	11153
Glasgow and Greenock	1801
Glasgow, Paisley and Ayr	7992
Great Western	32749
London and Birmingham	56986
London and Brighton	15747
London and Croydon	3548
London and Southwestern	10395
Manchester and Birmingham	17043
Manchester, Bolton and Bury	1528
Manchester and Leeds	20085
Midland company*	59603
North Union	3077
Preston and Wyre	4713
Sheffield and Manchester	10618
Southeastern	39810

* Including Bristol and Birmingham.

Railways in Different Countries.—From the returns recently compiled by order of parliament, from documents in the possession of the board of trade and other public departments, it appears that the total amount of capital that has been expended in the construction of railways, in different countries, stood as follows at the close of 1843:—

	Miles.	Amount.	Average per mile.
Great Britain.....	2,069 1/2	£64,238,630	£31,048
Belgium.....	343	5,872,160	17,120
France.....	552	10,276,000	18,617
Germany.....	1,997 1/2	15,500,000	7,500
America.....	3,688	17,702,400	4,800

Total.....8,650...£113,589,160...£13,131
For railways in actual progress in Great Britain an estimated capital of 74,407,520l. was raising, in order to construct 3,543 miles of line sanctioned by acts of 1844 and 1845. In France, 44,866,970l. for new lines, extending over 2,410 miles. In Germany, 18,000,000l. for 2,347 1/2 miles; and in America, 26,995,200l. for 5,624 miles. The calculation shows, that England contributes 138,646,150l. out of the whole capital of 277,858,850l. expended and expending, or exactly 50 per cent., the length of the projected railways being 5,612 1/2 miles, in this country, out of the grand total of 22,574 1/2 miles or close upon 25 per cent. of their united lengths.

The Message of Gov. Pratt of Maryland.
The National Intelligencer gives a synopsis of this document. "The message" it says, "is a strongly written, straight-forward paper, speaks its author's opinions out boldly, shuns no responsibility that belongs to it, and will create a decided impression on all who read it."

The distinctive characteristic of the message, says the Baltimore American, is the evident determination which it evinces to urge to a successful consummation the measure of resumption on our state debt. That the legislature will support the executive in this determination, and that the people will sustain both, we do not allow ourselves to doubt.—The day has never been yet, as we believe, when the people of Maryland would have failed to sanction an efficient, complete and just system of measures for maintaining the honor of the state by meeting promptly all her engagements.

Railroad from Toledo to Chicago.—A large meeting of the citizens of St. Joseph county, says the Sandusky Clarion, was held at South Bend, Indiana, on the 17th instant, at which they passed resolutions pledging themselves to take an active part in the construction of a railroad from Toledo to Chicago, but protesting against a grant of the right of way over the territory of that State, for the extension of the central railroad in Michigan, from St. Josephs round the edge of the lake to Chicago. They express their surprise (as well they may) that so many American citizens have lent their assistance and capital to the Canadian railroad, from opposite Buffalo to opposite Detroit—thus giving to a foreign power in time of war, the advantage of a road for the transportation of troops and munitions of war, built with American money, to be used against the cause and interest of those who constructed it. They al-

so resolve "that every sentiment of patriotism should give the precedence to the contemplated railroad from Toledo eastward on the south side of Lake Erie to Dunkirk."

There is no necessity, we believe, for the surprise here expressed, as the stock has been all taken in London, except a small portion reserved for Canada.

Canadaigua and Corning Railroad.—A large meeting of the friends of this road was held at Prattsburgh on the 22d ult.—Several good speeches were made, and a resolution passed directing the central committee to employ an engineer to survey the route.—*Rochester Democrat.*

MANUFACTURE OF PATENT WIRE
Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plate No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 ly

A. & G. HALSTON & CO., NO. 4
South Front St., Philadelphia, Pa.
Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/2 x 1/2 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/2 x 1/2 " Flange Iron Rails. 75 " 1 x 1/2 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. .1lf

LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by MORRIS TASKER & MORRIS, Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 1lf

KITE'S PATENT SAFETY BEAM.

Messrs. Editors.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheeled passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.

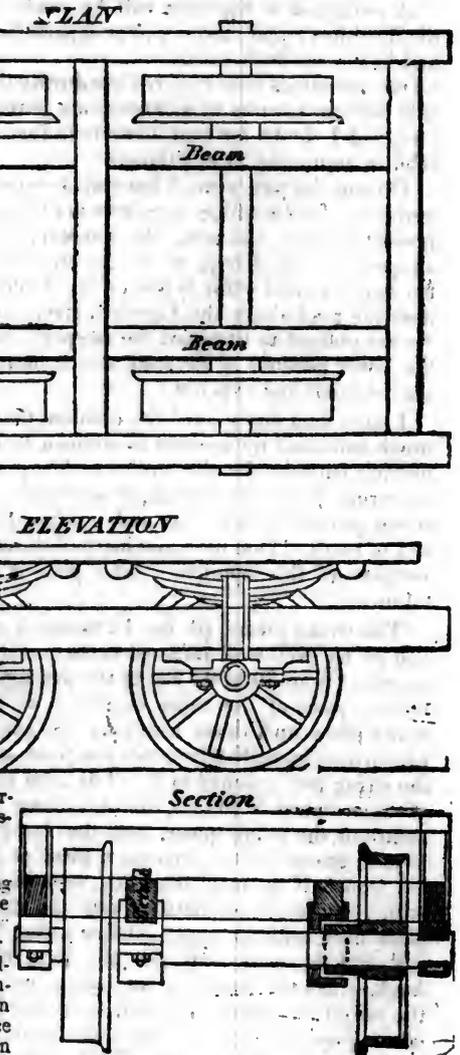
Wilmington, Del., Sept. 28, 1840.

The undersigned takes pleasure in attesting the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger car on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.

In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.

JOHN FRAZER, Agent,
GEORGE CRAIG, Superintendent,

A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 1 Hanover st., N. York.



NEW YORK AND HARLEM RAILROAD COMPANY.—Winter Arrangement.

On and after November 3d, 1845, the cars will run as follows:
Leave City Hall for Yorkville, Harlem, Morrisiana, and Williams' Bridge,
7 30 A.M. This train leaves 27th st.
7 30 " Does not stop this side of Harlem.
10 30 " Does not stop this side of Harlem.
11 30 "
1 P.M. Does not stop this side of Harlem.
2 30 "
3 30 " Does not stop this side of Harlem.
4 30 "

Leave White Plains for City Hall—8-10, 11-10 a.m., and 1-45, 4-10 p.m.

Leave Tuckahoe for City Hall—8-20, 11-20 a.m., and 1-55, 4-20 p.m.

Leave Williams' Bridge for City Hall—8-45, 11-45 a.m. and 12-45, 2-15, 3-45, 4-45, and 5-45 p.m.

Leave Morrisiana for City Hall—8, and 9-10 a.m., and 12-10, 2-40, 4-10, 5-10, and 6-10 p.m.

The freight train will leave City Hall at 12-45 p.m. and leave White Plains at 11-10 a.m. All freight must be at the City Hall between the hours of 10-30 a.m. and 12-30 p.m. The White Plain trains will stop, after leaving the City Hall, only at the corner of Broome street and the Bowery, Vauxhall Garden and 27th street.

An extra car will precede each train, 10 minutes before the time of starting from the City Hall, and will take up passengers along the line.

The City Hall and 27th street line will run every 6 minutes from 7-30 a.m. to 8 p.m.

The City Hall and 27th street night line will run every 20 minutes from 8 to 12 o'clock.

On Sundays the trains will be regulated according to the state of the weather. ly 46

THE LONDON RAILWAY RECORD,
Edited by Mr. JOHN ROBERTSON, A. M.,
(connected from the commencement with the Weekly Railway press of England.)

The *Railway Record* is acknowledged to be the leading English Railway Journal, and is published twice a week in London, namely on Wednesday and Saturday. It contains copious and correct reports (by special reporters) of all railway meetings in the United Kingdom; ample Share Lists and Traffic Tables, showing the length, cost, capital and selling prices in the principal markets, with Editorial articles on the leading Railway topics of the day.—The *Railway Record* contains also, a complete resume of French, Belgian and other foreign Railway affairs.

Subscriptions 13s. per quarter, to be transmitted in advance to Messrs. Dawson and Sons, Cannon-st. London. Office 153 Fleet street, London. 46

BOSTON COURIER, DAILY, SEMI-Weekly and Weekly.

The *Daily* edition of the *Courier*, presents to merchants and others, an extensive medium of advertising. The circulation of the *Semi-Weekly Courier* (published on Mondays and Thursdays) is believed to be more extensive than that of any other similar Boston Newspaper. This publication embraces all the reading matter of the *Daily*, the Foreign and Domestic Markets, Review of the Boston Market, Prices current, and Ship News, prepared with great accuracy. The *Weekly Courier* contains as much of the matter of the *Daily* as can be crowded into a sheet of the same size, without ship news, prices current or advertisements.

Our extions to obtain and publish authentic information on all topics proper for the columns of a newspaper,—the state of trade, the prices of merchandise, the current news of the day, and the political movements in the various sections of the country—will not be abated. The marine department of the *Courier* has been inferior to none in copiousness or accuracy of detail, and it will be our endeavor maintain its reputation in this respect.

TERMS OF SUBSCRIPTION.
For the *Daily Courier*, for one year, in advance \$8.00
For the *Semi-Weekly Courier*, for one year.. 4.00
For the *Weekly Courier*, for one year..... 2.00

JOSEPH T. BUCKINGHAM.
EBIN B. FOSTER.

BALTIMORE AND OHIO RAILROAD.
MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains—at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.
Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 3½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1.60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13 ly

CENTRAL RAILROAD-FROM SAVANNAH to Macon. Distance 190 miles.
This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.
On measurement goods..... 13 cts. per cubic ft.
On brls. wet (except molasses and oil).....\$1 50 per barrel.
On brls. dry (except lime)... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.
On molasses and oil.....\$6 00 per hhd.
Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, 40 Gen'l. Sup't. Transportation.

LXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.
Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1.25.
On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.
The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above. 35 ly

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J.

Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to
James P. Allaire, } New York.
Peter Cooper, }
Murdock, Leavitt & Co. }
J. Triplett & Son, Richmond, Va.
J. R. Anderson, Tredegar Iron Works, Richmond, Va.
J. Patton, Jr. } Philadelphia, Pa.
Colwell & Co. }
J. M. L. & W. H. Scovill, Waterbury, Con.
N. E. Screw Co. } Providence, R. I.
Eagle Screw Co. }
William Parker, Supt. Bost. and Worc. R. R.
New Jersey Malleable Iron Co., Newark, N. J.
Gardiner, Harrison & Co. Newark, N. J.
25,000 to 30,000 made weekly. 35 ly

RAILROAD IRON AND FIXTURES.

The Subscribers are ready to execute orders for the above, or to contract therefor, at a fixed price, delivered in the United States.
DAVIS, BROOKS & CO.,
30 Wall st., N. York.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Winter Arrangement. On and after Monday, Nov. 3, the Passenger

Trains will run as follows:
For New York—night line, via Stonington.—Leaves Boston every day, but Sunday, at 4½ p.m.
Accommodation trains, leave Boston at 8 a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m.
Dedham trains, leave Boston at 9 a.m. 3, 5½ and 10 p.m. Leave Dedham at 8 and 10½ a.m., and 4½ and 7 p.m.
Stoughton trains, leave Boston at 12 m. and 4 p.m. Leave Stoughton at 8-20 a.m. and 2½ p.m.
All baggage at the risk of the owners thereof.
N.B. The last train to and from Boston and Dedham, will be omitted in case of a severe snow storm. W. RAYMOND LEE, Sup't. 31 ly

BRANCH RAILROAD and STAGES connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NEW YORK AND ERIE RAILROAD LINE. For Middletown, Goshen, and intermediate places. Two daily lines each way, as follows:

For passengers, the new, and commodious steamboat St. Nicholas, Capt. Alex. H. Shultz, will leave the foot of Duane street daily, [Sundays excepted,] at 7½ o'clock, A.M., and 5 o'clock, P.M., through in five hours. Returning, the cars will leave Middletown at 6 A.M., and 4½ P.M. For further particulars inquire of J. Van Rensselaer, Agent, corner of Duane and West streets.

H. C. SEYMOUR, Superintendent.

Stages run from Middletown daily, in connection with the afternoon line, to Bloomingburg, Wartsboro, Monticello, Mt. Pleasant, Binghampton, Owego, Port Jervis, Honesdale, Carbondale, etc.

On Monday, Wednesday, and Friday, to Dundaff, Montrose, Friendsville, Lenox, Brooklyn, etc., etc. 31 ly

BALTIMORE AND SUSQUEHANNA Railroad. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a.m., and arrives at 6½ p.m. Arrives at York at 12½ p.m., and leaves for Columbia at 1½ p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62½. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3½ p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc.

Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day any passenger train.

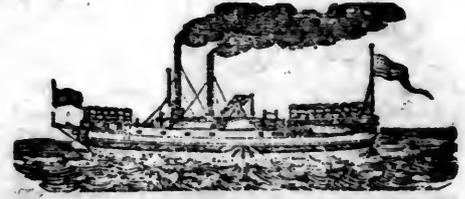
D. C. H. BORDLEY, Sup't.
31 ly Ticket Office, 63 North st.

DAVIS, BROOKS & Co., 30 WALL ST.

Have now on hand and for sale,
200 tons 2½ x 7 inch Flat punched Rails, Bars 18 feet each.
100 tons Heavy Edge Rails, 90 tons per mile.
30 tons 2½ x 7 inch Flat Rails.
Also—A STEAM PILE DRIVER, built by "Dunham & Co." which has never been used, and cost originally \$5000. s20 2m

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

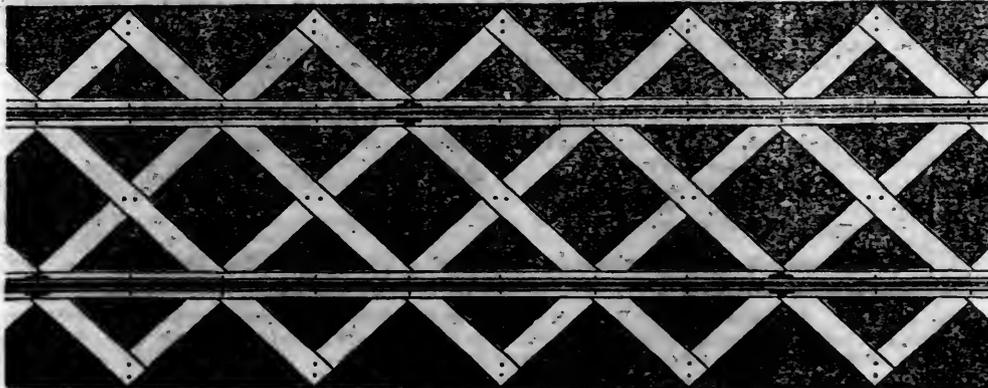
SECOND QUARTO SERIES, VOL. II., No. 3]

SATURDAY, JANUARY 17, 1846.

[WHOLE No. 499, VOL. XIX.

W. R. CASEY, CIVIL ENGINEER, NO. 23 Chambers street, New York, will make surveys estimates of cost and reports for railways, canals, roads, docks, wharves, dams and bridges of every description. He will also act as agent for the sale of machinery, and of patent rights for improvements to public works.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting.

HERRON'S IMPROVEMENTS IN RAILWAY Superstructure effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for *Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON,
Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
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One square ".....	15 00
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One square ".....	2 50
One page, single insertion.....	8 00
One column " ".....	3 00
One square " ".....	1 00
Professional notices per annum...	5 00

ENGINEERS and MACHINISTS.

J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
TROY IRON AND NAIL FACTORY,
H. Burden, Agent. (See Adv.)
ROGERS, KETCHUM AND GROSVE-
NOR, Patterson, N. J. (See Adv.)
S. VAIL, Speedwell Iron Works, near
Morristown, N. J. (See Adv.)
NORRIS, BROTHERS, Philadelphia Pa.
(See Adv.)
KITE'S Patent Safety Beam. (See Adv.)
FRENCH & BAIRD, Philadelphia, Pa.
(See Adv.)
NEWCASTLE MANUFACTURING
COMPANY, Newcastle, Del. (See Adv.)
ROSS WINANS, Baltimore, Md.
CYRUS ALGER & Co., South Boston
Iron Company.
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STILLMAN, ALLEN & Co., N. Y.
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JOHN F. STARR, Philadelphia, Pa.
MERRICK & TOWNE, do.
HINCKLEY & DRURY, Boston.
C. C. ALGER, Stockbridge Iron Works,
Stockbridge, Mass.
BALDWIN & WHITNEY, Philadel-
phia, Pa.
THOMAS & EDMUND GEORGE, Phil-
adelphia. (See Adv.)

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eiting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

- E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Snp't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, or to Messrs. Baldwin & Whitney, of this city, will be promptly executed.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45

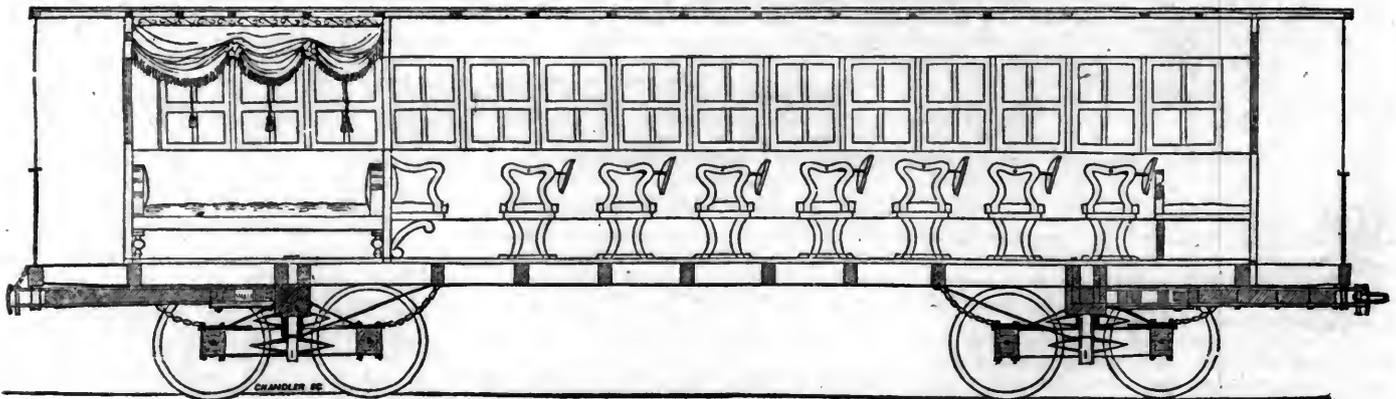


BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

The article is complete in itself, occupies but little space, is perfectly portable, and requires no brick work, not even to stand upon. It is valuable not only in the saving of time and labor, but in the economy of fuel, as it has been ascertained by accurate measurement, that the saving in that article is fully two-thirds over other methods heretofore in use. They are now for the first time introduced into New York and Boston by the subscriber, who has the exclusive right for the New England states, New York and New Jersey, and are manufactured by

CURTIS & RANDALL, Boston; and by FORCE, GREEN & CO. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern, and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All order punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

RAILROAD IRON AND LOCOMOTIVE
 Tyres imported to order and constantly on hand
 by **A. & G. RALSTON**
 Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
 Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gear- ing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
 ja45 President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS.
 etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

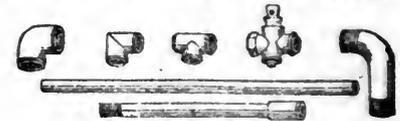
W. Mc. C. CUSHMAN, Civil Engineer,
 Albany, N. Y.
 Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

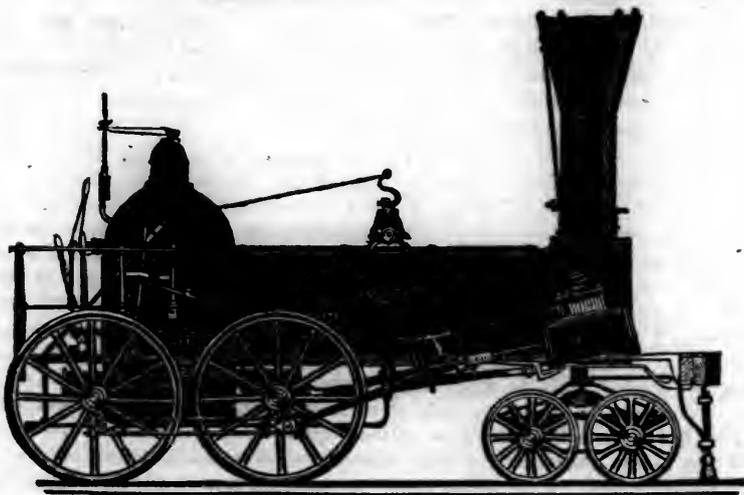
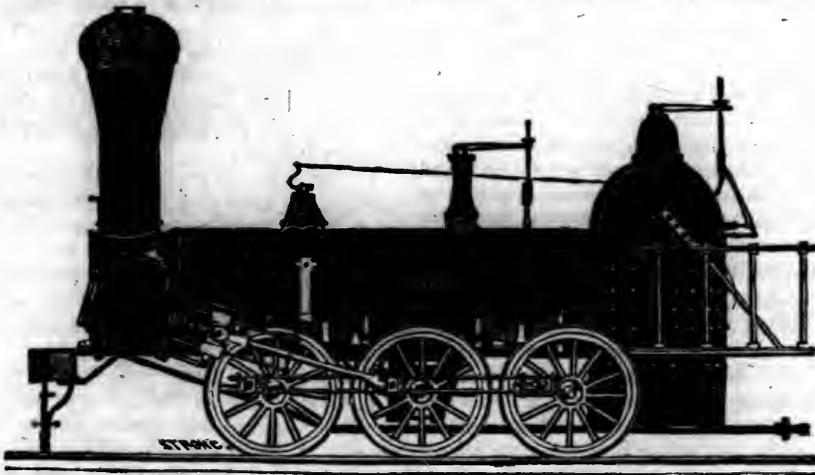
From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
 Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion Castings of all kinds made to order: and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars

NORRIS, BROTHERS.

RAILROAD IRON.—THE MARYLAND AND NEW YORK IRON AND Coal Company are now prepared to make contracts for Rails of all kinds. Address the Subscriber, at Jennon's Run, Alleghany County, Maryland.

WILLIAM YOUNG,
 President.

ja451m

TO IRON MASTERS.—FOR SALE.—MILL SITES in the immediate neighborhood of Bituminous Coal and Iron Ore, of the first quality, at Ralston, Lyoming Co., Pa. This is the nearest point to tide water where such coal and ore are found together, and the communication is complete with Philadelphia and Baltimore by canals and railways. The interest on the cost of water power and lot is all that will be required for many years the coal will not cost more than \$1 to \$1 25 at the mill sites, without any trouble on the part of the manufacturer; rich iron ore may be laid down still more cheaply at the works; and, taken together these sites offer remarkable advantages to practical manufacturers with small capital. For pamphlets, descriptive of the property, and further information, apply to Archibald McIntyre, Albany, to Archibald Robertson, Philadelphia, or to the undersigned, at No. 23 Chambers street, New York, where may be seen specimens of the coal and ore.

W. R. CASEY, Civil Engineer,

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 feet, with lathes, work benches, &c.

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS, 48 State st.,** or to **CURTIS, LEAVENS & CO., 106 State st., Boston,** or to **A. & G. RALSTON & Co., Philadelphia.**

ja45
JYRUS ALGER & CO., South Boston Iron Company.

Niagara Suspension Bridge.
PHILADELPHIA, Nov. 27, 1845.

To George S. Tiffany, Esq., Chairman of the Great Western Railroad Company, and Washington Hunt, Esq., President of the Niagara Falls and Lockport Railroad Company:

GENTLEMEN: The questions which have been put to me by the chairman of the Great Western railroad company, and by the president of the Niagara Falls and Lockport railroad company, in reference to the practicability, cost and security of a railroad bridge across the Niagara river, below the falls, to unite their works and remove the only interruption to a great line of intercourse, coinciding in all essential particulars, I have thought it well to reply to both parties in the same paper, so that one communication may cover all the important ground.

For this purpose I will repeat the questions of Mr. Tiffany, and in compliance with the concluding sentence of his letter, add such other information in my reply, as may seem to be explanatory of the subject.

The following are the questions as submitted:

1. "Have you examined the Niagara river below the falls, with a view to the construction of a suspension bridge?"
2. "If so, do you think it practicable?"
3. "How far would the proposed site be from the falls?"
4. "Of what material would you advise the bridge to be built?"
5. "What would it cost, and what time would it take to build it?"
6. "Can it be so constructed as to be perfectly safe for locomotives trailing 200 tons to pass over it with velocity, without putting the bridge to the extent of its power?"

In reply to these questions, I have to say that I have examined several sites for a bridge across Niagara river, commencing with a point above the falls, on Goat Island, and passing thence to other places below the falls, and in the neighborhood of Lewiston.

So far as regards the simple question of practicability, either of these localities might be selected, and a bridge competent to all the duties of railroad traffic, constructed with perfect security and success. But the position which appears to be most suitable, on account of the near approach of opposite cliffs and of the favorable form of the ground for the fastening of the cables, and the entrance of the railroads on either side, is about one and a half miles below the falls; and I believe the lowest point on the east bank of the river from which the cataract is visible.

This point is a short distance above the whirlpool. The river is here 700 feet wide, measuring from rock to rock; but as the upper ledge of the lime stone rather overhangs the base, it is necessary to fall back, for the sake of security, and make the span of the bridge about 750 feet.

The surface of the rock on the New York shore, is 210 feet above the Niagara. The material is of firm structure, and offers an unexceptionable foundation. The space to be spanned is entirely within safe limits.

The question of practicability admits of no discussion. The only points which it seems necessary to consider, are the probable cost of the work, and the value of the motives for its construction. Bridges of greater span have been erected and tested by ten years' use; and if the present objects require a work capable of sustaining heavier weights, or which must be subjected to rougher usage than those which have been made, it must be rendered proportionally stronger and securer. But while such considerations influence the cost, they cannot raise up a question of practicability.

The material which I would propose to employ is iron wire formed into cables of adequate strength, in the mode usually adopted for suspension bridges.

This is, in fact, the only material suitable for the purpose; and is recommended by its extreme tenacity, great security, and the additional motive of economy.

A wire cable 12 miles long, might be made and suspended safely between the summits of mountains, of which the height is five miles above the lowest point of the curve; and such a cable stretched between supports of 750 feet apart, and drawn to the tension usual in suspension bridges, will sustain first its own weight, and then some 25 times its own weight in addition.

If a bridge of a given span be secure when used for the transportation of given weights over it, by doubling the number of cables and the strength of the flooring, it would sustain loads thrice as heavy—and by trebling the quantity and strength of the material, we may treble or increase in the same proportion the magnitude of its load.

The bridge which is the subject of this paper, is intended to have a single railway track in the centre, and two lateral ways for common travel, and two foot ways.

It will span the gorge of the river at a single sweep of 750 feet, and will be sustained on each side by columns of massive masonry, finely wrought, and built as firmly as the rock on which they rest.

The bridge will be supported by 20 cables of iron wire—10 on each side—each of which will be nearly 5 inches in diameter, 1000 feet long, and weigh about 19 tons.

The weight of the pendant portion of the bridge when not loaded, will be from 600 to 700 tons. The strength of the materials is calculated with a view to the possibility of loads of 400 tons being placed on the flooring. The greatest tension which the cables will ever have to resist, will be 2,300 tons. The absolute strength of the largest cables will be 500 tons, and the aggregate strength of the 20 main cables will be 9,000 tons.

These supporting cables will be attached at their extremities to the solid rock by a process similar to that which I have adopted with satisfaction for the eastern fastening of the cables of the Fairmount bridge. They will be sustained at the summits of the columns on moveable saddles, by means of which compensation may be obtained for the expansion and contraction of the material

without producing any injurious action on the masonry.

I estimate the cost of this work—assuming that it is to be built for railway purposes, and in the substantial style proposed—at \$220,000.

The time required to complete it will depend much on the season of the year when it is commenced. If the preliminary arrangements can be effected this winter, so that the work may be begun in early spring, it may be completed in the course of the year.

The next point for consideration is, will the objects to be subserved by the bridge justify the necessary outlay?

The objects are the obtaining of the most direct route for the great line of railroad reaching from lake Michigan to Boston—the saving of distance, computed at 11 miles—the avoiding of transshipment and ferrriage from Fort Erie to Buffalo—the saving of time at all seasons, and the prevention of a total interruption of traffic consequent on the accumulation of ice at the head of the Niagara river in the winter.

To judge of the propriety of constructing a bridge, we must first form some estimate of the value of these considerations. For this purpose, I will assume that the length of the Great Western railroad, if it terminate on the Niagara river below the Falls, will be, as estimated, 11 miles shorter than if carried by Fort Erie and Buffalo.

We shall then have

1. The saving of the construction of 11 miles of road, the first cost of which, in the absence of actual surveys and authentic facts, may be estimated at \$20,000 a mile, and for 11 miles \$220,000.

2. The cost of maintaining and repairing 11 miles of road, with single track—worth, on the average \$600 a mile, or \$6,600 per annum—which is equivalent to a capital of \$110,000.

3. The cost of working 11 miles of road depends on the amount of trade and travel to be accommodated. The Western road in Massachusetts, in 1844, carried an amount of tonnage equivalent to 71,000 tons transported over the whole length of the line. The Boston and Worcester road the same year, conveyed in all 126,000 tons. The Boston and Lowell Road 150,000, and the Baltimore and Ohio 103,000. The Southern Roads generally carry much less than these quantities; but viewing the location of the Great Western road in Canada, and the fertile country which it is said to pass through, I think it not unreasonable to assume that its trade will be at least 50,000 tons per annum.

The cost of transporting freight on the best managed roads of this country—as well as on those of Great Britain and Europe—is about 2cts. per ton per mile over and above the repairs and maintenance of the road.

50,000 tons carried 11 miles at 2 cents, is \$11,000 per annum, which is equivalent to a capital of \$183,333.

4. The cost of conveying passengers will depend also on the number to be conveyed. But I think we may safely assume that there

will be two daily trains each way, at a cost per mile run of 50 cents, over and above the road repairs.

Four daily trains running 11 miles at 50 cents each per mile, will give \$32 per diem, and for 300 days, \$6,600, which is equivalent to a capital of \$110,000.

5. The cost of running a ferry boat on a ferry 2 1-2 miles in length, with the necessary shore-fixtures, cannot be set down at less than \$30 a day, or \$9,000 per annum—which is a capital of \$150,000.

6. The expense of transshipping goods, in addition to the maintenance of a ferry boat, will be equal to 20 cents a ton on all goods conveyed. On 50,000 tons it will be \$10,000 per annum, which is equivalent to a further capital of \$166,666.

7. The loss arising from the total interruption of the trade and travel in the winter, when this ferry will be impassable, will be a very heavy item, though one which I am not prepared to estimate. I have no correct data for determining the probable amount of interruption which will arise from this cause; but it is fair to assume that the Great Western Road will earn 6 per cent. on a capital of \$5,000,000, clear of all the expenses of the line.

Leaving out of view entirely the loss which will be increased by the roads on the east side of the Niagara, any interruption to the Canadian improvement alone will be equal to a sacrifice of \$300,000 per annum, or to a loss of \$1000 for each working day. Each day of total interruption, at a season of the year when there is no competition, will involve a loss of \$1000: and as the abstraction of this day's earnings is a thing of annual occurrence, it may be represented by an equivalent capital of \$16,666.

If it should appear on a close inquiry that a dependence on a ferry at the head of the Niagara will result in a total stoppage of the trade of the Great Western road for 30 days in the year, then it would seem to be good policy to expend, for the purpose of removing the evil:

For each day, \$16,666: for 30 days, \$500,000.

These are the leading items—and the only ones I believe which we are able to estimate with any reasonable degree of approximation—of the objections to the adoption of a ferry and the construction of the longer line of road.

It is not pretended that any of these quantities can lay much claim to accuracy; yet I am inclined to believe that if you will examine the several items, separately and closely, they are more likely to appear under, than over valued.

Taking them, however, as they result, we have,

- 1. The cost of 11 miles of road, \$220,000
- 2. Repairs and maintenance of 11 miles of road, 110,000
- 3. Cost of carrying 50,000 tons over 11 miles of road annually, equivalent to a capital of 183,333
- 4. Carrying passengers 11 miles, 110,000

- 5. Maintaining and running a ferry boat, 150,000
- 6. Transshipment of tonnage and depot expenses, 166,666
- Equivalent* total capital, \$940,000

If the data which I have assumed be correct—if there be, as estimated, a difference of 11 miles in distance in favor of the route by the falls, which obviates the necessity of a ferry and of all delay and of transshipment—that route will be worth to the Great Western company some \$940,000 more than the other without including at all the loss consequent on the total suspension of traffic which may be occasioned by the ice which accumulates at the outlet of lake Erie.

If this intermission amount to 10 days in a year, it is equivalent to an additional capital of \$166,000; and if it amount to 30 days it would justify an outlay of \$500,000 to remove it.

I will leave this item for others more conversant with the navigation of the lake, to estimate. It is enough at present to know that there is such an interruption, and that it will not only amount to many days in the year, but that even when it does not amount to a total stoppage of the traffic, it is still sufficient to produce great delay and serious embarrassment.

This obstruction is in fact so great, that even for the convenience of parties seeking to reach Buffalo it would be better to cross on a bridge at the falls, and avoid the ferry, than submit to its exposure and delay.

The profits of the railroad from the falls to Buffalo will therefore be greatly promoted by construction of the bridge.

The cost of a bridge such as I have described, and which will remove these impediments to trade and travel, both on the Canadian and American lines of improvement, will be, as stated, \$220,000.

The structure itself will be a beautiful and durable object, and the investment a great deal better and more profitable than that of any railroad line now in use on this continent.

I will make no specific estimate of the probable value of the stock. To yourselves, as the head of the two lines of railway most immediately interested in the consummation of the work, these are considerations more important than the dividends that may be anticipated.

I have endeavored to submit these considerations for your reflection, in the belief that

* The engineer has here been misinformed as to the difference in the distance from Hamilton to the falls, and to Fort Erie, opposite Buffalo. From Hamilton to the falls, by way of the railroad, will be 40 miles, and from the same place to Fort Erie, 56 miles; difference, 16 miles. Adopting then the engineer's rates for 16, instead of 11 miles, it would be as follows:

- 1. Cost of 16 miles road, \$320,000
- 2. Repairs and maintenance of 16 miles road, equivalent to a capital of, 160,000
- 3. Cost to carry 50,000 tons freight over 16 miles road, equivalent to a capital of, 266,663
- 4. Carrying passengers 16 miles, equivalent to a capital of, 160,000
- 5. Maintaining and running ferry boat, 150,000
- 6. Transshipment of tonnage and depot expenses do. do, 166,666
- Equivalent total capital, \$1,223,329

you will have confidence enough in the enterprise to carry it through, and gain to your respective companies and the public the benefits of the advantages which it holds out.

For further explanations and calculations respecting the construction and equilibrium of such bridges, I must refer you to the printed documents accompanying this paper, in which I have entered into all necessary detail.

Finally, in reply to the inquiry as to the ability of the bridge to sustain the weight of a locomotive engine drawing a train of 200 tons, at high velocity, I have to say that I am prepared to construct the work for the sum at which I estimate its cost—to complete it within the year 1846—and to test its strength by running a locomotive engine drawing 200 tons as often over it as may be desired and at the highest speed that the engine can attain.

Submitting these remarks for your consideration, I am, gentlemen,

Respectfully your ob't serv't,
CHARLES ELLET, JR., *Civil Eng.*

P. S.—Since closing this communication, I have received a letter from a gentleman who takes much interest in the enterprise, desiring to know for how much less the bridge might be built if it were made with a view to pass railroad cars drawn over by horses, or carried over by the velocity which the engine had previously communicated to the train, without subjecting it to the concentrated weight of the locomotive.

This modification of the plan might be adopted, if it were thought advisable, with a saving in the first cost of about \$30,000—reducing the whole expense to \$190,000.

This change would not interfere with the further additions by which the bridge would be fitted for the use of locomotives, if it should ever be found desirable to bring the engine on the provincial road upon this side.

CHARLES ELLET, JR.

Schuylkill Navigation Company.

The Schuylkill Navigation company, says the United States Gazette of the 6th instant, held its annual meeting yesterday morning. Professor Wood presided, and E. K. Price, Esq., acted as secretary.

S. W. Roberts, Esq., the president of the company, read the annual report of the board of directors to the stockholders, and the report of the engineer in chief, Mr Miller, to the board of directors.

A resolution was offered by E. Cresson, Esq., approving the report, and expressing confidence in the favorable results of the present plans of the directors, drew from C. Ellet, Esq., remarks of considerable length and great interest, on the importance of canal navigation for heavy articles.

Mr. E. was earnest and eloquent, and his speech was received with evidences of high approval.

The secretary read the following letters:

(COPY.)

To the Stockholders of the Schuylkill Navigation Company.

A letter from Solomon W. Roberts, expressing his desire not to be considered as a

candidate for president of this company at the ensuing election, is herewith submitted.

The board considers it due to Mr. Roberts to say that he has given the most untiring devotion to the duties of his responsible station at the head of this company for the last three years; that he has complied in the most satisfactory manner, with the resolution of the stockholders, requiring the president to report his acts to the board; and for his able and faithful attention to our business, and uniform desire to promote the true interests of the company, is entitled to our cordial thanks, and best wishes for his future prosperity.

By order of the board of managers.

CLAUDIUS HARPER, Sec'y.

January 5, 1846.

(COPY.)

PHILADELPHIA, Dec. 30th, 1845.

To the Board of Managers of the Schuylkill Navigation Company.

Gentlemen: Having some time since informed you of my intention of declining to be a candidate for re-election to the presidency of the company at the approaching annual meeting of the stockholders, I wish on this occasion to express to the board, and to each of its members, my strong sense of gratitude for the kindness and confidence with which they have constantly treated me.

During the three years since my first election, I have been acting under instructions from the stockholders to report all my official acts to the board; which has been done from time to time with great minuteness.

When, on account of my experience as a civil engineer, I was invited to undertake the presidency, it was anticipated that my principal duties would be those of the superintendence of the use and improvement of the navigation. It has happened, however, that other duties, devolving on the head of the company, and engrossing nearly the whole of my time, have confined me to the office, and are now injuring my health. After I had, at the request of the board, prepared the general plan for the improvement of the works, it was found necessary to commit its execution to other engineers.

The minute investigation of those gentlemen, of high professional standing, and in whom I have great confidence, have corroborated my previous conclusions; and I am satisfied that the plan of the work is correct; that every consideration of sound policy demands its completion with the least possible delay, and that it will richly remunerate the company.

All who are interested in the Schuylkill navigation, should look to this object as the certain means of giving a new and permanent value to their investment; and when it is accomplished, the company will possess a work without a parallel in the country, on which the millions of tons hereafter to constitute the annual trade of the valley of the Schuylkill, will be carried more cheaply than in any other way, and which will bring an amount of tolls to the company's treasury,

rich in proportion to the magnitude of the trade and to the great reduction in the cost of its conveyance.

I remain very respectfully and truly yours,
S. W. ROBERTS.

The following resolution was unanimously adopted:—

Resolved, That the thanks of this meeting be tendered to Solomon W. Roberts, late president of this company, for the faithful performance of his duties while presiding over the interests of this institution."

After the transaction of ordinary business, the chairman appointed tellers and judges of the election, and the stockholders proceeded to the choice of officers for the ensuing year, when the following gentlemen were declared duly elected:—

President, Charles Ellet, jr.; Managers—John Sergeant; Jacob G. Morris; William H. Dillingham; Samuel W. Lippincott; John W. Claghorn; Thomas Robins; William Ashbridge; John C. Cresson; William E. Hacker; Thomas Williamson; John R. Worrell; Charles S. Wood; Secretary and Treasurer, Claudius Harper.

From the foregoing proceedings it will be seen that Mr. Charles Ellet, jr., has been elected president of the Schuylkill Navigation company. Mr. Ellet is a gentleman of a high order of talents, has had ample experience in his profession, and is indefatigable in whatever he undertakes; we may therefore say, without any disparagement to his predecessor, that the company could not have selected a man who would be more likely to accomplish the object in view; and we are free to say that we shall be gratified by the ample success of the company—and in the restoration of their stock to its former value;—and while we are upon the subject, we will say to the managers of this company—what we have often before said to the rival companies—come to an *amicable* arrangement—charge a *fair* and *remunerating* price for transportation; the coal-consuming community will *cheerfully* pay it; it is for *their* interest, as for yours, that *both* companies prosper. *Let the warfare cease.*

New Superintendent of the Norwich and Worcester Railroad.—Many of our readers says the Norwich Courier, will learn with sincere regret that Mr. Emerson Foote who, as superintendent of the Norwich and Worcester railroad, has enjoyed a well earned and substantial popularity, has resigned the responsible office he has held for some 2 or 3 years past. Mr. Foote resigns his office for the purpose, as we understand, of visiting England and there making investigations and obtaining information on the subject of railroads with reference to certain railway projects now on foot in this country. Whether he leaves before spring we are not informed. We cordially wish him success, whenever and wherever he goes.

The gentleman who has been selected by

the railroad company as Mr. Foote's successor is Mr. J. W. STOWELL—a gentleman every way qualified for the office—and we do not doubt that the experience of the future will abundantly vindicate the wisdom and sagacity of the directors in the choice they have made.—*Norwich Courier.*

We are gratified at, instead of regretting, the resignation of Mr. Foote. We wish *more such* gentlemen would resign, and for the same reason too, viz. to visit Europe, and investigate the systems of *railway management there*, that they may compare them with ours in this country, and thus be able to introduce the best possible system of management here. We *need* reform on many of our roads; and we shall have it, too, whenever intelligent, practical men, adopt this course, of going personally to investigate what is done elsewhere.

The Railroad.—The board of directors, says the Portland Advertiser of 6th inst., are adopting all practicable measures to perfect the surveys, and to have the data for location as fully and accurately collected, as may be, at the opening of the next season. One party of engineers came in a short time from their fall tour. Another party still remains out, and we learn that a new company is to leave the city to-day, to resume and continue the survey, west of the highlands in New Hampshire, and in the neighborhood of Canaan, in the north of Vermont.

Judge Preble has probably now been in England a fortnight. He will have had time to make some arrangements, before the arrival out of the Cambria, and though we regret the news, which that steamer carried out, yet we confidently hope, that there will be sufficient firmness and intelligence to sustain American interests in England, until the receipt of the more auspicious intelligence, just taken out by the Acadia.

If, in fact, a good understanding had already been established, between Mr. McLane and Lord Aberdeen, as many rumors have asserted, it may be, that the English community have had less excitement, than has existed on this side.

Judge Preble and Mr. McLane now meet in London, as they met in 1830. Both were then ministers Plenipotentiary; both are now presidents of railroad companies—facts, which indicate the social and political importance of this great improvement.

Boston, Concord and Montreal Railroad.—The Manchester company, (composed of Walter French, Buntin, and some eight other persons,) have contracted to do the grading and masonry for the Boston, Concord and Montreal railroad, from this town to Rumney—about half the route. We learn that the company subscribe for a large amount of stock. The directors have ordered an assessment upon the capital stock. The work is to be begun soon.—*New Hampshire Patriot, January 1.*

AMERICAN STATE WORKS AND CANALS, ETC.

STATE WORKS.		Length in miles.	Cost.	1843.		1844.		The State Canals are all 4 feet deep, and the locks are 13 to 17 feet wide, and 80 to 90 feet in length.								
				Income.	Expn.	Income.	Expn.									
N. Y.	1 Black river canal.....	35	1,524,967	<p>The six millions paid to the canal fund from auction and salt duties are not included in the estimate of cost. The Genesee valley and the Black river canals require large sums for their completion, the interest of which additional sum is much greater than the estimated gross income of these canals when finished. The sums required to complete these two canals are \$2,000,000 and \$600,000, making their total cost when finished \$5,553,000 and \$2,400,000; an expenditure incurred on estimated incomes (admitted to be liberal,) of \$39,000 and \$14,000 respectively.</p> <p>The total receipts from the works of Pennsylvania for 1843 were \$1,019,401; for 1844 \$1,161,326, and the cost about 30 millions.</p> <p>The receipts for 1844 were as follows:</p> <table border="0"> <tr> <td>Canal tolls,</td> <td>578,401</td> </tr> <tr> <td>Railroad tolls,</td> <td>252,855</td> </tr> <tr> <td>Motive power,</td> <td>319,590</td> </tr> <tr> <td>Trucks,</td> <td>13,477</td> </tr> </table> <p>of which \$585,922 is from 118 miles of railroad, and \$578,404 from 550 miles of canal.</p> <p>The canals of Ohio are supported by a property tax of 5¢ mills on the dollar. There are 853 miles of canal in the State, which yielded in 1843 \$471,623, and in 1844 \$515,393, the cost, 1st Jan. '43 being \$15,577,233. The increase of '41 over '43 is only \$43,770, though the year '44 has exhibited a greater increase throughout the country than ever before known.</p> <p>These 21 millions on sundry works yield no income whatever.</p> <p>The central railroad yields above 6 per cent., and is the only State work—the Erie canal excepted—which is able to stand alone.</p>	Canal tolls,	578,401	Railroad tolls,	252,855	Motive power,	319,590	Trucks,	13,477
Canal tolls,	578,401															
Railroad tolls,	252,855															
Motive power,	319,590															
Trucks,	13,477															
"	2 Cayuga and Seneca.....	21	237,000	16,557	10,953	24,618	14,443									
"	3 Champlain canal.....	61	1,251,664	102,308	116,739									
"	4 Chemung.....	23	684,600	8,140	14,486	14,385	12,740									
"	5 Chenango.....	97	2,420,000	16,195	15,967	22,177	15,960									
"	6 Crooked lake.....	8	156,777	461	2,674	1,498	3,951									
"	7 Erie—enlargement of.....	363	12,648,852	1,880,316									
"	8 Genesee valley.....	120	3,739,000									
"	9 52 miles opened, cost \$1,500,000.....	12,992	13,819	19,641	15,557									
"	10 Oneida lake.....	6	50,000	225	2,239	621	1,636									
"	11 Oswego.....	38	565,437	29,147	22,742	56,165	28,599									
Pa.	12 Beaver division canal.....	25	7,381	5,386									
"	13 Delaware canal.....	60	109,278	22,870									
"	14 French creek.....	45									
"	15 Seneca river towing path.....	69,276	381									
"	16 Columbia railroad.....	82½	4,204,969	443,336	205,067									
"	17 Eastern division.....	36	179,781	138,915									
"	18 Juniata canal.....	93									
"	19 Portage railroad.....	36½	1,823,461	351,102	248,943									
"	20 Western division canal.....	105									
"	31 North branch Susquehanna canal.....	73	101,949	57,633									
"	22 West ".....	72									
Ohio	23 Locking canal.....	56	975,130	4,757	5,286	4,139									
"	21 Miami canal.....	85	1,660,742	68,640	38,826	77,844	22,341									
"	25 Miami extension.....	105	2,856,636	8,291	12,723	14,741									
"	26 Miami northern division.....	35	322,000	unfin'd.									
"	27 Muskingum.....	91	1,627,318	23,167	29,355	15,027									
"	28 Ohio.....	334	4,600,000	322,754	123,398	343,711	113,210									
"	29 Wabash.....	91	3,028,340	35,922	6,400	48,589	12,817									
"	30 Walhonding.....	25	607,269	838	39,005	1,977	1,238									
"	31 Western road.....	31	255,015	7,254	1,782	8,747	2,929									
Ind.	32 Sundry works.....	11,000,000									
"	33 Maume canal.....									
Ill.	34 Sundry works.....	10,000,000									
Mich.	35 Central railroad.....	110	1,842,308	149,987	75,960	211,170	89,420									
"	36 Southern railroad.....	68	936,295	24,064	7,907	60,341	70,000									

CANALS.	Length in miles.	Cost.	1843.		Div. per cent.	1844.		Div. per cent.	Value of stock.	REMARKS.
			Gross.	Nett.		Gross.	Nett.			
Blackstone.....	<p>We may, perhaps, at some future time be enabled to give the particulars of all these canals.</p> <p>The Chesapeake and Ohio canal is not yet completed to the coal mines, hence its trifling income.</p> <p>The enlargement of the Schuylkill canal has been commenced.</p> <p>The Morris canal was lately sold for one million, about one-fourth of its cost.</p>
Bald Eagle Navigation.....	25	400,000	.....	.....	.....	.....	.....	.....
Beaver and Sandy, (part).....	.....	1,000,000	.....	.....	.....	.....	.....	.....
Charleston, (S. C.).....	.....	.....	.....	.....	.....	.....	.....	.....
Chesapeake and Ohio.....	184	12,370,470	47,637	.....	.....	.....	.....	.....
Conestoga.....	12	300,000	.....	.....	.....	.....	.....	.....
Delaware and Chesapeake.....	13	.....	.....	.....	.....	.....	.....	26
Schuylkill.....	108	3,500,000	279,795	102,221	.....	190,693	120,624	31	
Farmington.....	.....	.....	.....	.....	.....	.....	.....	.....
James river and Kenhawa.....	.....	.....	.....	.....	.....	.....	.....	.....
Middlesex.....	.....	.....	.....	.....	.....	.....	.....	.....
Port Deposit.....	10	200,000	.....	.....	.....	.....	.....	.....
Delaware and Raritan.....	43	2,900,000	99,623	53,327	.....	131,491	84,455	.....	
Southwark.....	.....	300,000	.....	.....	.....	.....	.....	.....
Tide Water.....	45	2,900,000	.....	.....	.....	.....	.....	.....
Union.....	80	2,000,000	.....	.....	.....	.....	.....	.....
Morris.....	101	1,000,000	.....	.....	.....	.....	.....	26½
Dismal Swamp.....	.....	.....	.....	.....	.....	.....	.....	.....

CANADIAN CANALS.	Length in miles.	No. of locks.	Lockage in feet.	Size of locks.			Width of canal.		Estimate.	Expended to Sept. 1843.	Income.	
				Length of chamber.	Width.	Depth on mitre sill.	Bottom.	Surface.			1843.	1844.
The Welland canal.....	.....	.....	.....	feet.	feet.	feet.	feet.	feet.	3,948,572	2,485,572	64,658	.....
{ Main trunk from Port Colborne to Port Dalhousie.....	28	31	328	150	26 1-2	8 1-2	45	81	.....	.....	.....	.....
{ Junction branch to Dunville.....	21	1	6	150	26 1-2	8 1-2	35	71	.....	.....	.....	.....
{ Broad creek branch to Port Maitland } not added below.	1 1-2	1	6	200	45	9	45	85	.....	.....	.....	.....
The St. Lawrence canal.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
{ Galcps and Port Cardinal.....	2	2	7	200	45	9	50	90	.....	.....	.....	.....
{ Rapid Plat.....	4	2	11 1-2	200	45	9	50	90	672,498	973	.....	.....
{ Farren's point.....	3-4	1	3 1-2	200	45	9	50	90	.....	.....	.....	.....
Cornwall, passing the Long Sault rapids.....	11 1-2	7	48	200	55	9	100	150	865,372	1,665,663	.....	.....
Beauharnois, do. Coteau, Cedars and Cascades road.....	11 1-4	9	82 1-2	200	45	9	80	120	1,190,087	275,426	.....	.....
Lachine, do. Lachine rapids.....	8 1-2	5	44 1-2	200	45	9	80	120	old canal 1,001,333	400,000	20,288	.....
Enlargement of do.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	61,439	.....	.....
Total from lake Erie to the sea.....	12	57	325	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chambly.....	66	9	74	120	24	6	36	60	200,000	440,000	1,409	.....

COAL COMPANIES.	Length in miles.	R. rd. Canals.	Cost.	1843.		Div. per cent.	1844.		Div. per cent.	Value of stock.	REMARKS.
				Gross.	Nett.		Gross.	Nett.			
Delaware and Hudson.....	16	108	2,800,000	930,203	196,702	10	.....	.....	.....	130	.....
Lehigh.....	20	72	6,000,000	.....	.....	.....	.....	.....	.....	31	.....

AMERICAN RAILROADS.

NAMES OF RAILROADS.	Length in miles.	Cost.	Loans and debts.	Number of shares.	Paid on share.	1843.		Div. per cent.	1844.		Div. per cent.	1845.		Div. per cent.
						Gross.	Nett.		Gross.	Nett.		Gross.	Nett.	
Maine. 1 Portland, Saco and Portsmouth.	50	1,200,000				89,997	47,166	7	131,404	62,172	6			
N. Ham. 2 Concord.	35	750,000									12			
Mass. 3 Boston and Maine.	56	1,485,461				178,745	68,499	6	233,101	86,401	6			
4 Boston and Maine extension.	17 1/2	455,703	unfin.											
5 Boston and Lowell.	26	1,863,746				277,315	144,000	8	316,909	147,615	8			
6 Boston and Providence.	41	1,886,135	none.	18,600	100	238,388	110,823	6	282,701	156,109	6			
7 Boston and Worcester.	44	2,914,078				404,141	162,000	6	423,437	195,163	7 1/2			
8 Berkshire.	21	250,000	not stated				17,500	7	17,737					
9 Charlestown branch.		280,260						13	34,654	13,971	5 1/2			
10 Eastern.	54	2,383,631				279,563	140,555	6	337,238	227,920	8			
11 Fitchburg.	50	1,150,000	just op'n'd						42,759	26,835				
12 Nashua and Lowell.	14 1/2	380,000				84,079		8	94,588	34,944	10			
13 New Bedford and Taunton.	20	430,962				50,671	24,000	6	64,998	24,000	6			
14 Northampton and Springfield.		172,883	unfin.											
15 Norwich and Worcester.	66	2,230,000	900,000	16,535	100	162,336	24,871		230,674	99,464	3			
16 Old Colony.		67,820	unfin.											
17 Stoughton branch.	4	63,075	unfin.											
18 Taunton branch.	11	250,000					20,000	8	96,687	20,000	8			
19 Vermont and Massachusetts.														
20 West Stockbridge.	3	41,516	200		100						4			
21 Western, (117 miles in Mass.)	156	7,686,202	1,686,202	30,000		573,882	284,432		733,753	439,679	3			
22 Worcester branch to Milbury.	3 1/2	42,000												
23 Housatonic, (10 months.)	74	1,244,123							150,000					
Conn. 24 Hartford and New Haven.	38	1,100,000	100,000	10,000	100						6			
25 Hartford and Springfield.	25 1/2	600,000	400,000	2,000	100									
26 Stonington, (year ending 1st Sept.)	48	2,600,000	650,000	13,000	100	113,889			154,724	79,845				
N. York. 27 Attica and Buffalo.	31	336,211				45,896	7,522		73,248	48,033				
28 Auburn and Rochester.	78	1,796,342	200,000	14,000	100	189,693	112,000		237,667	152,007	6			
29 Auburn and Syracuse.	26	766,657			133 1/2	86,291	27,334		96,738	52,544	6			
30 Buffalo and Niagara.	22	200,000		1,500										
31 Erie, (446 miles.)		5,000,000												
32 Erie, opened.	53						48,000		126,020	59,075				
33 Harlem.	26	2,250,000	750,000	30,000					140,685	62,399				
34 Hudson and Berkshire.	31	575,613			50				35,029	1,789				
35 Long Island.	96	1,610,221	392,340	29,816					153,456	58,996				
36 Mohawk and Hudson.	17	1,317,893	409,000	10,000	100	69,948	58,780		79,804	45,763				
37 Saratoga and Schenectady.	22	303,658				42,242	3,000	1	34,666	8,455				
38 Schenectady and Troy.	20 1/2	610,800				28,043			32,616	6,365				
39 Syracuse and Utica.	53	1,115,897	none.	16,000	62 1/2	163,701	72,000		192,061	120,992	8			
40 Tonawanda.	43	727,332				76,227			111,177	75,865	5			
41 Troy and Greenbush.	6	180,000												
42 Troy and Saratoga.	25	475,801				44,325	21,000		38,502	9,971	2 1/2			
43 Utica and Schenectady.	78	2,168,165	none.	20,000	100	277,164	180,000	9	331,932	199,094	8			
N. Jersey 44 Camden and Amboy.	61	3,200,000				682,832	383,880		784,191	404,956				
45 Elizabethtown and Somerville.	26	500,000												
46 New Jersey.	34	2,000,000												
47 Paterson.	16	500,000									6			
Penn. 48 Beaver Meadow.	26	1,000,000												
49 Cumberland Valley.	46	1,250,000												
50 Harrisburg and Lancaster.	36	860,000	645,929									77,538	9,988	
51 Hazleton branch.	10	120,000												
52 Little Schuylkill.	29	900,000												
53 Blossburg and Corning.	40	600,000												
54 Mauch Chunk.	9	160,000												
55 Buck Mountain.	4	72,000												
56 Minehill and Schuylkill Haven.	19 1/2	396,117	25,000	7,019	50			12			12			
57 Norristown.	20	800,000												
58 Philadelphia and Trenton.	30	400,000												
59 Pottsville and Danville.	29 1/2	1,500,000												
60 Reading.	94	9,457,570	7,447,570	40,200	50				597,613	313,511				
61 Schuylkill valley.	10	1,000,000												
62 Williamsport and Elmira.	25	400,000				20,000								
63 Philadelphia and Baltimore.	93	1,400,000				43,043	200,000			210,000				
Delaware 64 Frenchtown.	16	600,000												
Maryl'd 65 Baltimore and Ohio, (1st Oct.)	188	7,742,410	1,153,709			575,235	379,402		658,620	346,946		788,603	374,762	3
66 Baltimore and Washington.	38	1,800,000				177,227	71,691		212,128	104,529		208,813	95,094	6
67 Baltimore and Susquehanna.	58	3,000,000												
68 Wrightsville, York and Gettysburg.	12 1/2	500,000												
Virginia 69 Greensville and Roanoke.	18	281,433	37,544	2,000	100				25,368	6,074	3			
70 Petersburg.	63	969,880	63,000	7,690	100				122,871	72,608	6			
71 Portsmouth and Roanoke.	79 1/2	1,454,171												
72 Richmond, Fredericksbg and Potomac.	76	800,000												
73 Richmond and Petersburg.	22 1/2	700,000							185,213	85,688				
74 Winchester and Potomac.	32	500,000												
N. Car. 75 Raleigh and Gaston.	84 1/2	1,360,000												
76 Wilmington and Raleigh.	161	1,800,000									5			
S. Car. 77 South Carolina.	136													
78 Columbia.	66	5,671,452		34,410	75	201,464	77,456		532,871	140,196				
Georgia 79 Central.	190 1/2	2,531,723	410,000	20,510	100	227,532	95,190		328,425	180,704				
80 Georgia.	147 1/2	2,650,000				248,026	158,207		248,096	147,523				
81 Montgomery and West Point.	89	500,000	170,000		100				35,000	15,000				
Kent'ky 82 Lexington and Ohio.	40	450,000												
Ohio. 83 Little Miami.	40	400,000												
84 Mad river.	40	152,000										24,984	3,280	
Indian: 85 Madison and Indianapolis.	56	212,000	50,000			22,110	8,639	8	39,031	10,035	9 1/2			
Canada 86 Champlain and St. Lawrence.	15						12,000		58,000	24,000				

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N.Y.

Saturday, January 17, 1846.

Suspension Bridge over the Niagara River.

This interesting, and exceedingly important project seems to be gaining favor daily. The bold idea—to most people in the country especially—of throwing a bridge across the Niagara near the falls, is sure to be carried out at an early day, and we desire as promoters as well as chroniclers of such enterprises to contribute our *mite* to its success, and therefore give Mr. Ellet's able and interesting letter to the presidents of the two railroad companies entire, in the Journal; that it may reach the profession generally throughout the country, and in Europe. It is very evident from Mr. Ellet's letter that, as a matter of economy, it would be better to construct a bridge, even if it cost \$500,000, than to attempt to cross the river by a ferry; it will not, however, it is shown, cost much, if any, over \$200,000—that is \$200,000, to pass locomotives, or \$190,000, if the cars are taken over by horse power—or by the impetus given by the engine. And it is possible that a spirited competition which will of course take place between the able and experienced engineers, Mr. Ellet and Mr. John A. Roebing—who have earned enduring laurels in the construction of wire suspension structures in this country—will reduce somewhat the cost of the structures.

Mr. Ellet's "Fairmount bridge" over the Schuylkill, which does him great credit—a full account, with a beautiful engraving of which appeared in this Journal, March 1st, 1840—has "one principal opening of 400 feet span, and two lateral stone arches of 65 feet each." The platform or bridge-way, is supported by four wire cables of about 600 feet each in length, and from 4 to 5 inches in diameter; being composed of about 900 strands each of iron wire, covered with a coat of durable varnish before it is put in the cable.

This bridge has now been in use for several years, and has been tested in a variety of ways, and especially by *droves of cattle*—a trial of the most thorough kind—and has been found entirely adequate to the objects in view. Mr. Ellet, therefore, has strong testimony in his favor, in addition to his well-established reputation as a man of science, and experience as an engineer. The Fairmount bridge cost, we believe, about \$52,000. Mr. Ellet, however, with all his advantages, will find an able competitor, should he enter the field, in Mr. John A. Roebing of Pittsburgh, whose name must be familiar to those who have been readers of the Journal during the last eight years. His papers on "Hydraulics," and on the "theory of the crank," and especially the former, have been highly complimented by men every way competent to judge—whilst his recent triumph, in the construction of a suspension aqueduct,

for the main line of Pennsylvania canal, across the Alleghany river at Pittsburgh—the first structure of the kind ever erected—and his more recent construction of a suspension bridge across the Monongahela, now nearly completed, shows that he has not only the science, but also the immediate practical experience and mechanics now in employ, which would enable him to compete under very favorable circumstances for the honor of making his mark, and of erecting a proud monument to his memory, upon the enduring rocks of Niagara—and if we were competitors—as we have quite a mind to be—for the contract, we should rather enter the field with almost any other gentlemen than Mr. Ellet and Mr. Roebing.

A full description of the suspension aqueduct, with a cross section engraving, was published in this Journal on the 9th October last. Its length is 1140 feet, divided into seven spans, of 160 feet each, and cost, including removal of the old structure, and repairs of old piers, \$62,000. A very small amount, it appears to us, for such a work. The Monongahela bridge, now in course of construction is, we believe, over 1400 feet in length, and was contracted for at the exceedingly low price of \$53,000.

There appears to be another Richmond in the field. We have been requested to put the following queries. This is possibly from some gentleman who would recommend some other plan—at all events, we give him a place, as we hope to see a clear field and fair competition for the contract, even if we do not obtain it.

Niagara Bridge.

A subscriber to the Railroad Journal wishes to be informed whether the railroad companies, who design to construct a railroad bridge over the Niagara river, below the falls, will give a general invitation for plans and proposals or not, and whether they have already decided upon the suspension principle, and entered into permanent arrangements for its construction?

Rival Railroads.

We find in the "Niagara Democrat," of 31st December, the following intimation of a disposition to start the project of a rival railroad from Rochester to Syracuse. We recently saw a similar intimation of intention to apply for a charter for a road from Schenectady to Utica. These intimations are significant indications, either that the managers of the present roads do not meet the just expectations of the public, or that there is a growing disposition in the country in favor of railway investments.

The editor of the Democrat says: "A railroad is proposed direct from Rochester to Syracuse, on the canal route. It would be a saving of 20 miles in the distance, compared with the present railroad." The editor also says: "If we must have railroads, the more the merrier—or, rather, the more the less objectionable on the score of monopoly." We desire to ask the editor if he would, if he could, banish railroads from the country? Would he return again to stage coaches on common roads? or, rather, on uncommonly bad roads, to which we were in most cases doomed before railroad cars superseded stages?

We are as averse to "monopolies," as the editor of the Democrat, or as the verriest democrat in the land; but we are also averse to the encouragement of ruinous rivalries in matters which require such vast expenditure in their construction as railroads and canals.

We hold that individuals who invest their capital in works which promote the general interest; that is to say, which increase the value of property, as well of those who do not, as of those who do, con-

tribute to their construction; reduce, in a very large proportion, the expense of travel and transportation, and, what is of still greater importance, add days, and we may almost say years to our lives, by enabling us to perform a given amount of labor in a much less period of time, are entitled to liberal returns upon their investment; and we shall always be found sustaining their interest, and opposing an unnecessary rivalry, if they manage the works under their charge in a spirit of liberality to those who either from choice or necessity, have occasion to use them. It is but just that those who risk their capital in such investments—whereby those who use are more benefitted than those who invest—should be protected in a proper enjoyment of the fruits of their enterprize, so long as they afford all reasonable facilities and accommodation to those who have granted them privileges, and still sustain them by making those privileges valuable; but, when, having obtained exclusive privileges, companies feel their power, and forget the rights of those who gave them ability to exercise that power; and neglect to afford accommodations in accordance with the spirit and progress of the age, and at prices which will, at the same time, yield the greatest amount of income, and afford the greatest economy to those who pay, they will find us among the foremost to expose, and reprobate their conduct; and, if need be, aiding in the establishment of competing lines, in order that they may learn by experience that the interests of the shareholders and the public are identical, and that a liberal spirit of management is sure to be met by a liberal support.

The present indications of rivalry should lead the companies to inquire whether they have not given just grounds for dissatisfaction, either by their high rates of fare, or low rates of speed—or, indeed, by both, when compared with other roads, both in this country and in Europe. It is a question well worth their consideration and prompt action, if grounds for complaints exist. We do not now express an opinion either way, but may feel called upon at an early day to submit a comparative statement of the rates of fare, rates of speed, and comparative cost of the railroads of this, and other countries, that our readers may be able to judge for themselves, whether they are not in truth, under all the circumstances, better and cheaper accommodated on some of our railroads, and more imposed upon others, than the people in any other country. We shall then be able to judge where rival lines ought to be established, and shall not hesitate, when we are so satisfied, to speak out upon the subject.

For the American Railroad Journal.

Schuylkill County Railroads.—No. 2.

Mount Carbon and Port Carbon Railroad.—This road commences at the termination of the Reading road at Mount Carbon, three-fourths of a mile below Pottsville, and has its terminus at Port Carbon, a distance of two and a half miles. This road was commenced in April, 1844, and finished in December of the same year, having a double track laid with heavy iron of the H pattern, and cost \$80,000. Owing to the tearing up of the old Schuylkill valley railroad, in the beginning of the season, this road was deprived of about half the business it otherwise would have done; and yet, notwithstanding these disadvantages, the business done the last six months will warrant the declaring a dividend of 8 per cent.—Port Carbon being the termination of the canal. The Port Carbon road has been extended up the Schuylkill valley, a distance of ten miles, under the title of the

Schuylkill Valley Railroad.—This road replaces

the old plate rail road, which would not admit of the Reading railroad cars passing over it, on account of the narrow gauge of the track, and is of much superior location, and constructed in like manner as the Port Carbon road, having a double track the whole distance. This road terminates at Tuscarora, ten miles above Port Carbon, being at the head of the Schuylkill river. This road not being finished till late in the season, prevents them from making any dividend; but there is no doubt but that in the course of time it will well repay the outlay in its construction. From this road numerous small roads branch off from half a mile to two miles in length, being made generally at an equal expense between the owners of the mines and the company. In like manner with the Schuylkill valley road, an old road has been replaced with a new, under the name of

The Mill Creek Railroad—Being four miles in length, with a double track, and under the same management as the two former ones. This road forms a junction with the Port Carbon road about half a mile below its terminus, crossing the Schuylkill river to do so. This road has been finished since the two former ones, and for the time it has been in operation has done a large business. Thus have these three new roads been finished within the last year, and have opened a market to the coal dealers by railroad; and all this principally through the perseverance and energy of the Reading railroad company; although they do not have the sole benefit of the roads, owing to a provision in their respective charters, making it obligatory upon the company to transport the Navigation company's cars over the Schuylkill valley and Mill creek roads at a certain toll—as they have begun to furnish their patrons with cars in imitation of the railroad company. The Navigation company are pushing their work vigorously towards completion, although it is the opinion of many that the time calculated upon for finishing [the 1st of April] is too near at hand by two or three months. These two great rival companies, the railroad and canal, are still foolishly pursuing a course of bitter enmity towards each other, which has a tendency to do injury to both.—Owing to the great increase of business which has taken place here, and which is likely to continue, there is no doubt but that the canal with her 200 tons burden boats, and the railroad with her 80 engines and 4000 cars will have as much as they can both do; and it is only a wonder that the two companies do not see the great detriment to their interest in not coming to an amicable arrangement in relation to their tolls—the fluctuation of which now is of more damage to the operators than can well be imagined. It would be a source of gratification to the friends of both companies, if they would establish a certain permanent rate of toll by which they would make a fair profit, and create a stability in their proceedings which they have not at present. In the course of a few days we will have the reports of the respective companies, and interesting documents I have no doubt they will prove to be.

Your's truly, M.

We are greatly obliged to the writer of the preceding communication, and also for that on the "Pennsylvania railroads," which appeared in a previous number. They give what we have long sought, in relation to the numerous short, and branch railroads in different parts of the country, though we should like a more full account, giving the ruling grades, and the kind of power used on each—With this example before them, we hope other gentlemen residing near to such railroads, no matter

how short, or having the facts in their possession, will communicate them to us to be recorded in our office, or for insertion in the Journal. If you would do it at all—and do it well—then do it now. Delays are dangerous.

AN APOLOGY is due our readers for the poor quality of paper used for the Journal for the past four weeks. It is in consequence of the want of railroads from this city to the interior. We shall endeavor to remedy the evil.

✍ We are obliged to omit one half of the article on the atmospheric railway, with a part of the engravings, until our next number.

For the American Railroad Journal
Bear Mountain Railroad, Pa.
D. K. MINOR—

Sir: In Mr. Spaulding's communication, addressed to me in the Railroad Journal of the 25th ult. is a "comparison of the difference in cost of constructing and working the Bear Mountain Road, in Pa." upon the two plans which he describes, in which he makes the cost by the "present arrangement" per annum, \$ 2,568 00
And by the change in the grade, 15,876 00

Making the difference in favor of the
"present grades" of \$13,308 00

As Mr. S. has made this comparison for the purpose of enlightening me upon a subject in which I take no particular interest, inasmuch as it has nothing to do with the general merits of the project respecting which I was called upon to report, yet I will so far notice his statement as to put to him a few queries, which he can answer or not, as he may think proper.

1. Is it not proper to add a per centage for renewal, repairs and insurance on the \$20,000 saved in the cost of the timber work of the Williams' Valley bridge?

2. Please explain how you make the cost of planes and fixtures and engines for elevating 540,000 tons of coal per annum 42 feet [for the purpose of breaking and screening the coal] only \$2,000?

3. Is it not proper to add a per centage for renewal, repairs and insurance on the planes and fixtures and extra cost of engines?

4. As you have assumed in your estimate, that under a change in the grade, horse power must be used north of the southern entrance to the tunnel, should you not have made the dimensions of the tunnel to conform thereto, instead of supposing it to be "cut for three tracks," the center track being designed for "the passage of locomotives entirely through the mountain," a distance of 8,400 feet, or 1 3-5th miles, nearly?

5. In your estimate of the amount of motive power required to convey 540,000 tons of coal per annum, from the mines to the canal, a distance of 30 miles, you state that three locomotive engines, weighing each 15 tons, will be sufficient for the purpose, at a total annual cost of only \$9,876 00, exclusive of oil and cotton waste, which are very small items, or less than two cents per ton for the whole distance, including the return of the empty cars! By what practical or theoretical data do you arrive at this conclusion, and what do you estimate the gross load in tons of an engine drawing 900 tons net?

6. How do you arrive at the conclusion that doubly the amount of power, or six engines, will be required to convey the same tonnage over 28 1-2 miles of the road in consequence of the grade for 2 1-2 miles from the tunnel being reduced to a level, the

residue of 26 miles to the canal remaining unchanged?

7. In your estimate you suppose that 440,000 tons of coal can be obtained annually from the south mountain, before therefore you can with propriety estimate for another 100,000 tons from the north mountain, is it not incumbent upon you to show, most conclusively, that the business of the company will very soon after the road is put in operation, exceed the amount first named of 440,000 tons? and in bringing the subject before the readers of the Journal, ought you not to have stated that I assumed in my report an annual business of only 300,000 tons? ought you not also to have stated that the greatest elevation of Williams' Valley bridge, under the "present arrangement," is 90 feet above the waters of the Wiconisco, and its length 2650 feet, and that by reducing the grade the greatest height will be only about 53 feet, and the length considerably lessened? also, that no change of location of the centre line of the road was suggested or contemplated in my report?

8. How much will the cost of the road be increased by building to the level grade at first, and afterwards raising it to conform to the inclination of 17 feet per mile?

9. Will you inform me how it happened that no more than 1200 feet of reservoir was planned and contracted for at the canal, and when it was that you discovered that such a reservoir was entirely inadequate to meet your own computation of the first year's business of the road?

If the above queries are satisfactorily answered by Mr. Spaulding, I may perhaps be disposed to propound some others equally pertinent; but it must be distinctly understood that in whatever I have said or may say, I reserve my opinion as to the propriety of making any, and if any, what change in the grade of the Bear Mountain road, until such time as it shall suit my convenience to be more explicit.

In doing this, I merely adhere to the position taken in my report, viz: that of having brought the subject to the notice of those interested, without recommending any particular plan to be adopted; a position which I trust will not be again misrepresented by Mr. Spaulding, who several times reiterates that I have proposed or recommended a specific change in the grade of the Bear Mountain road.

Yours, very respectfully,

E. F. JOHNSON.

Hunt's Merchant's Magazine.

The January number of this exceedingly valuable Magazine has been on our table for several days. It contains, as usual, much interesting and valuable information on a variety of subjects; and it ought to be, as we hope it is, extensively circulated in every city and village, and throughout the country generally. It is to the merchant, and business man, what an agricultural paper is to the farmer—and it should be as widely circulated, and as generally read, throughout the country, and by all classes of people, as are now the numerous and ably conducted agricultural journals of the day. There are several articles in this number to which we should like to call the attention of our readers, and especially to that upon the "Value

and Prospects of Life in the United States"; but we can neither afford the space, nor the time; especially as there is another article of great interest and value—and precisely in our line—by an able and indefatigable director in several of the Massachusetts' railroads, which we propose to give entire.

Of the "Merchant's Magazine," we desire again to say, that it should be in the hands of, and promptly *paid for*, by every merchant and business man in the country. The number before us commences the XIVth volume, which is strong evidence that it is justly appreciated; and we trust that its enterprising proprietor has been richly rewarded for his efforts; and the more so, as we took the liberty, when consulted on the subject before it was commenced, to dissuade him from the enterprize, unless he had *capital to spend*. May it live and prosper a *thousand years*!

A New Daily Paper.

In no other manner, perhaps, than by the progress of the newspapers of a country, can we judge of the advancement of a people in intelligence and prosperity. In large cities, the birth of a new *daily* newspaper no longer excites surprize or remark. Nor, indeed, will it hereafter in our far interior and populous towns.

The new candidate, in this now numerous family, for favor, is the "*Daily Commonwealth*," published at Frankfort, Kentucky, No. 1, vol. 1, of which, dated January 1, '46, is now before us. It is printed in good, fair, clear type, and contains the governor's message and the first day's proceedings of the Kentucky legislature; of course very little else, except editorial remarks upon the message; in course of which the editor says, that

"The condition of public affairs is shown to be most happy. The amount of the state debt, instead of being increased, is reduced by the fiscal operations of the past year; the resources of the sinking fund have been ample to pay promptly and punctually the interest on the debt, without anticipating means; the avails of the treasury have been abundant to meet the ordinary expenses of the government, and leave an expected surplus on hand at the end of the next fiscal year; the receipts from taxes, from turnpike roads, from bank dividends and from rivers, have all been greater this year than heretofore; all going to show the solid prosperity and the felicitous condition of the commonwealth, and reflecting the highest praise upon the able and faithful agents to whom the administration of public affairs has been so wisely and happily committed."

We are truly gratified to learn that the state is in a condition so favorable. It is an indication that her citizens are abundantly able to undertake and carry through a sys-

tem of railroad improvement, which will, in an astonishing degree, develop the vast resources of the state. There should be at least two important lines of road, if the lay of the land will admit of it, through the state, viz: from Lexington, east, to the mouth of Guyandotte, in Virginia—the road to Louisville will, of course, be completed—thus opening a great thoroughfare from the Atlantic to St. Louis, through the state, by which its citizens will participate in the golden streams which flow from travel; and another line from some point on this southwardly, to connect with the road soon to be constructed from the Georgia railroads to Nashville; or, perhaps, better still, with the Hiwassee road, at Knoxville, and thence to the Georgia works—thus opening a direct communication with the cotton growing region of Georgia and Alabama, where so much of the produce of Kentucky would find a good market; and in the same direction, a part of the state will find its natural outlet to the Atlantic.

These are works in which the people of Kentucky have a common interest, and which ought to be commenced without delay: and to which we desire to call their attention. These are works to the consummation of which we desire to see the attention of Kentucky's *able and distinguished son* directed with the same devotion and untiring energy that he has, for so long a period, exhibited in the advancement of the general and *universal* prosperity of our common country. Let *him* but take the *lead*, and the work will, at the commencement, be *half accomplished*. Kentucky, from being the *first born* of the union, and the *extreme outpost* of civilization—less than half a century ago—is now the eldest sister of a large family, and the *centre* of *twenty-eight* states. In another half century, however, she will be almost as near *the other extreme* in her relative position, and it is therefore of the utmost importance to her citizens that a portion at least of the *immense movement*, in a westerly direction, should pass over her territory, and leave its vivifying influences with her people. Let her noble son, we say, but step into the *front rank*, and bear aloft her banner, always among the first in every good cause, with the motto, "Kentucky, the first of the new states, let her ever maintain that relative position in her improvements," and there will be no difficulty in accomplishing not only these, but also many other works in connection with them. By doing this, he will erect a far more enduring monument to his own fame, than if it were of marble, or bronze. Let him do this, and *Kentucky* will have additional reason, if possible, to be proud of him.

Atmospheric Railway.

In accordance with our plan, we continue the subject of the Atmospheric railway; and give in this number a description of Clegg and Samuda's plan, as now in use on the Croydon line. For the accompanying description and illustrations we are indebted to that excellent work, the *London Railway Chronicle*; the editor of which appears to have taken great pains to understand the subject thoroughly, and also to place it before his readers in such a light as to enable them to understand and justly appreciate it.

The introductory remarks of the editor of that Journal are so appropriate, and at the same time so much in accordance with the opinions formed by us, though under much less favorable circumstances, to arrive at satisfactory conclusions, that we adopt them entire, with the single remark that our aim, in devoting so much space to the subject now, is to induce others—not to *believe* in, and *adopt* it—but to *investigate* and *understand* it, that it may be adopted, if found *more* suitable under any peculiar circumstances, in any particular place. And as there are several different plans now before the public, and others are sure to follow, we shall endeavor to place the whole matter in a position which will enable our readers to understand it, and keep pace with the improvements. We have omitted the first engraving, which shows the depot at ———, and the buildings in which are placed the stationary steam engine and air pumps which work the apparatus; and we have also omitted the carriage B, to the underside of which the *heating* apparatus, for cementing the valve is attached.

"The opening of the first atmospheric railway in England, for public traffic, is an event of such importance as to demand the careful and immediate attention of all railway shareholders and railway travellers. It is the commencement of a new system, which its advocates advance as calculated to supersede all other methods of railway transport; and even its inveterate opponents [if it have any] must admit that it is a new instrument of power, by means of which it is not unlikely that, under peculiar circumstances, and in new combinations, very important objects may be achieved.

"For ourselves, we rank neither with the headlong advocates nor the wholesale opponents of the system. We hail it as an admirable application of an elegant principle, the transmission of mechanical power to great distances by the medium of a vacuum. We admire it as an exquisite piece of modern mechanism, as a triumph of British skill over mechanical impossibilities. We would encourage to the utmost the practical trial of a gigantic experiment, which promises for us higher velocities, more frequent opportunities and cheaper fares than the existing modes of transit. We therefore desire for it from the public, the fullest, fairest, most patient and considerate trial; we claim for it every allowance for the difficulties of a new invention; and we would ask from our engineers a deliberate, systematic, self-denying attention to the progress of this great experiment of a new and powerful instrument, by means of which they may possibly be able to effect new and unheard of ameliorations in our railway system.

"We are not ourselves among those who are so sanguine as to consider it likely that the atmospheric tube is about to supersede the locomotive engine universally or even generally. It appears to us, that on a great multitude of the existing lines of railway the locomotive engine is much better suited to the wants of the existing traffic, than the atmos-

pheric or any other system of fixed power could possibly become. We are not among those, therefore, who fear the atmospheric as a system likely to deteriorate or to supercede the existing railways. On the contrary, we hail it as a valuable adjunct to existing lines, calculated, we think, if judiciously used, to enhance their value and extend their usefulness. It seems to us equally injudicious to propose it everywhere and to exclude it everywhere."

"The Croydon railway is one of those instances which, in our opinion, appears to be the best suited for the favorable application of the atmospheric system. The line is essentially a short traffic line—a suburban railway. It has trains every hour (or half hour) both ways, from eight in the morning till eleven at night; these are all light passenger trains, of nearly equal size, and of about ten carriages on the average. There are no night trains whatever. And thus a uniform stream of traffic flows along the line both ways nearly uninterrupted during nearly seventeen successive hours every day. There are also intermediate stations along the line, at which all the trains stop, and which are nearly at the regular intervals of 3 miles apart, being about the appropriate distance for the length most convenient for the atmospheric tubes, and for the distances from each other of the air-pumps and steam engines.

The merit of having made the Croydon Atmospheric railway, like the merit of having matured the invention, is a divided honor. It is well known that Mr. Clegg, a mechanic of acknowledged talent and ingenuity, is the inventor of that simple and beautiful valve which alternately opens as the train advances, and shuts when it has passed; giving us a tube air-tight when we want it to be so, and yet covering a slit 3 miles in length.—Those only who have used air-pumps and air-valves can appreciate the difficulty of such a problem. An air-valve over a slit of an eighth part of an inch in length is a troublesome enough affair to a philosophical experimentalist, but to use one in daily practice of 3 miles in length was left for the imagination of British inventors; we should rather say, not to their imagination to conceive, but for Mr. Clegg to conceive and actually to construct. We know that many other similar valves have been talked of or invented; but as yet we have seen nothing which equals in simplicity the simple flap valve; it has been the immediate cause of the success attending the invention—a success which has been attended with fewer of the failures of first trials than any other equally important invention of which we have any recollection.

Of the success with which it has been introduced, we are obliged to say that much has been owing to the merit of Mr. Samuda and of his much regretted and talented brother.—Engaged as practical engineers in the construction of machinery, they had the merit of taking up the infant invention, and, in conjunction with Mr. Clegg, by contrivance and capital, carrying it out to a successful issue. Only those inventors who owe their past failures to the insufficient support and co-operation of their associates in business can understand how great to an inventor is the value of so

cordial and persevering a coadjutor as Mr. Samuda has proved to Mr. Clegg. To Mr. Samuda, therefore, belongs the merit of bringing the invention forward and co-operating to mature it; and the pecuniary returns he is likely to derive from this source, although great, is not greater than his talent, enterprize and perseverance deserve.

The next party to whom the atmospheric system is indebted for the measure of success it has attained is unquestionably the Dublin and Kingston railway company and Mr. Bergen and Mr. Pim of that railway. We hardly think we are saying too much in asserting, that but for these gentlemen it would not now be in the state of maturity and popularity in which we find it. Mr. Pim especially is identified with the success of the system, and affords a favorable example of the extent to which an honest straight-forward Irishman will throw his whole heart into a cause he thinks a good one, even although, as in this case, he has no personal or immediate interest in the result. Mr. Pim is, if not the father, at least the godfather of the atmospheric railway. We hope he will find the reward he anticipates in the success of the atmospheric lines in which he has taken an interest; and his Bray line promises to fulfil his desires.

As to the immediate Croydon line itself, the merit of that is chiefly due to Mr. Wilkinson, the chairman of the Croydon company. His little line, the Croydon, is the grand trunk line of three railways—the Dover, the Brighton and the Croydon Proper. The short traffic of the Croydon Proper was found to be perpetually in the way of the long traffic; so much so, that the other lines were constantly talking of leaving it for some other less impeded avenue into London. This led Mr. Wilkinson to bethink himself of taking his short Croydon traffic out of the way of this long, toll-paying traffic. He resolved upon laying a single third line beside the old double line, so as to carry the sort of omnibus traffic in the vicinity of London and Croydon, quite out of the way of the through trains, a measure both of prudence and safety for both. He found that the advocates of the atmospheric system regarded it as peculiarly adapted to this short continuous light traffic, and to a single line of rails. He pondered and consulted and decided; and so Mr. Wilkinson is the inventor of the Croydon atmospheric line. We have no hesitation in saying, that if there be any one place better than any other for the successful application of the atmospheric system, the Croydon line is that place, and so far the experiment has been well devised and judiciously carried out.

We next come to those professional men whose duty it has been to carry this invention out in the best manner. Mr. Cubitt was the engineer employed for this purpose, and his well known skill was an ample guarantee to all who knew him, that under his direction the invention would have the best possible chance of success. And although he is not one of the wholesale advocates of the system, yet every one who has seen the work executed under his superintendence, must be aware that ample justice has been done by his judicious and thoughtful combinations.

Mr. Hutton Gregory is the author of the next class of engineering expedients by which this invention has been matured. His problem was to convert all the works of a double line into a triple line. All the bridges over the railways, and they are numerous, were to be altered from their old span to one wide enough for three lines of railway; the new line required at one place to be lowered, at another place to be raised—here to be diverted to the right, and there to the left; and all this to be done while all the trains of three railways were night and day traversing the line. That this has been done, accomplished in a manner that leaves nothing to be desired, and that it was accomplished without stopping a single train or occasioning a single accident, is giving great praise to Mr. Gregory's forethought, caution and professional skill; but it is not saying one word more than his great services to that company deserve.

The present atmospheric railway to Croydon, as it stands, is the result, therefore, of the labors of all these gentlemen. It is equal in every respect to the Dalkey line, and, in some respects, as much superior as a line should be that has had the advantage of all its predecessors' experience. The experiments on it have as yet gone on slowly, one thing at a time, and therefore we think wisely. Its powers are at least equal to carrying 40 tons of train at 40 miles an hour. Its inventors say it will take 50 tons at 50 miles an hour. We are contented, for our part, with the former, but shall be glad to see the latter. If the increased facilities can increase the traffic, so as to give a full train of passengers both ways every half hour, then the Croydon atmospheric will be as successful as a mercantile speculation as it is undoubtedly is as a mechanical invention.

The engraving at the head of this notice shows the building which contains the stationary steam engine and air-pumps which works the apparatus. The train and tube are also visible. Before entering further on the illustration of the subject, it will be quite necessary for our readers to make themselves familiar with the form and construction of the carriages, piston, pipe and other apparatus: after which we shall the better explain their uses and objects. Their attention is therefore requested to the annexed engravings and the accompanying descriptions.

Our detailed Engravings represent the first two carriages of an atmospheric train: A is called the piston carriage, and occupies the usual place of a locomotive engine, being that to which the power is directly applied, and which draws all the carriages of the train after it; B is the second carriage of the train, and it also carries part of the atmospheric apparatus. All the other carriages of the train are just the ordinary carriages of a railway, from which they differ in no respect, but are hooked on to carriage B as they would be to the tender of a locomotive engine. In all respects, therefore, A and B on the atmospheric system may be considered as taking the place of the locomotive and its tender in the ordinary system, with this difference only, that they both carry passengers as well as machinery. C end view of piston carriage; D end

view of heater carriage. The arrow shows the direction in which the train is moving. We shall now describe them separately.

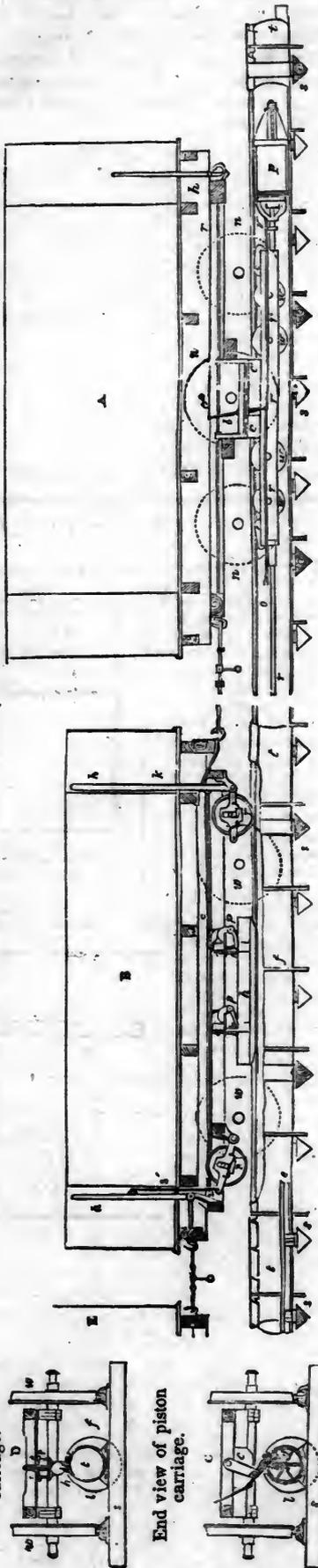
The Piston Carriage and its Appendages.
p is the travelling piston, placed in the atmospheric pipe below the carriages. The pipe is here represented in section from *t* to *t*, in order to show the piston, etc. The piston-rod, *r r r*, at the middle, is firmly attached to the piston carriage by the connecting plate *c' c'*; which is also firmly bolted to the frame of the carriage; *l* is a little lever projecting through connecting plate, for opening and shutting the valve *v* at stopping or starting. To one end of this lever is attached the small rod *c v*, connecting it with the valve *v*. At the other end is the rod *c r*, to which is attached the handle *h*, under the immediate control of the guard or conductor. By means of this handle the guard can at any time, when necessary, open the valve *v*, and allow air to pass into the pipe from behind and thus destroy the vacuum; *c c* two steel plates, better known by the name of coulters, which serve the purpose of gradually opening the long leather valve (see large view of pipe); *w w w w* are little wheels inside the pipe for raising and lowering the long leather valve on the top of the pipe, so as to let the connecting plate *c' c'* pass into it. These wheels are attached to the piston-rod *r r r r*, which is here flattened out into a double plate for that purpose. By such an arrangement the valve is raised and lowered without any violent motion, or in the least injuring the peculiar qualities of the valve. The piston-rod *r r r r* is made alike at both ends, in order that the piston *p* may be removed from the one end and put on the other without having to detach the whole apparatus from the connecting plate *c c*. For that purpose the small rod *c v*, connected to piston-valve *v*, is made alike on each side of lever to facilitate the operation. The carriage is then in a position to return. *n n n* are the wheels of the carriage *A*, which run upon the rails in the usual manner. The middle one is made larger merely for the purpose of keeping the axle out of the way of the connecting plate.

The Heater Carriage and its Appendages.
h is the copper vessel called the heater, which is kept filled with burning charcoal. To the bottom of this vessel is attached a brass plate, tapered away towards the ends. This plate is made to pass along the side of the long valve, and squeeze the composition up against pipe, and so form an air-tight joint ready for another exhaustion. *p p* two bell-crank levers, attached at one end to the rod *c*, while the other supports the heater in position by means of pins on each side. The rod *c* traverses the carriage both ways where it is attached to the lever handles *h h'*. By working either of these handles the heater can be at once raised from off the surface of the pipe, which is necessary at stations. One handle is sufficient for this purpose, but two are put for convenience, should the person in attendance be in either end of the carriage; *r r* are two rollers, technically called closing-wheels; these wheels are made to run on top of the long valve, and press it to the surface

ELEVATION OF ATMOSPHERIC TRAIN.

The Heater and Soldering Carriage.

The Piston Carriage.



of the pipe. The degree of pressure is regulated by the lever handle *k*, under the command of the conductor. Attached to the wheel is a small spring to ease the motion, should any difference in height take place, allowing it to play up and down in the slot of the bearing-plate. One or both of these wheels can be used at pleasure, and accordingly one may be hung up out of the way, as shown in the engraving, by means of a small rod *s*, suspended to a hook on side of carriage. *w w* are the wheels of the carriage *B*, which run upon the rails in the usual manner; *E* part of the carriage of a regular train, in every respect similar to those on other railroads.

The Atmospheric Pipe, *t t t*, is shown partly in elevation and partly in section. It lies between the rails, and is firmly bedded on the wooden sleepers sunk in the ground; *s s s s*, the wooden sleepers, of a triangular shape, according to Mr. Cubitt's practice.— Those shown in section are those to which the pipe is attached, while the others carry the chairs into which the rails are put, as is common to all railways. *f f* are strong ribs cast with pipe, strengthening it against the pressure of the atmosphere acting from the outside.

Debt of Kentucky.—According to the Message of Governor Ousley, the entire indebtedness is \$3,138,956, as per annexed extract from his Message:—

“The present funded debt of the state, including every description of bonds heretofore issued and not cancelled, amounts, as before remarked, to \$4,408,400, and may be classified as follows:—

5 per cent. bonds, payable 35 years after date,	\$ 165,000
5 per cent. bonds, payable 30 years after date,	450,000
6 per cent. bonds, payable 30 years after date,	3,579,000
6 per cent. bonds, payable 6 years after date,	100,400
6 per cent. bonds, (for repair of railroad,) payable 6 years after date,	84,000
Money borrowed from bank of Louisville,	30,000
Total amount,	\$4,408,400

To this amount should be added \$1,056 of the railroad and internal improvement certificates or scrip, issued by the Northern bank, still outstanding and redeemable by the state,—making the aggregate state debt, at present, \$4,409,456.

But in connection with this subject, it is proper to remark, that the state is in possession of means by which part of the debt might be extinguished without burthening the people with taxation. The state holds in her own name bank stocks, \$1,270,500. This sum deducted from the entire amount of debt, as above stated, leaves \$3,138,956, which may be considered as the actual burthen of debt on the state. But when we consider that, to meet this indebtedness, the state has a very large amount of stock in the various turnpike roads, and owns the entire

Kentucky and Green river navigation, which are yearly becoming more productive to the state, and therefore more valuable; and that the state also owns the railroad, which is in successful operation, and yielding a handsome rent to the state—it will be seen that the indebtedness may be considered as greatly diminished by these vast assets, and all fears of oppression of the people, by reason of their state debt, dismissed as groundless and illusory. This gratifying fact furnishes a conclusive answer to such persons as are disposed to reproach those who were instrumental in carrying out the internal improvements which are adding so much to the wealth, convenience & comfort of the people.”

Debt of Maryland.—Gov. Pratt says in his report that

“The sinking fund on the 1st December, 1844, amounted to \$1,276,306 79; and on the first of December, 1845, to \$1,404,030 25. It is progressively increasing by the quarterly re-investment of the interest accruing on it; and its operation has demonstrated its adequacy to secure the citizen and creditor of the state by redeeming the principal of the public debt within the periods limited in the appropriation laws.

“The public creditor, with the certain assurance of the future prompt payment of the accruing interest, will, I am persuaded, be well satisfied to fund the arrearage of interest upon such terms as will comport with the ability of the state, and at any rate of interest you may deem equitable and just.

“The entire debt of the state, bearing interest amounts to the sum of \$11,986,784 98.”

He says further that, “If, after a thorough investigation of the subject, you should determine that the state shall resume payment on the 1st day of October next, it will be necessary to fund the interest inclusive of the quarter ending on the 1st of July, 1846.

“In view of the anxiety which will exist on the part of the tax payers to avail themselves of the privilege of paying in coupons or certificates of interest, (a privilege which they are aware, must be denied so soon as you decide to resume the payment of the current interest.) I do not think the present arrearages of interest will be much increased. Suppose the arrearages of interest on, and including the interest of the 1st July, 1846, would amount to the sum of 1,500,000 dollars; this funded at 3 per cent. would increase the current interest from that date by the sum of 45,000 dollars; and if you should decide to pay off the principal, thus funded, in 20 years, it will be necessary to provide annually the further sum of 75,000 dollars; which sums added to the current interest on the present funded debt, would make the sum of 715,421 20 dollars to be raised annually to meet the demands upon the treasury.”

Election of Directors.—The Concord and Portsmouth railroad company had a large and spirited meeting of the subscribers to the stock at the Franklin house, Portsmouth, on Tuesday, the 30th December, when the following named gentlemen were chosen directors: Alexander Ladd, Richard Jenness, W. P. Jones and John P. Lyman, of Portsmouth;

Theodore French, Joshua Stevens and R. E. Pecker, of Concord. Mr. Ladd declined serving upon the board, whereupon A. W. Haven, Esq., was chosen, and subsequently elected president. The meeting adjourned, to be holden at Concord on the third Wednesday of February.

The Lake Trade.—Its Growing Importance.—The Cleveland Herald, of 31st December, has the following statement in relation to the trade of that city during the year 1845. Who that explored its harbor thirty years ago, anticipated such a business?

The arrival of vessels at the port of Cleveland, coastwise, during the season of 1845, were as follows:

Steamers,	927
Propellers,	105
Vessels,	980
Arrived from foreign ports,	124
Cleared to foreign ports,	135
Amount of tonnage owned at this port, 11,530	

Number of vessels, including steamers and propellers, owned at this port, 94
Number of seamen employed, 638

MANUFACTURE OF PATENT WIRE
Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by
JOHN A. ROEBLING, Civil Engineer,
Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by
MORRIS TASKER & MORRIS,
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 14

KITE'S PATENT SAFETY BEAM.

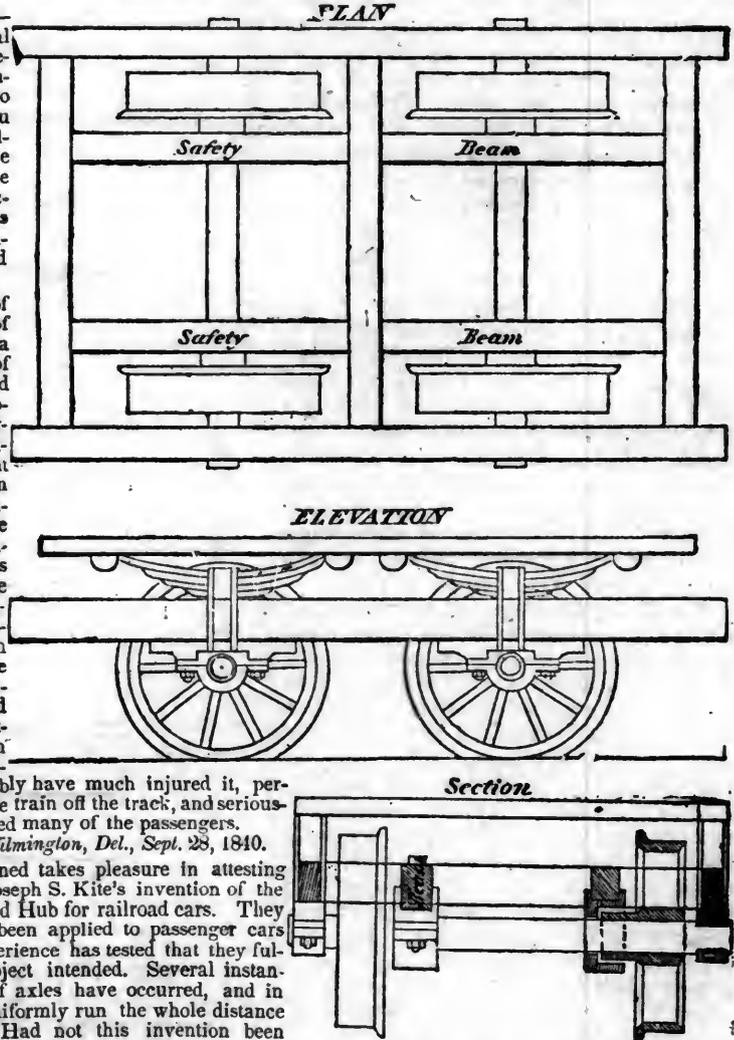
MESSRS. EDITORS.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheeled passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.
Wilmington, Del., Sept. 28, 1840.

The undersigned takes pleasure in attesting the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.

In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.

JOHN FRAZER, Agent,
GEORGE CRAIG, Superintendent,
JAMES ELLIOTT, Supt. Motive Power,
W. L. ASHMEAD, Agent.
A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No 71 Hanover st., N. York. ja23



BOSTON AND MAINE RAILROAD.

Upper Route. Boston to Portland via, Charlestown, Somerville, Malden, Stoneham, South Reading,

Reading, Wilmington, Ballardvale, Andover, North Andover, Bradford, Haverhill, Atkinson, Plaistow, Newtown, Kingston, East Kingston, Exeter, South Newmarket, Newmarket, Durham, Madbury, Dover, Somersworth, South Berwick, North Berwick, Wells, Kennebunk, Saco and Scarborough.

Winter Arrangement, 1845 & 6. On and after Monday, October 20th, 1845, Passenger Trains will run daily, (Sundays excepted,) as follows, viz.

Leave Boston for Portland at 7½ a.m. and 2½ p.m. Leave Boston for Great Falls at 7½ a.m., 2½ p.m. and 3½ p.m. Leave Boston for Haverhill at 7½ a.m., 2½, 3½ and 5 p.m. Leave Portland for Boston at 7½ a.m., and 3 p.m. Leave Great Falls for Boston at 6½ a.m., 9½ a.m. and 4½ p.m. Leave Haverhill for Boston at 6½, 8½, and 11 a.m., and 6½ p.m.

Special Train.—A special train will leave Boston for Andover at 11½ a.m., and Andover for Boston at 3½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value. CHAS. MINOT, October 20, 1845. 43 ly Super't.

SPRING STEEL FOR LOCOMOTIVES.

Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, 55a3 Albany Iron and Nail Works, Troy, N. Y.

A. & G. RALSTON & CO., NO. 4

South Front St., Philadelphia, Pa. Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ¼ inch Flat Punched Rails, 20 ft. long. 25 " 2½ x ¼ " Flange Iron Rails. 75 " 1 x ¼ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

MACHINE WORKS OF ROGERS,

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.

FOR SALE AT A SACRIFICE—A LOCOMOTIVE ENGINE,

4 wheels and Tender. Cylinders 10 in. dia., Stroke 16 in., Cylinders inside of smoke box. Weight of engine, with wood and water, about 9 tons. This engine and tender are new, and of the best materials and workmanship. If required, would be altered to a 6 wheeled engine.

Also, 1 20-horse High Pressure Steam Engine. 2 8-horse " " " 1 Upright Hydraulic Press.

All of which will be sold low, on application to T. W. & R. C. SMITH, Founders and Machinists, Alexandria D. C.

May 12f

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

This Road in connection with the South Carolina Railroad and the Western and Atlantic Road now forms a continuous line of Railroad of 360 miles from Charleston to Cartersville, two miles west of the Etowa River in Cass County.

Rates of Freight, and Passage from Augusta to Cartersville.

On Boxes of Hats, Bonnets, and Furniture per foot..... 15 cts. " Dry goods, shoes, saddlery etc., per. 100 lbs. 85 " " Sugar, coffee, iron, hardware, etc. " 70 " " Flour, bacon, mill machinery etc. " 33½ " " Molasses, per hogshead \$9; salt per bus. .22 " Passengers \$9 50; children under 12 years of age and servants, half price.

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at Augusta. J. EDGAR THOMPSON, Ch. Eng. and Gen. Agent.

Augusta, Oct. 21 1845. *44 ly

NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. G. A. NICOLLS, Reading, Pa. ja45

GEORGE VAIL & CO., SPEEDWELL IRON

Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective iron and Brass Castings of all descriptions. ja45ly

TO RAILROAD COMPANIES AND MANUFACTURERS OF RAILROAD MACHINERY.

The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Uniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.

NORWICH AND WORCESTER RAILROAD.

On and after May 22, 1845, Trains will leave as follows, viz:—

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning train from Norwich, and the morning and evening trains from Worcester, connect with the Boston, Western, and Hartford and Springfield railroads.

New York Train, via Steamboat. Leaves Norwich for Worcester and Boston, every morning except Monday, upon the arrival of the boat from New York, about 2 a.m. Leaves Worcester for Norwich and New York, at 5½ p.m., daily, except Sunday.

New York Train, via Long Island Railroad.—Leaves Norwich about 3 p.m., for Worcester and Boston, daily, except Sunday. Leaves Worcester for Norwich and New York, at 7½ a.m., daily, except Sunday, and arrives in Norwich at 9½.

Freight Trains. Daily, except Sunday. Fares are less when paid for Tickets, than when paid in the cars.

EMERSON FOOTE, 32 ly Superintendent.

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.

This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 ly

WESTERN AND ATLANTIC RAILROAD.

The Western and Atlantic Railroad is now in operation to Marietta, and will be opened to Cartersville, in Cass county, on the 20th of October—and to Coosa Depot, (formerly known as Borough's,) on the 20th of November.

The passenger train will continue, as at present to connect daily (Sundays excepted) with the train from Augusta, and the stage from Griffin.

CHAS. F. M. GARNETT, Chief Engineer. 43

LITTLE MIAMI RAILROAD.—DISTANCE 65½ MILES. FARE, \$1 50.

From 1st November to 1st March Passenger Trains leave Cincinnati for Xenia at 11 o'clock, A.M.

Returning, leaves Xenia at 8½ o'clock, A.M. Freight Trains run daily, Sundays excepted.

At Xenia, Passenger Trains connect with daily lines of stages to Columbus, Wheeling, Cleveland and Sandusky city.

W. H. CLEMENT, Supt. and Engineer. 1y1

RAILROAD IRON.—THE "MONTGOMERY IRON COMPANY,"

Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sts. 49 ly

C. J. F. BINNEY,

GENERAL COMMISSION MERCHANT and Agent for Coal, and also Iron Manufactures, etc.

No. 1 CITY WHARF, Boston. Advances made on Consignments. Refer to Amos Binney, Boston. Grant & Stone, Philadelphia. Brown, Earl & Erringer, Philadelphia. Weld & Seaver, Baltimore.

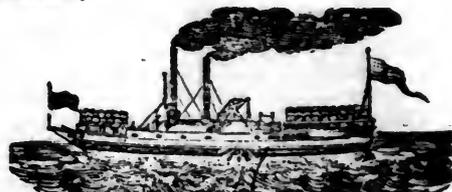
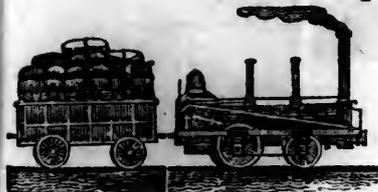
December 8, 1845. 1m 50

BACK VOLUMES OF THE RAILROAD JOURNAL

for sale at the office, No. 23 Chambers street.

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 4.j

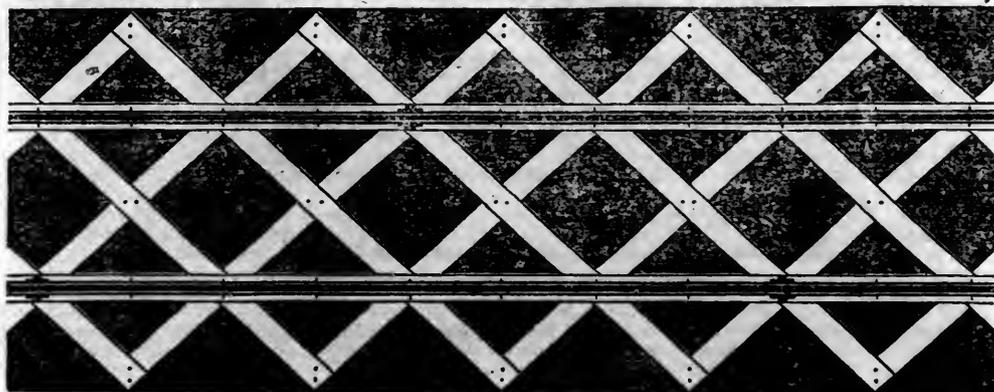
SATURDAY, JANUARY 24, 1846.

[WHOLE No. 500, VOL. XIX.]

W. R. CASEY, CIVIL ENGINEER, NO. 23 Chambers street, New York, will make surveys estimates of cost and reports for railways, canals, roads, docks, wharves, dams and bridges of every description. He will also act as agent for the sale of machinery, and of patent rights for improvements to public works.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON,
Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.
* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum...	5 00

ENGINEERS and MACHINISTS.

- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
KITE'S Patent Safety Beam. (See Adv.)
FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
ROSS WINANS, Baltimore, Md.
CYRUS ALGER & Co., South Boston Iron Company.
SETH ADAMS, Engineer, South Boston.
STILLMAN, ALLEN & Co., N. Y.
JAS. P. ALLAIRE, N. Y.
H. R. DUNHAM & Co., N. Y.
WEST POINT FOUNDRY, N. Y.
PHENIX FOUNDRY, N. Y.
R. HOE & Co., N. Y.
ANDREW MENEELY, West Troy.
JOHN F. STARR, Philadelphia, Pa.
MERRICK & TOWNE, do.
HINCKLEY & DRURY, Boston.
C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.
BALDWIN & WHITNEY, Philadelphia, Pa.
THOMAS & EDMUND GEORGE, Philadelphia. (See Adv.)

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Supt Hartford and New Haven Railroad; W. R. McKee, Supt Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Supt New Jersey Railroad Trans. Co.; J. Elliott, Supt Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Supt Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Supt Macon Railroad, Macon, Ga.; J. H. Cleveland, Supt Southern Railroad, Monroe, Mich.; M. F. Chittenden, Supt M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, or to Messrs. Baldwin & Whitney, of this city, will be promptly executed.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

FRENCH & BAIRD.
Philadelphia, Pa., April 6, 1844.

** The letters in the figures refer to the article given in the Journal of June, 1844.

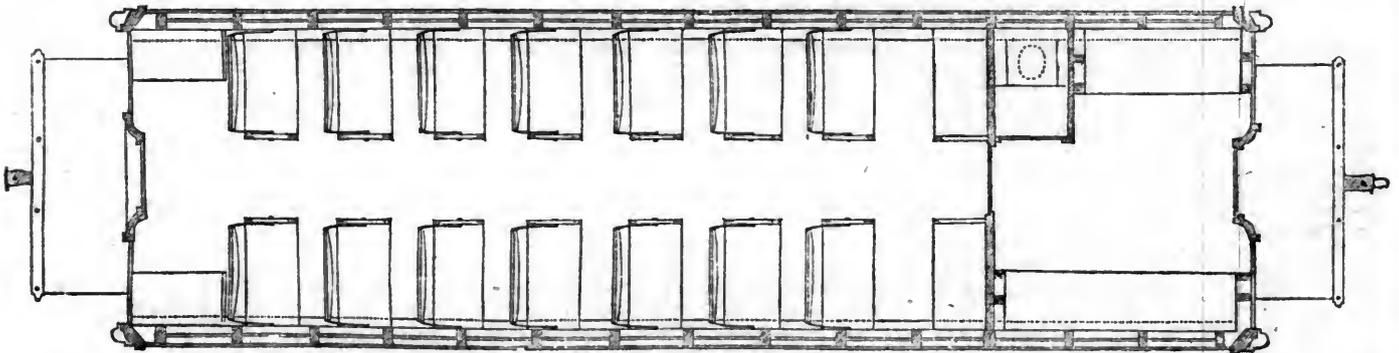
ja45

BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

The article is complete in itself, occupies but little space, is perfectly portable, and requires no brick work, not even to stand upon. It is valuable not only in the saving of time and labor, but in the economy of fuel, as it has been ascertained by accurate measurement, that the saving in that article is fully two-thirds over other methods heretofore in use. They are now for the first time introduced into New York and Boston by the subscriber, who has the exclusive right for the New England states, New York and New Jersey, and are manufactured by

CURTIS & RANDALL, Boston; and by
FORCE, GREEN & CO. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern, and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All order punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

RAILROAD IRON AND LOCOMOTIVE
Tyres imported to order and constantly on hand
by **A. & G. RALSTON**
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS.
etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having to use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
Albany, N. Y.

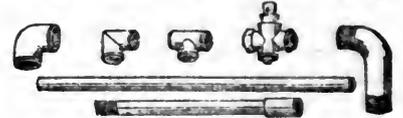
Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

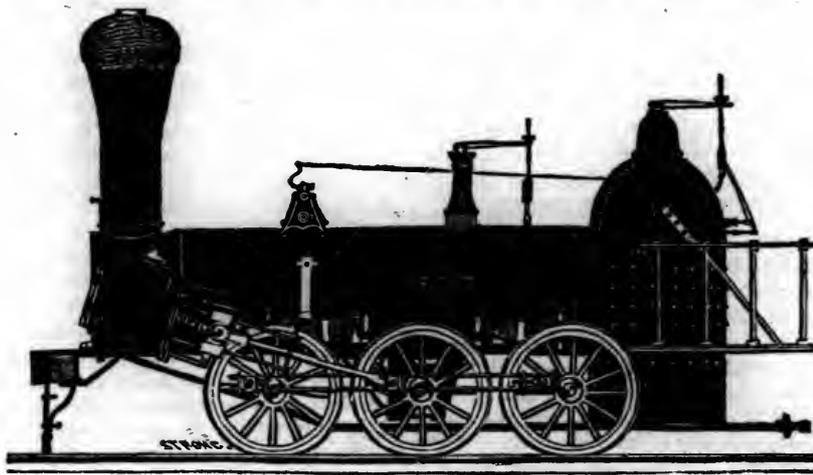
WELDED WROUGHT IRON TUBES

From 4 inches to 12 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of	Cylinder,	×	20 inches	Stroke.
" 2,	14	"	"	×	24	" "
" 3,	14½	"	"	×	20	" "
" 4,	12½	"	"	×	20	" "
" 5,	11½	"	"	×	20	" "
" 6,	10½	"	"	×	18	" "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order; and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

RAILROAD IRON.—THE MARYLAND AND NEW YORK IRON AND Coal Company are now prepared to make contracts for Rails of all kinds. Address the Subscriber, at Jennon's Run, Alleghany County, Maryland.
WILLIAM YOUNG,
President.

TO IRON MASTERS.—FOR SALE.—MILL SITES in the immediate neighborhood of *Bituminous Coal and Iron Ore*, of the first quality, at Ralston, Lyoming Co., Pa. This is the nearest point to tide water where such coal and ore are found together, and the communication is complete with Philadelphia and Baltimore by canals and railways. The interest on the cost of water power and lot is all that will be required for many years the coal will not cost more than \$1 to \$1 25 at the mill sites, without any trouble on the part of the manufacturer; rich iron ore may be laid down still more cheaply at the works; and, taken together these sites offer remarkable advantages to practical manufacturers with small capital. For pamphlets, descriptive of the property, and further information, apply to Archibald McIntyre, Albany, to Archibald Robertson, Philadelphia, or to the undersigned, at No. 23 Chambers street, New York, where may be seen specimens of the coal and ore.

W. R. CASEY, Civil Engineer,

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 feet, with lathes, work benches, &c.

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS,** 48 State st., or to **CURTIS, LEAVENS & CO.,** 106 State st., Boston, or to **A. & G. RALSTON & Co.,** Philadelphia.

CYRUS ALGER & CO., South Boston Iron Company.

Atmospheric Railway.

[Continuation of Clegg and Samuda's plan.]

For a description of the *piston* and *heater* carriages or A and B, see last number, page 45.

We announced in our last the public opening of the Croydon atmospheric railway, and laid before our readers a general view of the circumstances in which the undertaking originated and has been carried out. We have seen that this line is the production of the combined talent and enterprize of a considerable number of men, to each of whom we were desirous that the public should assign the due share of merit. There are also several other men of talent whose invention has been laid under contribution to carry out this undertaking, whose respective works we shall take an early opportunity of specifying; but we were anxious that our readers should not be troubled in the outset of their examination of this interesting subject with too much variety of detail.

We now proceed from the general view of the enterprize to examine some of the details by which it has been carried out. For this purpose it may be convenient to our readers to divide the subject in their own minds much in the manner in which we shall consider it. For this purpose we advise that the examination should be undertaken by our readers in the same order in which we recommend that it should be conducted on the spot by those who have an opportunity of visiting the railway for themselves; and we believe that the Croydon railway company will be found ready to afford all the readers of the *Railway Chronicle* early and ample opportunity to visit the line; at least, we are sure that a written application to Mr. YOUNG, the secretary, for this purpose, will receive attention at the earliest moment the interests of the undertaking will admit.

We recommend, therefore, that the readers of the *Railway Chronicle*, and the visitors of the Croydon atmospheric railway, should examine and consider, apart from each other, as perfectly independent subjects, the following:—

(1.) The *genesis* of the power, or the apparatus by which the motive force is created.

(2.) The *transmission* of the power, or the means by which the force produced at one end of the line is made to act at the distance of three miles.

(3.) The *application* of the power, or the means by which it is made to act on the train, so as to bring it under the control and management of the attendants.

1. *The Genesis of the Power.*—The first object which attracts the notice of the observer, is also that which he should first examine. It lies in the highly decorated building of which a picturesque view was given in our last. On arriving at the Dartmouth Arms station of the London and Croydon railway, our readers will notice on the same side of the line on which he gets out of the Croydon carriage, a sort of Gotho-elizabethan-cottage ecclesiastical style. A high, slender tower, battlemented in the Tudor style, is the mask for a steam engine chimney, and would have been tolerably perfect for this purpose had

the ambition of the architect allowed him to stop short at a handsome chimney. But he aimed too high, and has fallen short of his aim. He determined that his chimney should be mistaken for something else. Where the chimney should have ended he has commenced a Gothic church-spire or pinnacle! through the perforated decorations of which escaped the vile smoke and steam. The result is bad—it puzzles the eye—it neither entertains nor pleases it. The cheat is soon discovered, for the smoke has already discolored the would-be aspiring pinnacle, and it looks like a dirty extinguisher on the top of a tallow candle. Perhaps, however, the architect was assured that the chimney was to be *smokeless*; so it is, when the fire is well lighted, but when that is in embryo, and in certain states of the weather, it smokes and soils the decoration. We disapprove of the extinguisher, and recommend its removal as a respectable improvement. If, in future, the architect wish to employ Gothic in his chimney, he will find specimens much more correct and expedient of Gothic chimneys in the *Glossary of Gothic architecture*; the last edition of one of the most useful works of its class. But we must return to mechanics. This mongrel piece of architecture contains the apparatus for creating the power.

That part of the atmospheric engine-house which fronts the road contains a pair of steam engines of 50 horse power each, constructed by the celebrated firm of MAUDSLAY & FIELD; they are united together so as to work in couples, and form one double engine; but they are so contrived that in case of accident to either, the remaining one could work independently of its companion. This pair of engines is in one-half of the front part of the building, and there is sufficient space in the other half for another similar pair of engines, designed to work part of the road between Dartmouth Arms and London. The back portion of the building on a lower level, contains merely the boiler houses for supplying steam to the steam engines, and is immediately connected with the chimney which carries off, nearly without smoke, the products of combustion.

These steam engines of about the ordinary construction, form the source from which the power is obtained, by which the atmospheric trains are put in motion. In the construction of these engines there are no great features to distinguish them very essentially from ordinary steam engines, excepting in certain contrivances for the convenient working of the apparatus by the men employed in its use. We need not pause, therefore, longer to remark the compact, convenient and economical arrangements which characterize all the engines of the celebrated makers.

So much for the source of power; it is a pair of ordinary steam engines of 50 horse power each. But it might be obtained in many other ways. A hundred horses drawing round a wheel could do the same work, or the power of water falling on a mill-wheel might set agoing the same machinery.

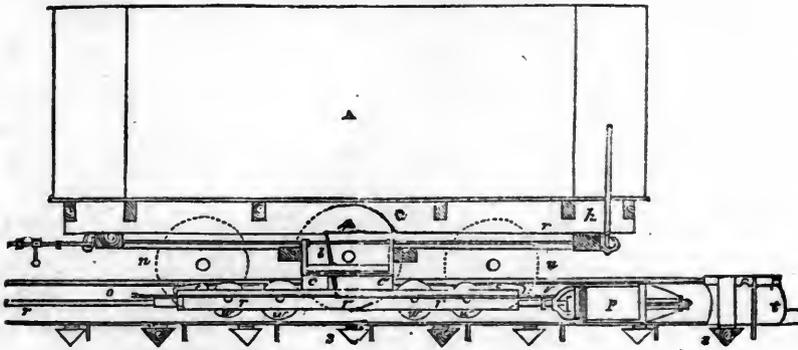
The source of the power is indifferent to the effect, except as a matter of economy. Only in our present case it happens to be derived from the steam engines contained in the highly decorated buildings we have already noticed. The visitor need puzzle himself no longer on this part of the subject.

2. *The Transmission of the Power.*—This second point is more worthy of careful attention. How, does the steam engine, which is at one end of the railway, draw along towards itself a weight of 50 tons which is at 3 miles distance from it? for this is the distance of one engine and engine-house from its next neighbor: The first engine is at Dartmouth Arms, Forrest-hill station, and the second is at Norwood station, three miles farther on.—From Norwood to Forrest-hill the train is to be brought along by means of an engine at the latter.

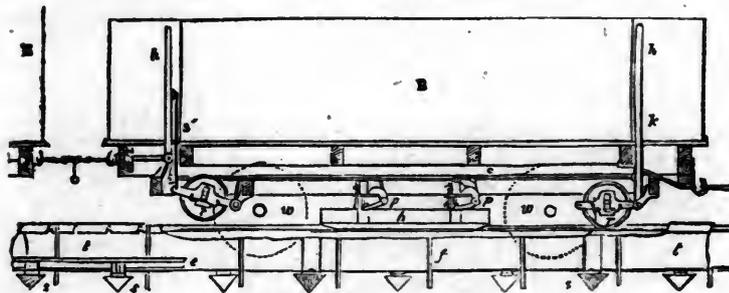
How the engine at Forrest-hill does draw the train from Norwood over the intervening space is the puzzle. The contrivances are as follows:—first, the steam engines at Forrest-hill, by means of a large air-pump which they put in motion, pump air out of an iron pipe leading from the engine-house to the railway; this pipe communicates by a regulator, open and shut at pleasure, with the atmospheric tube, which is merely an iron pipe, 15 inches in diameter, lying along between the rails of an ordinary railway, and so by the aforesaid pipe, the air is also pumped out of the tube. This is all the steam engines do: they pump the air out of the tube which reaches from them to the end of the three miles where the train is waiting. We say this is *all*, for it is worthy of remark, and it is a distinction which has not always been made, and confusion has more than once arisen from the omission—we say it is worthy of remark, that the steam engines do not *draw* the train towards them: the train is not, in fact, drawn at all; there is nothing to draw with: there is merely an iron pipe fastened along the ground between the rails, and an air-pump worked by a steam engine, pumping the air out of the tube. The object of the pumping is not to draw anything, but rather to bring about that there shall be nothing—*i. e.*, a *vacuum*, void space—and no matter, between the engine, which is supposed to draw, and the train of carriages supposed to be drawn. And the result is, that the more completely this is done, and the more perfectly there is an absolute void and nothing left to draw by, the more powerfully and rapidly is the train compelled to travel towards the steam engine.

This may seem a paradox: it is one, but the paradoxical statement is fact. The train, therefore, is not drawn by the engine, towards which it travels. The result is a mere philosophical deduction, and it is the remoteness of this deduction which gives to this invention its scientific beauty. The steam engine does *not draw* the train—does not, indeed, cause its motion, except indirectly. It merely prepares the way for the motion of the train, by removing out of the tube air which would impede its progress. The atmosphere behind *pushes* forward the train,

ELEVATION OF ATMOSPHERIC TRAIN.
THE PISTON CARRIAGE.



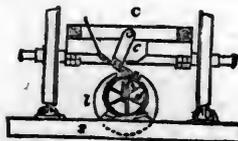
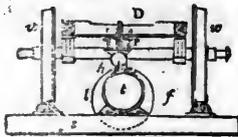
THE HEATER AND SOLDERING CARRIAGE.



SECTION S.

End View Heater Carriage.

End View Piston Carriage.



THE PISTON.

Fig. 1. Scale Three Fourths Inch to one Foot.

Fig. 3.

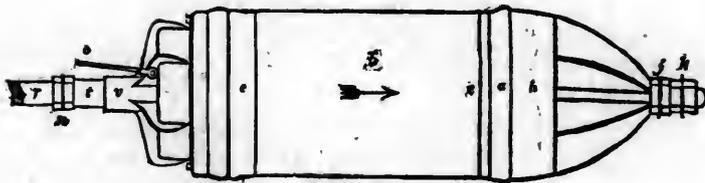
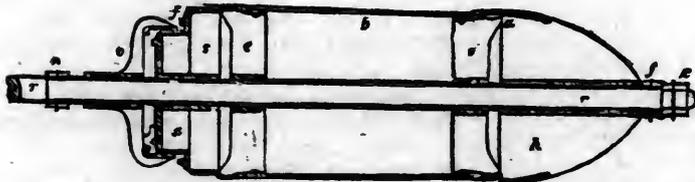


Fig. 2.



Fig. 4.



THE VALVE AND ATMOSPHERIC TUBE.

Fig. 5. Scale Three Fourths Inch to one Foot.

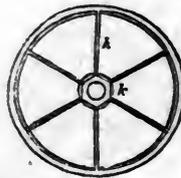
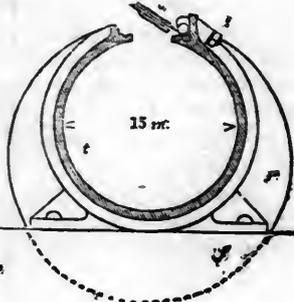
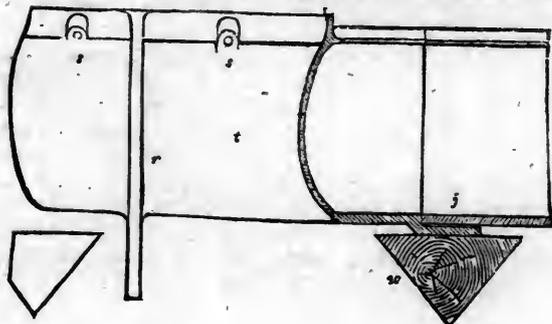


Fig. 6.



which is thus driven by a *vis a tergo* towards the steam engine. If the atmosphere were suddenly lightened the train would move less rapidly. We have heard of railways to the Moon! but an atmospheric railway to that quarter, or in it, is impossible: it has no atmosphere. When we get there, the fixed engine, the rope, the locomotive, may answer, but not the atmospheric, for the Moon has no sensible atmosphere.

The engines, then, merely make a vacuum before the carriages. After they have done this they have nothing more to accomplish; this once done perfectly, they might stop altogether, yet nevertheless, if the vacuous space they had made in the pipe remained empty, the train, if allowed to start, would go forward, and would arrive at its journey's end just as well as if they were working. The engines merely clear the way—they make a void before the train, and on an opening being made by which the atmosphere may enter, it rushes with great force into the vacuum, carrying before it any obstacle that stands in its way: precisely such an obstacle is placed in its way—it is called THE PISTON, and the atmosphere pushes this obstacle along with so much force that a train of carriages being firmly attached to this piston, is pushed along with it to the other end of the three miles, or as far as it can pass without encountering resistance of air or other obstacle.

The piston and train is therefore pushed from behind, not drawn from before; and it is pushed, not by a steam engine, which merely clears the way, but by the weight or pressure of our atmosphere rushing into a vacuum. The great advantage which the atmospheric system may obtain in point of speed is due to this, chiefly, that the speed of the atmosphere rushing into a vacuum is 800 miles an hour. If therefore we can make a vacuum sufficiently well, there are no moderate limits to the speed to be attained, except for safety and economy.

The vehicle for transmitting power from the steam engine to the train is therefore *void space*. The creation of this void is thus the *indirect* cause of motion in the train. The direct cause is the weight of the atmosphere pressing air in behind the piston with a velocity of 800 miles an hour. The piston is merely the obstacle which is interposed between the vacuum and the air rushing in behind it, and the piston with the train attached to it are the obstacles which prevent the attainment of this velocity. The force acting at one end merely brings into play therefore a force residing permanently at the other, viz. the pressure of the atmosphere: the steam engine merely opens the way for it, by pumping out the air, and so making a void for its reception.

3. *The Application of the Power.*—This has brought us to our last topic, viz. the manner in which this power (the pressure of the atmosphere) is conveniently applied to the propulsion of a railway train. The mechanism by which this is accomplished consists chiefly of two parts, the PISTON and the LONG VALVE, each of which has several an-

pendages. We shall describe them separately: the piston is, as we have said, the obstacle placed in the atmospheric pipe, which the atmosphere has to push forward before it. The valve is the means by which an opening is made at every successive point along the whole tube, allowing the atmosphere to enter behind the piston without admitting it before, and through this same opening passes the bar of iron, which is carried from the piston to the train, and by which carries the train along with it.

Fig. 1, is an elevation of piston and valve complete.

Fig. 2, a section through the centre, showing the valve partly open.

Fig. 3, end view of valve.

Fig. 4, end view of piston. *t*, a brass tube upon which the whole of the piston, &c. is fitted, by which means it can readily be withdrawn and another substituted. *e e*, two brass cylinders or end pieces, revolving loosely on the tube *t*. To those end pieces is riveted a wrought-iron barrel, *b*, forming altogether the main body of the piston. *v*, the piston valve, made of brass. It is on the principle of double beat, to facilitate its action. *s s*, the valve seat, also of brass. It is through this valve seat that the air rushes when the valve is drawn open (as in fig. 2). *ff* are two rings of leather, forming the tight joints to the valve when shut (as in fig. 1). A ring of iron and a number of small bolts keep the leather rings from shifting. *n n*, screw nuts fixed on tube *t*, to limit the travel of the valve *v*. *a*, the iron rod attached to valve, and leading to connections under the command of the conductor. *p*, a guide pin fixed into valve seat to prevent the valve turning round, so as to strain the rod *a*. *h*, a brass end piece, forming a collar to piston. *a a*, diaphragms or cups of leather, inserted at each end of the barrel. These diaphragms of leather form the tight packing between the piston and the pipe, in the same manner as metal or hemp packings do in air-pumps or steam cylinders. *j*, screw nuts on end of tube, for the purpose of jamming the parts of the piston together, and thereby retaining the leather packing in position. By such an arrangement a fresh packing can be inserted with great facility, without having to detach the whole piston. *r r*, the piston rod, accurately fitted to the tube *t*. *k*, screw nuts on end of piston rod, which secure the whole together. The pistons are all made exactly alike, so that in the event of anything giving way a fresh one can be attached without occasioning any delay. The diameter of the piston is 15 inches, being the same as the inside diameter of the pipe.

Fig. 5, side view of pipe, with a part in section showing how two are joined together.

Fig. 6, cross section of ditto, showing the manner of attaching the long leather valve. *t t*, a cast-iron pipe, 15 inches in diameter, 3-4 inch thick, and made in separate lengths of 10 feet; *r r*, strong rib, 1½ inches thick, and increasing in depth from 1 3-4 inch at top to 7 inches at bottom; there are three such ribs in each length of pipe; *j*, the joint, 4 1-2 inches long, and accurately fitted to one an-

other; into the recess is introduced a quantity of rope yarn and composition, and driven hard up, forming an air-tight joint; *s s*, snags cast along with pipe, to receive the bolts used in holding down the valve. They are placed at an angle to bring the strain of the bolt on a line with the hinge of valve. The bolts are 5-8 inch in diameter, and have claw heads, to catch hold of the round bar of wrought iron which forms the hinge to valve; this bar of iron is 3-4 of an inch in diameter, and is held down upon the leather by 9 bolts in each length of pipe; *v*, the long valve forming the air-tight joint on top of pipe. It is made of leather 1-4 inch thick, and covers an opening 3 1-2 inches broad. To this are rivetted wrought iron plates 1-4 inch thick. The upper plate is made to project 1-2 an inch over the opening, to stiffen the leather at that part. The under plate fits the opening easily, being not a necessary part of the valve. It is upon this plate that the coulters and wheels of the piston rod impinge, in order to open the valve to let the connecting plate pass through. A small recess at top of pipe holds the composition which the heater attached to carriage squeezes against the valve to render it air-tight and ready for another exhaustion. This process is technically called sealing; *f*, two strong brackets cast on bottom of pipe at each joint, through which pass two 3-4 in bolts, to hold it down to the wooden sleeper; *w w*, wooden sleeper, 9 feet long, 11½ inches broad, and 7 inches deep, of a triangular shape and bedded into the ground. Previous to the pipes being used they are subjected to the process of proving, after which they are well cleaned and the inside deprived of any asperities of surface that might obstruct the progress of the piston. The inside is then coated over with hard tallow, which serves the double purpose of facilitating the motion of the piston, and luting the leather packing.

Figs. 7 & 8 show the atmospheric pipe, *in situ*, below the carriage, and the valve and piston in their places, as in action.

SELECT COMMITTEE OF THE HOUSE OF COMMONS—
ATMOSPHERIC RAILWAY—MINUTES OF EVIDENCE—
—MESSRS. BRUNEL, VIGNOLES, LOCKE, CUBITT,
GIBBONS AND SAMUDA.

The following extracts, from the voluminous minutes of evidence over 190 royal octavo pages, given before the select committee of the house of commons, are made nearly, but *not always* wholly in the language of the report. We have endeavored in *all* cases, to give the *meaning*, if not the precise language of those giving the evidence. As it is the truth we seek, and desire to communicate, we can have no object in alterations of phraseology except in comprising more in a given space than if we were to give the questions and answers as reported.

We shall, in *another extra* give three other plans with the engravings, and still further extracts from the minutes of evidence together with the *report* and names of the committee.

Dalkey Atmospheric.

Mr. Gibbons, engineer of the *Dalkey* and of the *Dublin and Kingston* railway says—

The cost of haulage on the *Dublin and Kingston* road was, in 1814, by locomotive,

11d, and the maintenance of way 3 3-10d—and by Atmospheric 7.1d per mile—in 1845 the Locomotive haulage cost 9.45d—the maintenance of way 2.1d, and the Atmospheric haulage 7.8.

The trains frequently move at the rate of 50 miles an hour—not round the curves, but on the direct line. The trains sometimes go without a passenger, and then again there will be 10 or 12 carriages so full that they have to sit in each other lap; but there is no difficulty, the train has only to wait a minute or two to get up a vacuum. 14 to 16 inches is the most profitable vacuum.

Croydon Line.

Mr. Samuda says, the line from Croydon to Epsom is to be extended from Croydon to London. Five miles, from Croydon to *Dartmouth arms*, is now in use.

The *South Devon* railway, 52 miles from Plymouth to Exeter, is in course of construction on the atmospheric plan; twenty miles of which were to have been ready in July last.

The Dalkey line is 1¼ miles long, and has a rise of 71 feet. It is proposed to extend it 5¼ miles to Bray.

On the *South Devon* there will be gradients of 1 in 50, and in one place of 1 in 42.

The cost of pipe and apparatus for the Croydon line will be about £3,800 per mile—the estimate was £4,000.

The weight of train may be materially varied, without varying size of tube. It is a common practice on the Dalkey to run trains of only 16 tons, and then trains of 75 tons up the incline, which is an average of 1 in 115.

The rails and the whole machinery may be kept in perfect condition, and in consequence the travelling may be made more *regular*, more *rapid*, and *much safer*.

The economy of stationary power will be greatly promoted by the frequency of the trains, yet wherever the traffic is sufficient to justify the construction of a railroad, stationary engines will be cheaper than the locomotive.

Mr. Brunel said: I am engaged in constructing the *Exeter and Plymouth* railway, on the atmospheric plan. It will be, when completed, 52 miles in length; about 20 miles of which we intend to have ready to receive the atmospheric apparatus in June or July.

The bridges *over* it are of less height, by 18 inches, than would have been required for locomotives: and those *under* it are of less strength and substance than usual, as the weight and *vibration* of the locomotives will be removed. Most of the *slips* on railways are produced by the vibration caused by locomotives.

There will be no difficulty in keeping the tube in working condition. The rails on the Great Western are 70 lbs., and on the *South Devon* atmospheric we are laying down rails of 50 lbs. to the yard. The gauge is the same as the Great Western.

The carriages on an atmospheric may be made more perfect, as they will receive much less rough usage. A *single* line of atmos-

pheric, will, upon the whole, be liable to less interruption, than a double line worked by locomotives. In nine cases out of ten an obstruction could be removed more speedily from an atmospheric than from a locomotive line.

The reasons for recommending the atmospheric on the South Devon were the gradients; the superior comforts of the atmospheric principle, by which many would travel who would not otherwise; and the reduced cost of a single line. The passenger traffic on this line will be very great. Persons going to watering places, and I think the number of passengers will be materially affected by the superior comforts of the atmospheric.

On the Great Western, full five minutes are lost by stopping at a station, in addition to the time during which the train is at rest; but on an atmospheric line it would not amount to over a minute and a-half. The whole line from Exeter to Plymouth may be traversed at a speed of 60 miles an hour.

There are no gradients on the South Devon, upon which even locomotives may not descend with safety, therefore I apprehend no danger to the atmospheric, as we have less weight to draw.

The steepest gradients upon a locomotive line, that I recollect, are upon the Birmingham and Gloucester, 1 in 35.

I think, in a line like the South Devon, where we propose to run 6, 8 or 10 trains a day, we can draw those trains much more cheaply, by stationary power on the atmospheric principle, than we could by locomotives.

The more frequent the trains, the more appropriate is the atmospheric system.

I think a single line of atmospheric on the South Devon will be sufficient for its traffic, even if it should be as great as that upon the London and Birmingham. On inclined planes there will be double lines of rails—as the descending train may run down without tube. This will give facilities for meeting trains to pass each other.

The Exeter and Plymouth line was originally laid out for a locomotive line. It has gradients of 1 in 40. Assistant power was to be used on these grades.

The South Devon line is a continuation of a locomotive line. There will be no more difficulty in changing the carriages from a locomotive to an atmospheric line, than from one locomotive to another.

Locomotives run upon the Great Western railroad from 150 to 200 miles each day they are at work; upon the average, about 150 miles. There are upon the Great Western railroad about three-fourths of a locomotive to each mile of road; or about 150 engines for 250 miles of road, including branches.—Short lines are worked to much less advantage of locomotive power, than long lines, because we have to run to correspond with the main trains, rather than to accommodate the local traffic.

The delay of trains, occasioned by what the engine men call "greasy" weather, will be avoided by the atmospheric plan.

I believe the working of the atmospheric

railway will be as much superior to the working of a locomotive line, as that is to our old rough lines which we had some years ago.

Blackburn and Bolton.

Mr. Brunel says, the traffic on this road will be very great, and has to pass over a summit of nearly 600 feet in the course of seven miles, and the gradients are 1 in 70, which were the best he could get, and with these gradients he has several very high viaducts, and an enormous tunnel; yet the traffic will justify the outlay. He says that he has no doubt but that the directors will, when the atmospheric has been proved, be prepared to listen to his suggestions for a single atmospheric, instead of a double locomotive line.

Exeter and Plymouth Line, or South Devon.
Is to be 52 miles long, a single track, and about 20 miles are expected to be ready in July to receive the atmospheric apparatus.

The last rails on the Great Western are 70 lbs. per yard. Those I am making for the South Devon are 50 lbs., and I should say that, for the work they have to do, they are stronger and will last longer than the 70 lbs., on the locomotive line. I propose to introduce a greater degree of perfection into the wheels and springs of the carriages on the South Devon than on the Great Western. As they will be subject to much less violent usage, therefore we can make more perfect carriages.

We have gradients of 1 in 40 and 1 in 50, for nine or ten miles; but the speed will not be much retarded by them. Expect to send trains over them at 40 miles an hour.

Mr. Vignoles recommended the adoption of the atmospheric for the Dalkey, and also from Dalkey to Bray (5½ miles). Also from Vienna to Schonbrunn. On this line the gradients vary from a level to 1 in 30—the length is about seven miles.

I am not prepared to recommend it indiscriminately, but am quite prepared to say that under most circumstances, the atmospheric would be preferable to the locomotive.

I consider it perfectly applicable to long lines. We only need experience to teach us in what particular manner we are to overcome difficulties in the mode of working. That is, to ascertain the CHEAPEST mode, which can only be ascertained by experience.

The great principle of the atmospheric system is the substitution of an economical stationary power for an expensive locomotive power.

In laying out an atmospheric line I should conform much more to the natural surface of the country than in a locomotive line; taking that as a general rule, so as to diminish the cuttings and embankments.

The line from Vienna to Schonbrunn is to be a double track, on account of the great number of passengers which occasionally pass over it—being as many as 25 to 30,000 persons in four or five hours—and all in one direction; and then in a few hours they must all be brought back again. The ordinary average number of passengers per day, is about 2 to 3,000. Under these circumstances, I think the atmospheric plan particularly suitable. It would be physically im-

possible to carry that number of persons by locomotives. The number of locomotives required to take so many passengers, trains leaving every five minutes, with a vast number of carriages, would create so much confusion as to render it perfectly impossible to do it. With the atmospheric system it would be a continual succession of carriages as fast as the exhaustion of the pipe could be completed between the stations; and without any backing or returning of the locomotives.—The trains would continually oscillate.

I know of no other line than the one from Vienna, where the atmospheric is to be used with gradients of 1 in 30; on the South Devon there are gradients of 1 in 40; and I have recommended the adoption of gradients 1 in 30 upon the railway now about to be laid down from Paris up to St. Germain's. I strongly recommended a 1 in 30 gradient for the last mile, with a lofty viaduct across the Seine. This road is to be worked by the atmospheric system.

In almost all cases I think the expense of construction of a single line of atmospheric will be less than that of a double locomotive line, including the engines and other matters connected with them. I have no tables here to sustain this opinion, and then the present price of iron is so high, that it would probably affect the question in some degree; but a double locomotive railway, with seventy-five lbs. per yard rails—which are now considered the best for locomotive lines—with proportionate size chairs, and the expense will vary from £5,000 to £6,000 a mile, according to the price of iron. Rails of this weight, and even of 78 lbs. per yard are used on the Midland Counties.

On the North Union railway, 22 miles long, we have about 12 passenger engines—but this road being worked in connection with the Liverpool and Manchester, the engines and traffic are a good deal mixed up, and the colliers furnish their own engines, which makes it difficult to say how many engines are necessary; but "an engine a mile" is a common saying. On roads the length of the Great Western, there are probably not as many required; but on the Birmingham I should say an engine a mile is required. On lines of 40 miles, or thereabouts, where few trains are run, the number required will not be as great.

There are probably 60 trains that come in and go out of Preston daily; and nearly 100 that go through the station or past it.

I am quite satisfied that a single line of atmospheric will do as much business as a double line of locomotive railway. I have studied the system from the time the model was first exhibited in Paris—ten years ago. I was daily at Wormwood Scrubs, and have watched the progress of the system with great interest; and I think I may venture to say that I was the first engineer who recommended its adoption at all in a practical way, and the result has every day confirmed the impression then made upon my mind. You may send off trains with more frequency, with greater economy, and may get rapid trains with perfect safety.

I will state the reasons why, in one particular instance, I think the atmospheric will be laid down instead of the locomotive, even

though our estimates have been made for a double line on the locomotive plan. I refer particularly to the "Blackburn and Bolton." The traffic on this line is very great indeed, and it has to pass over a summit of nearly 600 feet in the course of seven miles. The gradients laid down are 1 in 70, and I can get nothing better, and even with these grades, I have an enormous tunnel and several viaducts of very great height; but still the traffic is such as to justify the construction of it, and the board of trade have approved of the line. The question has not been raised how the line is to be worked, but *I have no doubt* that, when the atmospheric comes to be tried and proved, (and it requires, in order to convince the public mind, to be tried somewhere on a sufficiently large scale,) the directors of that company will be prepared to listen to my suggestion for a *single* atmospheric, instead of a double locomotive line. The length of this line is 13 miles, and I am quite sure that if the work had been done with a view to a single atmospheric, instead of a double locomotive, I could have saved £50,000 in earth-work and so forth.

I have the Waterford and Limerick line under my charge, and if it were left to me, I should adopt the atmospheric plan for the following, among other reasons, viz: in an agricultural country like Waterford and Limerick, the benefit of railroads will not be felt fully, unless you give the utmost possible accommodation, on the lowest possible terms, in order that you may be able to transport the only thing that the country affords, viz: agricultural produce, on such terms as to induce the people to send their produce to an extent which they do not do at present; and I think that I should be able to do that with *stationary* engines, because I should be able to employ those engines when not in use for the railway, to advantage, in grinding corn, etc., instead of sending it to Manchester to be ground.

I have had a great deal of experience in working locomotive engines, and in the working of railways; and unless some very material improvements were to occur, I should put the expense of working the atmospheric line, properly mounted with good materials to start with, at *half* that of the locomotive.

The Dalkey line is not a fair test, because it is under such unfavorable circumstances. The present cost of working that is, I think, 7d. per mile. When it comes to be in proper work, it will not exceed 5d., if even so much as that; and when the traffic increases it may be done for less than 4½d.

The *average* quantity of fuel for locomotives is 20 lbs. of *coke* per mile per train.

Increased velocity can be attained, I believe, at much less expense with the atmospheric than with the locomotive. You can get under full motion, and come to a state of rest in a much shorter time, and the cost of producing the velocity is much less.

One of the practical advantages of the at-

mospheric principle, is the freedom from accidents, or inconveniences, by the road not being in a perfect state of repair. It was remarkable with the line at Wormwood Scrubbs, the extreme dilapidation into which it got; and yet the experiments never failed. I will mention one or two remarkable instances of that. It had been unattended to, and unvisited, for two or three months. It was a severe frost; and in the preceding rains the road had got greatly disarranged. I think there was a difference of level of one or two feet in some places in the rails, in the course of a few yards. The frost was in the ground and the pipe had water and ice in it. A distinguished nobleman arrived, and desired to see the railway on this frosty morning. A message was sent down, and the steam was got up; and when they came to work they found the pipe full of ice and water; which rushed out of the other end like a torrent.—Yet the next run was as good as I ever had. Then, at another time, the line was disarranged to a still greater degree—it was so bad that nobody dare go over it. I went over it myself, and I went at the utmost velocity, *without danger*. There was *no getting off the rail*, nor any dislocation. *It was these two experiments* which induced me to recommend, *in the strongest manner*, that the atmospheric principle should be adopted on the Dalkey line.

A locomotive engine could not have gone three miles an hour on a road in similar condition. The joints were not broken, but the pipe was like the back of a "*sea serpent*," as we hear it described by the Americans. At one part the earth had slipped away, and there was no support at all under one of the rails; and when we went over them, at the rate of speed I have stated, an ordinary wagon, drawn by a horse, could not have travelled upon the rails three miles an hour safely.

Robert Stephenson, Esq., says, I entered into an investigation of the atmospheric principle at the request of the directors of the "Chester and Holyhead railroad." I proceeded, at the request of the directors of that road, to Dalkey, and there made such experiments as I thought proper, for the purpose of satisfying myself whether it would or would not be a proper mode of propulsion on the Chester and Holyhead line; and it was upon *these experiments* that I made my report to them. They did *not* adopt the system, because I stated it as my opinion that there would be no peculiar *economy* in the first construction, and that the *working* of the line would be more expensive.

There are *some* circumstances, as for instance, if the Blackwall railway had been between Blackwall and London alone, [that is without stopping places] the atmospheric would have been an extremely convenient mode of propulsion; but inasmuch as in those *three and a half* miles there are *five* stations, stoppage at which, upon the atmospheric system, would be essential—the *loss of time* would be so great for the accommodation of the intermediate traffic, that the long traffic would be entirely sacrificed.—The trains upon that line are exceedingly heavy. They run every quarter hour—each way, and sometimes we have 15 carriages weighing from 6 to 8 tons each; and if we had to pull up that weight five times in 3½ miles, it would entirely frustrate the object in view in applying the system to the Blackwall railway, viz: quick communication between the termini.

There are three kinds of power available for railway purposes, viz: stationary engines with ropes, which may be applied either to a hilly, or flat country; the locomotive system; and the atmospheric.

I believe, in point of power, the cost of producing a certain amount of available power, I mean power *practically* available, is very much the same, with stationary engines you have the whole of the power communicated to the train, except what is absorbed by the engine itself, or by the friction of the rope.—In the locomotive system you have an objection arising from the engine itself, which is a ponderous machine, acting against you whenever you vary from a level. Then with the atmospheric you have the *leakage*—but no friction at all except that of the engine which is the same as in the common stationary engine, therefore the comparison between the atmospheric, and the stationary engine, is simply a comparison of the *rope* and the *leakage*. Yet it is difficult to compare them because the effect of the rope is constant. The leakage varies according to the pressure. At 2 or 3 inches vacuum it would be very immaterial. In my experiments at Dalkey it amounted to 250 feet per minute of course the power required to pump 250 feet per minute was the loss: then as you increase the vacuum will the loss increase. What I mean to say is that, as you increase the load in the atmospheric, or increase the necessity of working with a higher vacuum, you make the atmospheric worse than the rope; but as you decrease the vacuum you make it better than the rope. It appears that the friction of a mile of double rope is about equal to the leakage of a mile and a half of pipe. They appear to be as nearly as possible equal. I believe, however, that a large proportion of the leakage takes place in the pump, where there is a good deal of nice workmanship, and constant wear and tear, is going on.

On the Dalkey, at a vacuum of 25 inches, the engine can do no more than absorb the leakage. It cannot take any load at all, at any velocity, because the expansion of the leakage is such that the pump can only draw it out—at its expanded bulk. I have no hesitation in saying that the results show that the longitudinal valve is a *complete triumph of mechanism*. I do not think any improvement can be made. It is lifted with the greatest possible ease, nor is there any difficulty in squeezing it down again. Indeed I consider the arrangement as perfect as any thing can be.

I compared the working of the Dalkey line, on the Atmospheric, with the working of the Euston plane, from Euston square to Camden Town, by means of a rope, and I found that the power lost by the rope in the one case, was as nearly as possible, equivalent to the loss by leakage in the other; the vacuum being from 16 to 18 inches, and the trains passing at 18 to 20 miles an hour. The rope on the Euston plane is an endless rope, and therefore 2 miles in length, and the friction of it equal to the leakage of 1½ mile of pipe on the Dalkey. I think there is but little difference in the capability of the locomotive and atmospheric to attain and maintain a high velocity. I know of no instance where the velocity of the atmospheric, for any useful experiment, at all approached the utmost speed attained upon locomotive lines. I have gone 55 miles an hour on the Great Western, between Bath and Bristol; but I have never known of equal speed on the atmospheric. In all the experiments made by me upon the Dalkey line, with very light loads, a greater speed was attained upon that plane than could have been attained by a locomotive engine; but with heavy trains, a locomotive would have beaten the atmospheric upon that identical plane.

The trains I experimented with were from 27 to 64 tons, and there was one train of 70 tons.

Up a gradient of 1 in 115 a train of 64 to 70 tons will be moved more rapidly by locomotive than by atmospheric, because a vacuum of 22 to 24 inches will be required, and then it is that the *leakage* is so great that the velocity is reduced, and the locomotive will decidedly exceed the atmospheric. I have a table of the trains which varied from 27 to 64 tons. With light trains the locomotive would have been at fault, but with heavy trains it would have been better than the atmospheric.

I think the amount of load, where the locomotive begins to have the advantage, is about 50 tons; as the barometer indicates at that load about 20 to 21 inches vacuum; and *even at that* load, I am inclined to think the locomotive would have the advantage in speed.

[Continued on page 60.]

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

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Saturday, January 24, 1846.

Western Railroad and the Worcester.

The gross receipts for transportation on the Western railroad are reported to have been as follows, viz :

	1843.	1844.	1845.
Receipts	\$573,892	\$753,753	\$810,000
Expenses	289,450	314,074	365,000

Net receipts. 284,432.... 439,679.... 445,000

The cost of the Western railroad, 156 miles, was \$7,686,202, of which \$3,000,000 was raised by stock and the balance, \$4,686,202 by loans; of course no dividend was made in 1843, as the interest at 6 per cent. absorbed the entire net earnings, into about \$3,000; but in 1844 the net earnings increased to \$139,679, which enabled them to make a dividend upon their stock of 3 per cent. after paying the interest on their loans, and have about \$68,507 to carry to sinking fund; and for 1845 they will be able to pay the interest on their loans and about 5 per cent. on their stock and have \$13,828 to carry to sinking fund from the earnings, in addition to the interest, on the sinking fund invested, which is stated at \$26,011; and also in addition to a claim on the Worcester road of \$30,000 for excess of charges during 8½ months since the award on 15th April last. From this statement it will be seen that the Western road is to become a good dividend paying stock, especially if its affairs are managed wisely. The prospective increase should greatly exceed the past, as the branch roads which are now fairly commenced will be to it what the small streams of a country are to its principal rivers. We may therefore look for a steady and constant increase of receipts and dividends upon this road.

Worcester Railroad.

The receipts of this road are said to have been during the year 1845, \$504,458, and its expenses, \$267,848. If this statement is correct, then the receipts and expenses for the three past years will stand thus, viz :

	1843.	1844.	1845.
Receipts	\$401,141	\$428,437	\$504,458
Expenses	242,141	233,274	267,848

Net receipts..162,000.... 195,163.... 236,610

This road cost \$2,914,078, all of which is in the form of stock—there are no loans. The net earnings of the road therefore were, in 1843, a fraction over 5½ per cent., and in 1844, a little over 6½ per cent., and in 1845, a fraction over 8 per cent.

This company however divided 6 per cent. in 1843 and 7½ per cent. in 1844, and will probably divide 8 per cent. in 1845.

From this it will be seen that the Worcester road is doing exceedingly well—and that its business is steadily increasing—as well as the Western road. Yet both may, it is thought, be made more profitable by uniting them, and thus bring them under one management, and of course reduce the cost of working them.

The united cost of these two roads, of 200 miles in length, is \$10,600,280, their aggregate earnings for the year 1845 were \$1,314,458—their expenses, \$632,848, and their net income, \$681,610, or nearly 6½ per cent. upon the entire cost—and there is very little doubt but that they would, under a united and wise management, pay 7½ to 8 per cent. the ensuing year.

A committee was appointed some time since from each company to devise an equitable arrangement for an union, and that committee reported a plan which was deemed fair and equitable. Yet the shareholders of the Worcester, at their late meeting, rejected it by a large majority.

Of the merits of the proposed plan we cannot of course speak, as we have not received official information, but we understood it to be both liberal and equitable—and cannot think but that, if the reported basis of union be the one rejected, the Worcester company have done injustice, both to themselves and to the public. Yet, being without official information on the subject, we withhold the expression of our opinion for the present, and ask the two companies for documents from which we may arrive at the truth—as we shall, at an early day, refer to the subject again—as the whole railroad community have a direct and deep interest in the union of these two roads, and upon a basis which may serve as a model for the numerous unions which are to follow in this country, as are now going on in Europe. We say this matter must be adjusted—and we certainly desire that the pioneers—we mean the early movers in Massachusetts, in favor of railroads—of the Worcester road, should have the full value of their exceedingly favorable position; yet they must not be allowed to pursue a course which will raise up a rival route, or render the whole railroad interest obnoxious to the charge of being “monopolies,” and thus retard and oppress the system by odious restrictions upon all new works, not even for the benefit of the pioneers of the system in Massachusetts. We hope, therefore, that an early and equitable arrangement will be made, and then followed up by such a system of management as will promote the interest of all parties—both shareholders and the public.

We again request the gentlemen in the management to furnish us with such facts, or documents, as will enable us to understand the whole matter.

Economy of Oil.

Chilled Boxes and Steeled Journals for Axles.—We have often been led to reflect upon the enormous expense for oil on many of our railroads; and to inquire if there is no remedy—no substitute for, or avoiding of, this enormous expense; but we have not been successful, unless it is to be found in the adoption of the steeled journal and the chilled box.—We were made acquainted with this peculiar article, about two years since, at Newcastle, Del., where they are manufactured, and had been in use for a

length of time, as we were informed, with entire success. And we have been recently informed that a car with steeled journals, and chilled cast iron boxes, filled with palm oil, run from some time in April to December, without the addition of oil, or any other lubricating substance, and the journals, after this service, were in good condition. If this be so—and we can rely implicitly upon our informant—is it not for the interest of every railroad company in the country to adopt them? The first cost cannot be much more than for the ordinary boxes and journals—even though the journals of the axles are plated with steel—as the boxes are of iron, cast upon a chill, and are of course much less expensive than composition boxes.

These articles can be obtained of the Newcastle manufacturing company, we understand, on very favorable terms: and are, we believe, used almost entirely upon some of the southern roads:

The Monongahela Suspension Bridge.—The Pittsburg American says: “This noble structure is now so far complete as to admit of the passage of horsemen. It presents a beautiful appearance, and may be regarded as one of the most splendid as well as substantial structures in our whole country.”

This noble and beautiful structure is, it appears, fast approaching completion, another month and carriages and loaded wagons may pass over it.—Thus we see PITTSBURG rapidly restoring those useful and necessary structures of which she was deprived by the great fire of last year. She has indeed passed through a fiery ordeal, but we venture to say that she will be not only purified but also greatly beautified by it.

This will be the second structure upon the suspension principle completed over the rivers at Pittsburg within the year. The first, a suspension aqueduct for the canal 1150 feet long. This structure is about 1500 feet long, and they have two or three others in contemplation on the same principle, when Pittsburg will be entitled to the appellation of “the city of suspension bridges,” for which she will be mainly indebted to that accomplished engineer, and excellent mechanic, John A. Roebling.

Safety of Passengers on Railroads.

The safety of passengers should be one of the very first objects of every railroad company. When passengers know that their safety is cared for, and that all proper and known means are adopted by a company to prevent accidents, they will travel more frequently, and without fear; but, when they feel that the only object is to get the fare, and to hurry them over the ground, or to dilly dally along as best suits the convenience or caprice of the managers, without regard to system, or regularity, or comfort, or even ordinary prudence, none but those who must, will, travel.

We have taken up the opinion that it is the duty of every railroad company to adopt such improvements—even though they may have to purchase the privilege—as will, beyond question, promote the safety of their passengers; and therefore it is that we think they ought to adopt the “safety beam,” which has, in several instances, prevented sad accidents by the breaking of an axle. In one instance on the Philadelphia and Baltimore railroad, a car, with one of “Kite’s safety beams,” ran several miles after the axle broke, without even the knowledge of the passengers; and in another case, a car ran more than one hundred miles over the Columbia and Harrisburg road, without the knowledge of the passengers or conductor—though the latter knew that something was wrong, yet he supposed it was a wheel loose on the axle, and so informed those whose duty it was to

repair the cars—but on examination it was found that the axle was broken—and, *but for the safety beam* the whole train might have been thrown off the track, and who can tell the amount of damage, in dollars, to the company, in addition to the loss of time by delay, and perhaps of life, or limb, or both to the passengers?

We have been led to these remarks by reading in the Philadelphia Ledger, of 27th December, an account of an accident which occurred to the day train on the road near Burlington, N. J., on the afternoon before Christmas. Fortunately, no serious damage was done; yet, had the car had Mr. Kite's safety beam attached, instead of Mr. Kite himself on board, the accident would not have occurred, and thus delayed a large number of passengers on the road, so as to miss the cars south of Philadelphia.

The following is the statement in the Ledger, which we laid aside for an early insertion, yet which was mislaid until now. It has lost nothing however by the delay, and we therefore give it a place, even at this late period, as we intend to notice all such accidents.

Railroad Detention.—On Wednesday afternoon, the train from New York to this city was detained for two hours near Burlington, N. J., in consequence of the breaking of the axle of one of the baggage trucks. No one was injured. * * * Had the truck been supplied with safety beams, the train would have travelled hundreds of miles without detention. * * * By this detention, passengers for the south missed the connecting southern line."

Pig Iron.—We would ask the attention of our readers who have occasion to purchase pig iron, to the advertisement of Messrs. Samuel Kimber, & Co. of Philadelphia, which appears in another column of the Journal. Iron purchased of them in quantities is, we are informed, shipped from boat to vessel without expense of extra cartage. They are also in the way of shipping at small expense, iron purchased of other furnaces, by manufacturers and dealers at the east.

We have seen beautiful specimens of pig iron from the Spring Mills, and shall soon have samples from each of the above named furnaces, which may be examined at this office by those who desire to purchase.

Title Page and Index.

The title page, and index to the Journal for 1845, has been somewhat delayed. It is now ready, and is forwarded with this number of the Journal. Should any one who receives the Journal, not receive the index, or if they have missed any numbers during the past year, and desire to obtain them to make the volume complete, they will do well to apply soon for them. We shall, in all cases, supply them, without charge, if we can do so without breaking a volume.

Newcastle, Del. Locomotive Manufactory.

On a recent visit to Newcastle, Delaware, we passed through the locomotive manufactory and foundry of the "Newcastle Manufacturing company," where we had an opportunity of examining several locomotive engines nearly finished, which do great credit to the gentlemen in charge of that establishment, Mr. Andrew C. Gray, the president of the company and Mr. the machinist and principal manager of the manufactory.

We have before had occasion to speak of the engines from this establishment, which are in use on several of the best railroads in the country, but we had not before seen one of their make to compare with those now nearly completed.

The following are the details of the largest, which are designed, we believe, for the Reading road:

6 driving wheels, connected, 46 inches diameter; cylinders 15 inch diameter, 20 inch stroke; boiler 42 inch diameter; 111 tubes, 11-9 long, 1 1/2 inside diameter; furnace 4 ft. 6 in. from fire door to tube sheet; 3 ft. 9 in. at bottom for grate bars; 3 ft. 2 in. wide, and 3 ft. 10 in. deep; whole weight of the engine 19 tons with water and fuel. Tender to contain 2,000 gallons water and 2 cords of wood, on 8 wheels, weight equalized.

The weight on the driving wheels is equal, and has apparatus to keep it equal notwithstanding inequalities of the road.

The frame is of wrought iron, with heavy pedestals, welded to the frame and fitted with wedges to keep the journal boxes in adjustment.

These engines are altogether fitted as strongly as the best wrought iron can effect such an object.—The staying of the cylinders and the braces attaching the boiler to the frame are so arranged and so firmly attached that it seems difficult to be excelled, and we doubt not that railroad companies, procuring engines at this establishment, will obtain as good work and as powerful machines as at any manufactory in the country.

Wire Rope.

For Cables, Inclined Planes, Mines and Standing Rigging.—We ask attention to the advertisement of Mr. John A. Roebling, in relation to "wire rope." Mr. Roebling's mode of manufacture is said to be superior to any other in use, either in this, or any other country. It has been extensively used on railroads, in mines and for ships; and he has recently applied it to the suspension aqueduct, for the Pennsylvania canal, across the Allegheny river, at Pittsburgh, and also for a suspension bridge across the Monongahela river, at the same place.

Errata.—In Mr. Spaulding's letter, of Dec. 20th, addressed to Edwin F. Johnson, Esq., are the following errors, as published in the Journal of Dec. 25th, 1844. Page 825, twelfth and thirteen lines from top of second column—in place of "twenty thousand dollars," should read *two thousand dollars*; and third line from bottom of the same column—in place of "5,000,000 tons," should read 5,100,000 tons.

The Atmospheric Railway.

We continue the article from the Railway Chronicle, descriptive of the Croydon atmospheric railway. Will some of our American engineers oblige us with their views in relation to this system? We shall wait awhile, before we continue the subject, to give them an opportunity to examine the plans already given, and to give us their views *pro* and *con*, if they will. After a few weeks we shall resume the subject again, for the purpose of enabling our readers to understand what has been done and what is now being done on the subject.

RAILWAY ACCIDENTS are increasing, of course, from the extension of the system. It is necessary, therefore, that *untiring vigilance* should be exercised by the companies, and by every individual in their employ, to prevent their occurrence and sad consequences. Justice to the companies also requires that a fair and full statement should be given to the public, as well as the *often one-sided* statements given by passengers, when accidents occur; we therefore tender our columns, and *solicit* an official report from the superintendent of the road, in all cases of accident, for publication.

Railroad Journal, Extra.

We have published an EXTRA sheet of the JOURNAL, containing the *three plans entire* of atmospheric

railway, and *parliamentary examination* on the subject, which have appeared in the *four* regular numbers of this volume of the Journal. It will be exceedingly useful to those who desire to become familiar with the subject—and will be found to contain information which cannot be easily obtained elsewhere, in this country, than in the RAILROAD JOURNAL.

An extra number of copies have been printed, which may be had, single, or by the *hundred* and in wrappers by those who wish to send away, or to sell.

We have devoted so much space, in the last few numbers, to the atmospheric, that the Journal has not contained its usual variety; we shall now, however, commence with the *annual reports*, and give one in each number, as they come to hand. We have now in hand the annual report of the Michigan board of internal improvement; the third annual report of the Little Miami railroad company, and the tenth annual report of the Hartford and New Haven railroad company—for which we tender our thanks to those who sent them; and at the same time, request other friends to bear us in *early remembrance* when their reports are printed.

For the American Railroad Journal.

I observed in the Journal of the 10th January, 1846, the report of L. O. Reynolds, Esq., chief engineer of the Central railroad, state of Georgia, which concludes with a description of a new track, having a continuous bearing for the rails, united by iron cross-ties. This experimental track, it will be seen, is highly spoken of in the report, as "having kept in much better order than the wooden sleepers, although it was placed on springy earth, where it was difficult to keep the track in adjustment."

Mr. Reynolds, with commendable liberality, gives credit to the judgment and ingenuity of Mr. Wadley for the details of the plan. I beg leave to state, however, for the information of all whom it may concern, that the plan of railway track described in Mr. Reynolds' report will be found delineated on the drawings and described in the specifications of the patent issued to me in 1840.

This plan being, in fact, the first progressive step I made towards perfection in my system of railway structure, and it is so described in my patent.

Railroad companies who desire to use a very cheap, and comparatively good track, may obtain the patent right of doing so at a very moderate cost by applying to the subscriber, who will furnish specifications, and plan, with more perfect proportion of parts, and allow, also, the use of his patent scarfing for the string pieces, dispensing thereby, with the bolster piece, and making a much more perfect and secure joint with less timber.

JAMES HERRON, patentee,

No. 277 south 10th street, Philadelphia, Pa.

Extract from a letter, dated "Newton, Mass., January 6, 1846.

"Enclosed you have \$3, for which you will please direct your Railroad Journal * * *

"I improve this opportunity to correct an error which I notice in your statistics of American railroads, in relation to the 'Worcester Branch to Millbury,' the length of which you do not state. The cost is stated at \$8,431, 'loan or debt,' \$506.

"Its length is 3 1/2 miles, and its cost was

about \$42,000: heavy edge rail. It was built and is owned by the Boston and Worcester railroad corporation, and consequently has no 'loan or debt.'"

We are obliged to the writer for his civility in thus furnishing us with the means to correct our table of railroads, and also for the enclosure *in advance* for the Journal. We hope to have many such favors immediately after the *fourth number*, accompanied by the *index* to the volume of last year.

With the *index and title page* we have completed the volume, and our labors upon the Journal, for 1845. We will not ask what our readers think, in relation to that volume, but we do not hesitate to say that we think we have earned its price, from those who have received it; and to those who have promptly performed their part, and thus aided, and cheered us on during our labors, we tender our thanks and kind regards; and to those who have not yet found time to enclose the amount due, we wish to say, that it will now come very acceptable, and they can, at the same time, enclose five dollars for the current year, thus saving postage—and to all our readers we desire to say that we intend to make the Journal worth, to them, its price, and more, if they will aid us by using their influence in extending its circulation and by prompt payment.

To those gentlemen who sent us—one, six new subscribers, and \$30, and the other four, and \$20, we desire to express our grateful thanks. Will not other engineers, who have charge of railroads, do likewise? The Journal will be useful both to their assistants and to their stockholders.

Remittances always at our risk.

Northampton and Springfield Railroad.

The Hampshire Gazette of Dec. 16 "says that the cars commenced running their regular trips between Northampton and Springfield, on Saturday morning last. The first passenger train came from Springfield on Friday evening. We took a trip on the road on Saturday afternoon, and, aside from the magnificent spectacle brought to view of South Hadley Falls, it was really gratifying to be able to go to Springfield so comfortably, especially on a cold day. We went down and made an afternoon and evening's visit, and returned at seasonable bed time.

A large number of people assembled to witness the departure of the first train in the afternoon. It was a novel sight to Northampton; and the natives although not astonished, were highly gratified at the scene.

We are to have three trains a day. Capt. Stoddard, who has discharged the duties of conductor on the Cabot road so acceptably, acts in that capacity on all the trains. A little more than an hour is occupied in passing over the road. Considerable time is occupied in backing up to Cabotville. Those who have had the pleasure of backing up to Worcester from the Western road, need not be informed that this operation is something of a nuisance. We trust that this unpleasant feature in the present arrangement will not be of long continuance. This going backwards is decidedly *anti railroad*.

The track is not yet completed, and the passengers are taken up and deposited at the *freight house*. At the way stations, no houses have yet been erected, but probably will be as speedily as possible. Two stations only are established between Northampton and Cabotville—at Smith's Ferry and Willimansett.—The former is about two miles from South Hadley, and at most seasons of the year will be the more convenient station for the citizens of that place. The Willimansett station will attract the business of South Hadley Falls, it being about a mile and a half below that flourishing and enterprising village.

The road is undoubtedly as well built as any in the country, and probably better.—Every thing has been done in the most substantial manner, and with a full knowledge of all recent improvements in the construction of such works. The abutments to the bridges are built in a new form, calculated to give them great strength and firmness. The plan was devised by Capt. Child. The rails are a little heavier, we believe, than those on the Western road. The length of the road is about 17 miles. The depot buildings at Northampton, are very respectable in appearance, save the passenger house, which is too diminutive to look well on the outside. The internal arrangement, however, is neat and convenient, and there is ample room for all 'practicable purposes.'

Thus it will be, *extension after extension, and branch after branch until every city and town*, of any considerable business in the country, has its railway accommodations. The day is near at hand when this road will be extended up the beautiful valley of the Connecticut quite to Canada line, and to Montreal; to Burlington by two routes; and from there to Ogdensburgh. The people cannot afford to do without them.

Stages from Northampton.—"Stages from the north connect with the downward trains at 2-10 and 5-12, p.m.; and the same stages return north on the arrival of the trains from Springfield at 1-23 and 4-42, p.m. Two lines of stages from Amherst connect with the early afternoon downward train, and return to Amherst on the arrival of the train at 4-42, which leaves Springfield after the arrival of the Boston, Albany and Hartford trains.—We understand that the fare to Amherst is 25 cents, which is cheap enough to satisfy anybody. Regular communication, to accommodate railroad passengers, we believe, is also established between Haydenville and Easthampton."

This is what we desire to obtain from every line of railroad in the country, *only* we desire the statement to include the stage lines arriving and departing from every stopping place on the railroad and also the names of the principal hotels at each place.

Great Western Railroad and Niagara Falls Terminus.

We are gratified to find in the Rochester American the rumor so satisfactorily put

down by Mr. Stuart in the following letter; and we hope that liberal charters will be given for the proposed bridge across the Niagara river. It will not only be of *incalculable* convenience in a business point of view, but it will be a triumph of art over nature which will attract thousands of visitors, and be a *world wide* object of admiration, and it *must* be built.

Mr. Editor—Having been informed that a report has been current in this city within the past few days, that the Great Western railroad company has decided to abandon the idea of the Niagara Falls terminus, and had decided positively to locate at Fort Erie, (which report must have been circulated by the enemies of the Lockport road), I have to request that you inform the citizens of Rochester, who have a deep interest in the question of terminus, of the falsehood of the rumor alluded to, by publishing the following notice from the Hamilton Gazette, Canada West, received by me to-day, by which it will be seen that the company have commenced the survey from Hamilton to the proposed bridge at Niagara Falls. The chief engineer of the Great Western railroad company, informed me last week, that the surveys were directed by him; and were now being made to ascertain the most feasible route to the river, and to the site of the contemplated bridge.

Having been for some time confined to my room by illness, I take this method to caution the public against the false reports circulated by the opponents of the Lockport railroad extension.

CHAS. B. STUART,

Chief Engineer, N. F. & L. R. R. Co.
Rochester House, Jan. 2, 1846.

The following article in relation to the Great Western railroad is from the Hamilton Gazette, and we are right well pleased to see it.

Great Western Railroad.—The survey of this road was commenced last week, by two parties under the direction of H. Strange and Wm. Hale, Esqrs., civil engineers. Mr. Strange commenced on the shore of the bay, at the foot of John-street, and is to gain the summit level of the mountain in an easterly direction, and thence proceed to Fort Erie, opposite Buffalo, and also to the Falls, or the proposed site of the suspension bridge. We understand another line is also to run in an easterly direction, and to make the ascent at or near St. Catharines. Mr. Hale commences his survey at Land's wharf, and is to gain the summit of the mountain in a westerly direction, with a view of continuing to Windsor on the Detroit river.

We understand that other surveying parties will be put upon other portions of the line shortly. The directors are adopting the most energetic measures to have the work completed in the shortest period.

Railroad Meetings.

The Railroad Convention at Geneva.—In our postscript of yesterday morning, says the

Rochester Daily Advertiser, we gave a brief notice of the railroad convention, held at Geneva on the 7th inst., for the purpose of promoting the construction of the Chemung railroad, as a means of completing the great chain of communication between the cities of Philadelphia and Washington and lake Ontario. An address was read to the convention, setting forth the advantages to be realized from the proposed plan, and also a report by Chas. B. Stuart, Esq., civil engineer, under whose direction the route from the head of Seneca lake to the New York and Erie railroad, has been surveyed. According to the table of distances embraced in this report, it seems that the route from Geneva to Philadelphia, via Elmira, is shortened 140 miles; to New York, 50 miles; and to Washington city, 231 miles. The report estimates the number of passengers who would pass over the whole line of the road, at 50 per day, each way, and 25 way passengers, which for 300 days, would give a total of

60,000 through passenger at 50 cts.	\$30,000
30,000 way do. (half way) 25 "	7,500
100,000 tons through freight 25 "	25,000
25,000 " way do. 20 "	5,000
17½ miles U. S. mail at \$2 per mile	3,466

Total income \$70,966

The estimated expense attending the running of the cars, is 60 to 80 cents per mile, which, on this route at the latter rates, would make an aggregate of \$33,600.

The resolutions reported, approves of the project in the strongest terms, and conclude by recommending that an application be made to the legislature for a renewal of the charter of the Elmira and Williamsport railroad, and also for a charter for constructing a railroad from the foot of Seneca lake, to Great Sodus bay in Wayne county. The figuring of income and expense certainly looks very well on paper, but whether it will be realized when in practical operation, remains to be seen.

This movement should be followed up without delay, as there is no lateral line between the Erie and Northern roads, by which so much can be accomplished with so little outlay. We shall give Mr. Stuart's report upon this line—or so much of it as is essential to a proper understanding of the advantages of the line—at an early day.

Atmospheric Railway.

(Continued from page 56.)

I do not think a locomotive could have taken those loads around the curves on the Dalkey line, at that speed with equal safety—certainly not. I was speaking of the development of power, upon a gradient of 1 in 115, with a load of 50 tons.

Taking high velocities into account, I consider that good gradients are positively more essential upon the atmospheric than upon the locomotive,

and for the simple reason that I have stated, viz: the moment you get into bad gradients you must have a high vacuum to overcome the resistance, because the word "gradient" is merely an equivalent for "load." It is absolutely nothing else, because whether you have resistance by gravity, or resistance by load, on a level, it is precisely the same thing. The atmosphere requires to work at 16 inches on a level, the more the gradients deviate or increase from

the point requiring that vacuum, the worse it is.—For instance on a locomotive line, we increase from a level to 1 in 100, the resistance is immediately doubled or trebled; therefore you have to increase the vacuum from, say 16 inches, which is 8 lbs. per ton, to 22 or 24 inches, and even more; therefore you must either reduce your speed or your load, which is precisely the condition of the atmospheric. This would be still the case if the diameter of the tube was increased.

The velocity depends upon the ratio of the diameter of the pump to the diameter of the pipe, diminishing it by the leakage which takes place; therefore if you diminish your load in proportion to the resistance, or in proportion to the gradient, there is no difficulty in attaining the same velocity on a gradient as upon a flat, if you increase the power; but in a locomotive there is a limit. When you go to a very steep gradient, the locomotive fails not so much in power, but in bite upon the rail. It becomes practically a useless machine under those circumstances, and in some cases of that kind the atmospheric engine would have no such objection, because it does not depend for its progress upon the adhesion of the rail.

I do not think it advantageous to use a locomotive for a passenger train at a gradient of more than 20 or 30 feet in a mile, unless you adopt a plan which is a very good one, of concentrating the gradients that are running through the country, in a short space, and maintaining good levels generally.

When a locomotive comes upon a gradient of 1 in 100 its power suffers materially, and so when a train upon the atmospheric comes to a gradient of 1 in 100 it suffers from leakage equally; the two are as nearly equal as possible. When the vacuum is equal to 23 or 24 inches rise of the barometer, the loss is equal to 100 horse power per mile; and in speaking of horse power, I desire to be understood as speaking of the actual horse power of 33,000 lbs.

Mr. Stephenson's examination was very lengthy, and very interesting; we can of course only give a few condensed extracts by way of showing the objections raised by him. We shall hereafter give further extracts from his evidence.

Mr. George P. Bidder, also made experiments upon the Dalkey line; the apparatus having been put at his disposal for an entire day—and longer, if he could have remained. He says, "I consider the mechanical problem as having been solved, whether the atmosphere could be made an efficient tractive agent." The only question in my mind was as to the commercial application of it. I feel perfectly sure, that unless it could be worked commercially more advantageously than any other system, nothing could command its universal application. The apparatus worked, as far as I observed it, very well. The thing had been brought to a high state of perfection. According to the experiments of Mr. Bidder, the cost per train per mile of the atmospheric, will be 2s.; and comparing it with the Norwich and Brandon railway, the power for which is furnished by contract at 20d. per mile; maintaining any speed which shall be found practicable, on any other railway in England—and we propose running them 36 miles an hour, including stops—it is clear that the atmospheric principle could not be applied with advantage in a pecuniary point of view.

Mr. Cubitt, I am now having the atmospheric line adapted to the line from London to Croydon, and am going to adopt it from Croydon to Epsom. I have recommended its adoption from London to Portsmouth, and from the Croydon railway to Maidstone, Tunbridge and on to Ashford. The traffic from London to Portsmouth will be a general passenger and goods traffic. I consider that the atmospheric can be well adapted to both passenger and goods traffic, by proper management. And I should prefer the atmospheric under those circumstances that are least adapted to the locomotive; that is to say, in hilly districts, to avoid great expense in the formation of the line of railway; and in those cases where there is a great passenger traffic, requiring to go at short intervals, in great numbers, and very quick. I think it is particularly applicable to begin with for short lines, with a great number of passengers: and I do not know that it is not equally applicable to a long line under similar circumstances. I think as great certainty, with proper management, may be obtained as with any other system. We propose a single line only between London and

Portsmouth. I think it will be adequate to the business on that line. We have not yet decided, but I think we shall start trains on the Croydon line every half hour.

All things working right, it makes no difference, the length of line to the number of times you can start the train. If you can do the first interval of six miles, and the next adjoining one accurately, every other interval is dependant upon the same principles and the same mode of action. I think it possible to perform the distance from London to Exeter in as short time by the atmospheric, as by the locomotive; I have no doubt of it. I think it also possible to run from Lands End to the utmost extremity of Scotland, by the atmospheric principle without stopping.

A single line of atmospheric, on the same ground with same gradients, will cost about the same money as a double locomotive; but you may alter the grades for an atmospheric, making them higher, but not on a locomotive line, and in that case the single line of atmospheric will cost less than a double line of locomotive.

I estimate the cost of haulage upon a locomotive line, at from 9d to 1s; and upon the atmospheric at from 5d to 8d. I would take the minimum of the locomotive at 9d, and the maximum of the atmospheric at 9d. I believe the atmospheric may be worked below 9d., and I know that the locomotive, on the average, will cost more than that. I therefore take 9d. as the meeting point, and it will vary up or down, according to circumstances.

The cost of maintenance of way will be less on the atmospheric than on the locomotive line. That cannot be denied. The haulage expenses on the Dover line, made out several times by me, come to about 11½d. In the term "haulage" I include the moving power, wear and tear of carriages, and every thing belonging to them—but not the interest on the cost of the plant.

But we must stop here. We might go on and fill the Journal entire from this evidence, with matter of great interest; but want of room and time, now compel us to stop. We shall, however, pursue the subject in the Journal until we have given much of the evidence, which fills more than 190 royal octavo pages.

Debt of New York.—We take the following statement from the governors message in relation to the debts of New York. It shows that "the statement of the canal debt, at the close of the fiscal year, on the 13th day of September last, as given to me from the canal department, is as follows:

Erie and Champlain canal, old debt...	\$111,365 54
" " " " new debt...	311,474 52
Erie canal enlargement.....	9,933,000 00
Oswego canal.....	421,364 00
Cayuga and Seneca canal.....	237,000 00
Chemung canal.....	648,600 58
Crooked lake canal.....	120,000 00
Chenango canal.....	2,420,000 00
Black river canal.....	1,544,000 00
Genessee Valley canal.....	3,794,000 00
Oneida lake canal.....	50,000 00
Oneida river improvement.....	69,206 13
Making the entire canal debt unredeemed 30th September, 1845,.....	\$19,690,020 77

Of this amount, the first item, Erie and Champlain canal, old debt, is provided for; the money deposited in the transfer office, and no interest has been paid upon it since it fell due, on the 1st day of July last. Yet it is to be paid, is due on presentment, and is therefore a liability against the means of this year. The amount is, \$111,365.54.

Of Chenango canal stocks there became payable on the first day of the present month,	2,362,535.66
	<hr/>
	2,473,901 20

Leaving a balance of debt not yet due, of \$17,216,119 57

The whole of the Oswego canal stocks become payable on the first day of July next, and the amount is, \$421,301 00

Of the Cayuga and Seneca canal stocks there become payable on the first day of July next, the sum of..... 150,000-000

\$571,304 00

If these liabilities of the present year be met by payment, there will remain a balance of canal debt unredeemed of..... \$16,644,815 57

Canal tolls—Comparative statement.—The annexed statement is from the message of Gov. Wright: "The tolls upon each of the canals of the state, for the last season of navigation, compared with those of the season of 1844, are as follows:

	1845.	1844.
Erie canal.....	\$2,361,810 75	\$2,190,147 34
Champlain do....	119,432 25	118,739 32
Oswego do....	58,433 60	56,164 93
Cayuga & Seneca.	32,486 66	24,618 17
Chemung do....	21,517 71	14,835 13
Crooked lake do.	1,943 86	1,497 89
Chenango do....	26,567 34	22,177 96
Genesee valley do	23,144 35	19,641 20
Oneida lake do	643 16	621 45
Oneida riv'r imp't	459 10	381 13
Total,.....	\$2,616,453 78	\$2,446,374 52

Boston and it's Advancement.—We re-publish the following extract from a letter dated Boston, January 18th, published in the Tribune, for the purpose of showing the influences of railroads upon our sister city. This is only what any one, familiar with that city, may see, on visiting it at intervals.

"The Granite gangrene, an infection caught of the net-work of railroads which centers at this city, is still eating its way over the face of what were formerly the most fashionable streets. Business is deserting its old localities—Kilby, Central, Water-streets, Liberty-square, &c.—and blocks of magnificent granite front warehouses have been and are being built in Milk, Pearl, Atkinson and Federal-streets to accommodate it. Pearl-street was in years ago the residence of our merchant princes, but their palaces have fallen before this last irruption of the bricks and mortars, in red and white uniforms with granite facings. Milk-street, upon both sides up to Washington-street, is now occupied for warehouses. Federal-street, from Milk to beyond the old Federal-street theatre, is also built up on the west side with granite stores,—Mr. Malcom's church having been torn down to make way for a temple of Mammon. Even as far up as Summer-street, real estate sold a few days since at very high prices, under the speculative impression that in a few years the beautiful mansions that grace that street will also fall before the demand for business accommodations. Indeed, an old resident of Boston, absent a few years, might very easily lose himself upon his return amid the changes which have taken place in the old as well as new portions of the city. The iron gridiron which has been spread out over this and the neighboring states, "the handle toward my hand," by the liberal advancement of capital by Boston moneyed men, has been a large cause of this improvement in business here; but the growth of the woolen and cotton manufactories, fostered by the judicious legislation of the Congress of 1812, has also been a leading element in the advancement and prosperity of Boston. Crush the tariff, and by this means shut up the mills and workshops of Lowell, Manchester, Nashua, etc., and not all the railroads that center here could prevent a falling off in the commerce and inland business of this city, which would be severely felt."

Snow Storm.—Snow fell in this city, says the Boston Transcript, "on Saturday night, to the depth of 6 or 8 inches. The wind was strong from the northwest, which threw it into drifts. The steam-boat mail did not arrive till 1 o'clock this morning, having been 16 hours on the Stonington road. Snow banks were found to the depth of several feet in many places on the rails, and two locomotives employed, but finally became frozen up, and the passengers were obliged to remain in the cars some 3 or 4 hours within 4 miles of Providence, till carriages could be sent for, and conveyed, together with the mails, to the city. The train left Providence with two loco-

motives, and after having spent some time, were obliged to return and get another locomotive, and were then able to come through.

The Norwich and Stonington boats deemed it unsafe to come farther than Sandy Point, where they anchored and remained till 1 o'clock, and did not arrive at Stonington till 8 o'clock Sunday morning."

The Worcester train of last evening arrived at about a quarter before nine, but did bring the Western mail [from Springfield and Albany], the train having been detained probably by snow.

The Norwich railroad, so far as our information extends, was open yesterday, but the southern mail, by the way of that road and the Long Island road, had not arrived when this paper went to press."—Boston Daily Advertiser, Tuesday.

A New Railroad.—The Cumberland Civilian states that Capt. James Haughey and H. R. Hazelhurst, Esq., have contracted to make a railroad for the Lonaconing and George's creek coal and iron company, which is to intersect the Maryland mining company's road; then the Mount Savage road, and then the Baltimore and Ohio railroad. This road will be 91 miles in length.

Map of the Pennsylvania Works, etc.—We are indebted to some friend, says the Pittsburgh Gazette, of January 9th, for a lithographic map "showing the Pennsylvania improvements, and the Baltimore and Ohio railroad, and other works in New York, Ohio and Michigan, which tend to connect the Ohio river and lakes with the seaboard" Isaac Craig, del. Pittsburgh, 1845. This is a well constructed and valuable map, and will be carefully studied by every one interested in the right of way, a continuous railroad, etc.

We should like exceedingly to be able to acknowledge a similar favor. It would be very convenient and useful in our labors. Who will put us in the way of obtaining one of them?

Dividend.—The Utica and Schenectady railroad have declared a dividend of \$1 per share, payable to stockholders in this city, at the Phenix Bank, on the 1st of February.

The Delaware and Raritan and Camden and Amboy railroad company, have declared a dividend of five per cent., payable at their office in this city and Philadelphia, on the 17th inst.

Canal around the Falls of Niagara.—The following notice indicates the revival of the project—or a new one—to construct a canal on the American side. We hope the project may succeed. It has our cordial support; but why the ferry if there is to be a bridge?

"Notice is hereby given, that an application will be made to the legislature of the state of New York, at its next session, for an act to authorize the construction of a canal of certain dimensions, from the Niagara river, above the Falls of Niagara, to the Niagara river, at or near the village of Lewiston, in Niagara county, with power to hold a certain amount of real estate for manufacturing and other purposes, and a capital not exceeding two million of dollars."

Niagara Falls, Nov. 25, 1845.

"Notice is hereby given, that an application will be made to the legislature of the state of New York, at its next session, for an act incorporating the "Niagara Falls Ferry Association," with a capital of twenty-five thousand dollars, for the purpose of establishing a steam ferry in the gulf between the Falls of Niagara and the whirlpool: construct and maintain carriage ways down the bank, wharves, etc."

Niagara Falls, Nov. 26, 1845.

New Railroad Route.—We invite the careful attention of our readers to the report in this paper of the proceedings of a meeting at Aurora, in favor of a direct railroad from this city, by way of that village, to Hinsdale, there to connect with the New York and Erie railroad. If the advantages of this route are not immensely overrated, and we have no reason to believe they are, the project is well worth consideration. The proposed union, by way of Attica and Hornellsville, is so far advanced, that little doubt can be entertained of its ultimate success. That road ought to be built, and we see no reason why the two projects should necessarily conflict.—Buffalo Pilot.

Thus it will be in every part of the country—"another railroad route" will ere long become a "standing head" in every newspaper office in the country.

Montreal Railroad.—The stockholders of the Boston, Concord and Montreal railroad, says the N. H. Patriot, at their meeting at Plymouth, last Thursday, voted to rescind the restriction which had previously been adopted, forbidding the closing of contracts for the substructure of any part of the road, unless the whole line should be let. The directors are now authorized to close contracts for the portion from Concord to Rumney, and then go on with the substructure of the remainder, "wherever, and as soon, and as fast as available means shall be at their disposal to pay therefor," being instructed not to contract "at first, for a less distance than Rumney." The contractors have manifested a readiness to go on according to their proposals. The directors were empowered by the meeting to form a junction with the Northern railroad, if deemed best.

This is as it should be—make the road to Rumney, and then it will make itself. Only get the wedge fairly entered and it will act like the quill of the porcupine, work forward and through, unless it comes in contact with some serious obstacle; which will not be the result in this case.

The Cars.—We are happy to inform our readers that the first train of cars passed over the Central road, from this place east, a few days since. Not the passage cars, to be sure, nor yet the freight cars; but the dirt cars—to be employed in the excavations east of us. They are getting well under way up the river, and as soon as the engineers are relieved from the Montpelier investigations, operations will be commenced at this place.—Burlington (Vt.) Free Press.

Long Island Railroad.—We learn that an engine, with a snow plough attached, was on Monday thrown from the track, at a point about 30 miles this side of Brooklyn. The engine was much broken, and a person connected therewith was much injured. This accident caused a detention of the Boston train of about 3 hours. The train has for some time past arrived here with great regularity. We learn that this road is now in good running order.—Boston Journal.

American Railroad Journal.

The subject of railroads has become one of vast and engrossing importance. It has taken deep root in the estimation of the people of almost every civilized country—and it may justly be esteemed as peculiarly appropriate to the condition of this country.

We are a stirring people; spread over a vast territory, and need, more than any other country, the facilities afforded by railroads to enable us to transact the ordinary business of life, and especially to improve our means of defence in case of invasion or insurrection.

That we may not be behind the age, and that we may be always familiar with the improvements in this important yet only partially developed system, it is desirable that a JOURNAL, mainly devoted to the subject, should be published, and widely circulated in every part of the country.

It would seem that every person interested in the construction, or management, or improvement of railroads; or in the safety and comfort of passengers; or, in the increasing value of such investments, should contribute to its support, not only in the way of subscription, but also by furnishing such facts as experience and observation may, from time to time, furnish them, calculated, if made public, to add to the general stock of knowledge, and to advance the cause.

It is not enough that engineers and superintendents of railroads, are familiar with their details—or that a few of those who, as directors, have the control of such works, understand their duties. It is not enough that the companies are able to divide 3, or 4, or 6, or 10 per cent. per annum. It is the duty of every director, and of every owner of shares in any railroad—who may become a director—to understand, at least the first principles of the system, and of its management, that they may know whether their chosen directors, and their paid officers, properly discharge their duties to the proprietors and to the public.

To understand the subject properly, it is essential that they should be familiar with the changes and improvements which are being constantly made, as well in Europe as in our own country.

The best mode of acquiring this important information is, probably, by personal inspection of the different works in use, and in course of construction; and the next best mode for those who cannot spend the time necessary to make personal examinations, is, to read and examine such illustrations of them as may be, from time to time, published.

For the purpose of disseminating such intelligence was THIS JOURNAL established in December, 1831; and for this purpose has it been published for fourteen years past.

It is not yet seventeen years since the first locomotive engine was constructed in Europe, which could haul twenty tons on a level road, at the rate of ten miles an hour! yet we now have engines in use, in this country, of American manufacture, which can haul, with comparative ease, on a level road, TWELVE HUNDRED TONS, at the same velocity!!

Twenty years ago there was not thirty miles of railway in use in all Europe, except tram roads in mines, and in this country we had scarcely begun to think of their introduction here; yet there is now in Europe five thousand miles in use—at a cost of over £100,000,000—and twice as many miles more in course of construction—and we have in this country over 4,000 miles in use; and shall have as many more miles completed in less than ten years!!! thus showing the importance of the general dissemination of the most recent intelligence on the subject; especially as there are now numerous able minds engaged in developing the capabilities of the locomotive system, and also of introducing the new, or ATMOSPHERIC, system of propulsion.

This sheet contains three distinct plans with engravings of the ATMOSPHERIC RAILWAY, which is commanding so much attention in Europe, and which bids fair to become the popular system of the day, as will be learned from the accompanying opinions of several of the ablest engineers of the age, Brunel, Vignoles, Cubitt, Locke, etc., as expressed to the committee of parliament in April last.

Some other articles of interest will also be found in this sheet. To give a better idea of the character and usual contents of the work to those who may receive this sheet, I republish the INDEX in full of the past volume, of 1845. From that it will be seen that it contains a mass of information, on various subjects, which ought to be in the hands of every person interested in railroads; and especially of directors, engineers, superintendents and SHAREHOLDERS.

These are my deliberate views, and I feel assured that an extensive circulation of this, or some similar work, will be more useful to the country in disseminating correct information in relation to this peculiar kind of improvement,—than to the publisher; I therefore feel at liberty to request, and even to urge, those who may receive this sheet, to order it, at least for the present, and

also to recommend it to others, even if they do not also procure the volumes for past years—which may be had from July 1838 to January 1, 1847—thirteen volumes—12 half bound—for twenty-five dollars.

One set from the commencement to close of this year, 1846, XIX volumes, can be obtained for forty-five dollars.

THE RAILROAD JOURNAL is published on Saturday of each week, at 23 Chambers-street, at FIVE DOLLARS a year in advance.

Advertisements, in relation to railroads, railroad machinery, to contractors, bridge builders, ect., iron, and its manufacture, and other appropriate matters, will be inserted in the Journal once at the rate of \$1 for twenty lines, or \$2.50 for one month—or \$15 for a year.

Professional notices, of 6 to 8 lines, fifty cents for an insertion, or \$5 for a year.

The English railway and scientific Journals and models of railroad machinery may be found, and examined at the office of this Journal.

All letters, railroad reports, and other communications for the AMERICAN RAILROAD JOURNAL, may be addressed to the undersigned, editor and proprietor,

D. K. MINOR,
23 Chambers-street, N. Y.

We are pleased to learn, as we do from a quarter to be implicitly relied on, that the surveys of the route from Portland to Canada line, show a highly favorable route for the cheap construction of the road.

THE SUBSCRIBERS, SOLE AGENTS

for the sale of
Codorus,
Glendon,
Spring Mill, and } Pig Iron.
Valley,

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L KIMBER, & CO.,

59 North Wharves,
Jan. 14, 1846. [174] Philadelphia, Pa.

MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

LOCOMOTIVE AND MARINE EN-

gine Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

BOSTON AND MAINE RAILROAD.

Upper Route. Boston to Portland via, Charlestown, Somerville, Malden, Stoneham, South Reading, Reading, Wilmington, Ballardvale, Andover, North Andover, Bradford, Haverhill, Atkinson, Plaistow, Newtown, Kingston, East Kingston, Exeter, South Newmarket, Newmarket, Durham, Madbury, Dover, Somersworth, South Berwick, North Berwick, Wells, Kennebunk, Saco and Scarborough.

Winter Arrangement, 1845 & 6. On and after Monday, October 20th, 1845, Passenger Trains will run daily, (Sundays excepted,) as follows, viz. Leave Boston for Portland at 7 1/2 a.m. and 2 1/2 p.m. Leave Boston for Great Falls at 7 1/2 a.m., 2 1/2 p.m. and 3 1/2 p.m. Leave Boston for Haverhill at 7 1/2 a.m., 2 1/2 p.m., 3 1/2 p.m. and 5 p.m. Leave Portland for Boston at 7 1/2 a.m., and 3 p.m. Leave Great Falls for Boston at 6 1/2 a.m., 9 1/2 a.m., 2 1/2 p.m. Leave Haverhill for Boston at 6 1/2, 7 1/2, and 11 a.m., and 6 1/2 p.m.

Special Train.—A special train will leave Boston for Andover at 11 1/2 a.m., and Andover for Boston at 3 1/2 p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value. CHAS. MINOT, October 20, 1845. 43 ly Super't.

SPRING STEEL FOR LOCOMOTIVES,

Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, 543 Albany Iron and Nail Works, Troy, N. Y.

A. & G. RALSTON & CO., NO. 4

South Front St., Philadelphia, Pa. Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/2 x 1/4 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/2 x 1/4 " Flange Iron Rails. 75 " 1 x 1/4 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 14

MACHINE WORKS OF ROGERS,

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.

FOR SALE AT A SACRIFICE—A LOCOMOTIVE

Engine, 4 wheels and Tender. Cylinders 10 in. dia., Stroke 16 in., Cylinders inside of smoke box. Weight of engine, with wood and water, about 9 tons. This engine and tender are new, and of the best materials and workmanship. If required, would be altered to a 6 wheeled engine.

Also, 1 20-horse High Pressure Steam Engine. 2 8-horse " " " " 1 Upright Hydraulic Press.

All of which will be sold low, on application to T. W. & R. C. SMITH, Founders and Machinists, Alexandria D. C. May 12th

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

This Road in connection with the South Carolina Railroad and the Western and Atlantic Road now forms a continuous line of Railroad of 360 miles from Charleston to Cartersville, two miles west of the Etowa River in Cass County.

Rates of Freight, and Passage from Augusta to Cartersville.

On Boxes of Hats, Bonnets, and Furniture per foot 15 cts. " Dry goods, shoes, saddlery etc., per 100 lbs. 85 " " Sugar, coffee, iron, hardware, etc. " 70 " " Flour, bacon, mill machinery etc. " 33 1/2 " " Molasses, per hogshead \$9; salt per bus. 22 "

Passengers \$9 50; children under 12 years of age and servants, half price.

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at Augusta. J. EDGAR THOMPSON, Ch. Eng. and Gen. Agent.

Augusta, Oct. 21 1845. *44 ly

NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. G. A. NICOLLS, Reading, Pa.

ja45

GEORGE VAIL & CO., SPEEDWELL IRON

Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective iron and Brass Castings of all descriptions. ja45 ly

TO RAILROAD COMPANIES AND MANUFACTURERS

of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE, ja45 N. E. cor. 13th and Market sts., Philad., Pa.

NORWICH AND WORCESTER RAILROAD.

On and after May 22, 1845, Trains will leave as follows, viz:—

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4 1/2 p.m. Leave Worcester, at 10 a.m., and 4 1/2 p.m.

The morning train from Norwich, and the morning and evening trains from Worcester, connect with the Boston, Western, and Hartford and Springfield railroads.

New York Train, via Steamboat. Leaves Norwich for Worcester and Boston, every morning except Monday, upon the arrival of the boat from New York, about 2 a.m. Leaves Worcester for Norwich and New York, at 5 1/2 p.m., daily, except Sunday.

New York Train, via Long Island Railroad.—Leaves Norwich about 3 p.m., for Worcester and Boston, daily, except Sunday. Leaves Worcester for Norwich and New York, at 7 1/2 a.m., daily, except Sunday, and arrives in Norwich at 9 1/2.

Freight Trains. Daily, except Sunday. Fares are less when paid for Tickets, than when paid in the cars.

EMERSON FOOTE, Superintendent. 32 ly

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.

This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 ly

WESTERN AND ATLANTIC RAILROAD.

The Western and Atlantic Railroad is now in operation to Marietta, and will be opened to Cartersville, in Cass county, on the 20th of October—and to Coosa Depot, (formerly known as Borough's,) on the 20th of November.

The passenger train will continue, as at present to connect daily (Sundays excepted) with the train from Augusta, and the stage from Griffin.

CHAS. F. M. GARNETT, Chief Engineer. 43

LITTLE MIAMI RAILROAD.—DISTANCE 65 1/2 MILES. FARE, \$1 50.

From 1st November to 1st March Passenger Trains leave Cincinnati for Xenia at 11 o'clock, A.M.

Returning, leaves Xenia at 8 1/2 o'clock, A.M. Freight Trains run daily, Sundays excepted.

At Xenia, Passenger Trains connect with daily lines of stages to Columbus, Wheeling, Cleveland and Sandusky city.

W. H. CLEMENT, Supt. and Engineer. 1y 1

RAILROAD IRON.—THE "MONTGOMERY

Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sts. 43 ly

C. J. F. BINNEY,

GENERAL COMMISSION MERCHANT and Agent for Coal, and also Iron Manufactures, etc.

No. 1 City Wharf, Boston. Advances made on Consignments. Refer to Amos Binney, Boston.

Grant & Stone, Brown, Earl & Erringer, } Philadelphia. Weld & Seaver, } Baltimore.

December 8, 1845. 1m 50

BACK VOLUMES OF THE RAILROAD JOURNAL

for sale at the office, No. 23 Chambers street.

NEW YORK AND HARLEM RAILROAD COMPANY.—Winter Arrangement.

On and after November 3d, 1845, the cars will run as follows:
Leave City Hall for Yorkville, Harlem, Morrisiana, and Williams' Bridge,
7 30 A.M. This train leaves 27th st.
7 30 " Does not stop this side of Harlem.
10 30 " Does not stop this side of Harlem.
11 30 " "
1 P.M. Does not stop this side of Harlem.
2 30 " "
3 30 " Does not stop this side of Harlem.
4 30 " "

Leave White Plains for City Hall—8-10, 11-10 a.m., and 1-45, 4-10 p.m.

Leave Tuckahoe for City Hall—8-20, 11-20 a.m., and 1-55, 4-20 p.m.

Leave Williams' Bridge for City Hall—8-45, 11-45 a.m. and 12-45, 2-15, 3-45, 4-45, and 5-45 p.m.

Leave Morrisiana for City Hall—8, and 9-10 a.m., and 12-10, 1-10, 2-40, 4-10, 5-10, and 6-10 p.m.

The freight train will leave City Hall at 12-45 p.m. and leave White Plains at 11-10 a.m. All freight must be at the City Hall between the hours of 10-30 a.m. and 12-30 p.m. The White Plain trains will stop, after leaving the City Hall, only at the corner of Broome street and the Bowery, Vauxhall Garden and 27th street.

An extra car will precede each train, 10 minutes before the time of starting from the City Hall, and will take up passengers along the line.

The City Hall and 27th street line will run every 6 minutes from 7-30 a.m. to 8 p.m.

The City Hall and 27th street night line will run every 20 minutes from 8 to 12 o'clock.

On Sundays the trains will be regulated according to the state of the weather. ly 46

THE LONDON RAILWAY RECORD,
Edited by Mr. JOHN ROBERTSON, A. M., (connected from the commencement with the Weekly Railway press of England.)

The *Railway Record* is acknowledged to be the leading English Railway Journal, and is published twice a week in London, namely on Wednesday and Saturday. It contains copious and correct reports (by special reporters) of all railway meetings in the United Kingdom; ample Share Lists and Traffic Tables, showing the length, cost, capital and selling prices in the principal markets, with Editorial articles on the leading Railway topics of the day. The *Railway Record* contains also, a complete resume of French, Belgian and other foreign Railway affairs.

Subscriptions 13s. per quarter, to be transmitted in advance to Messrs. Dawson and Sons, Ca^o st. 46 London. Office 153 Fleet street, London.

BOSTON COURIER, DAILY, SEMI-Weekly and Weekly.

The *Daily* edition of the *Courier*, presents to merchants and others, an extensive medium of advertising. The circulation of the *Semi-Weekly Courier* (published on Mondays and Thursdays) is believed to be more extensive than that of any other similar Boston Newspaper. This publication embraces all the reading matter of the *Daily*, the *Foreign and Domestic Markets*, *Review of the Boston Market*, *Prices current*, and *Ship News*, prepared with great accuracy. The *Weekly Courier* contains as much of the matter of the *Daily* as can be crowded into a sheet of the same size, without ship news, prices current or advertisements.

Our extions to obtain and publish authentic information on all topics proper for the columns of a newspaper,—the state of trade, the prices of merchandise, the current news of the day, and the political movements in the various sections of the country—will not be abated. The marine department of the *Courier* has been inferior to none in copiousness or accuracy of detail, and it will be our endeavor maintain its reputation in this respect.

TERMS OF SUBSCRIPTION.

For the *Daily Courier*, for one year, in advance \$8.00
For the *Semi-Weekly Courier*, for one year... 4.00
For the *Weekly Courier*, for one year..... 2.00

JOSEPH T. BUCKINGHAM.
EBIN B. FOSTER.

BALTIMORE AND OHIO RAILROAD.
MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburg. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburg \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburg \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13 ly

CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods... 13 cts. per cubic ft. On brls. wet (except molasses and oil)... \$1 50 per barrel. On brls. dry (except lime)... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery... 40 cts. per hundred. On hhd. and pipes of liquor, not over 120 gallons... \$5 00 per hhd. On molasses and oil... \$6 00 per hhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, 40 Gen'l. Sup't. Transportation.

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m. Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 25 miles. Fare \$1-25. On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort. The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above. 35 ly

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J.

Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to James P. Allaire, Peter Cooper, Murdock, Leavitt & Co. } New York. J. Triplett & Son, Richmond, Va. J. R. Anderson, Tredegar Iron Works, Richmond, Va. J. Patton, Jr. } Philadelphia, Pa. Colwell & Co. J. M. L. & W. H. Scovill, Waterbury, Con. N. E. Screw Co. } Providence, R. I. Eagle Screw Co. William Parker, Supt. Bost. and Wore. R. R. New Jersey Malleable Iron Co., Newark, N. J. Gardiner, Harrison & Co. Newark, N. J. 25,000 to 30,000 made weekly. 35 ly

RAILROAD IRON AND FIXTURES.

The Subscribers are ready to execute orders for the above, or to contract therefor, at a fixed price, delivered in the United States. DAVIS, BROOKS & CO., 30 Wall st., N. York.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Winter Arrangement. On and after Monday, Nov. 3, the Passenger

Trains will run as follows:
For New York—night line, via Stonington.—Leaves Boston every day, but Sunday, at 4½ p.m. Accommodation trains, leave Boston at 8 a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m. Dedham trains, leave Boston at 9 a.m. 3, 5½ and 10 p.m. Leave Dedham at 8 and 10½ a.m., and 4½ and 7 p.m. Stoughton trains, leave Boston at 12 m. and 4 p.m. Leave Stoughton at 8-20 a.m. and 2½ p.m. All baggage at the risk of the owners thereof. N.B. The last train to and from Boston and Dedham, will be omitted in case of a severe snow storm. W. RAYMOND LEE, Sup't. 31 ly

BRANCH RAILROAD and STAGES CONNECTING with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NEW YORK AND ERIE RAILROAD LINE. For Middletown, Goshen, and intermediate places. Two daily lines each way, as follows:

For passengers, the new, and commodious steamboat St. Nicholas, Capt. Alex. H. Shultz, will leave the foot of Duane street daily, [Sundays excepted,] at 7½ o'clock, A.M., and 5 o'clock, P.M., through in five hours. Returning, the cars will leave Middletown at 6, A.M., and 4½, P.M. For further particulars inquire of J. Van Rensselaer, Agent, corner of Duane and West streets, H. C. SEYMOUR, Superintendent.

Stages run from Middletown daily, in connection with the afternoon line, to Bloomingburg, Wurtsboro, Monticello, Mt. Pleasant, Binghamton, Owego, Port Jervis, Honesdale, Carbondale, etc.

On Monday, Wednesday, and Friday, to Dundaff, Montrose, Friendsville, Lenox, Brooklyn, etc., etc. 31 ly

BALTIMORE AND SUSQUEHANNA RAILROAD. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a.m., and arrives at 6½ p.m. Arrives at York at 12½ p.m., and leaves for Columbia at 1½ p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62½. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs. Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3½ p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc. Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day any passenger train.

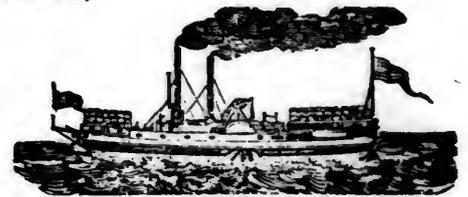
D. C. H. BORDLEY, Sup't. Ticket Office, 63 North st.

DAVIS, BROOKS & Co., 30 WALL ST.

Have now on hand and for sale, 200 tons 2½ x ¼ inch Flat punched Rails, Bars 18 feet each. 100 tons Heavy Edge Rails, 90 tons per mile. 30 tons 2½ x ¼ inch Flat Rails. Also—A STEAM FILE DRIVER, built by "Dunham & Co." which has never been used, and cost originally \$5000. s20 2m

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



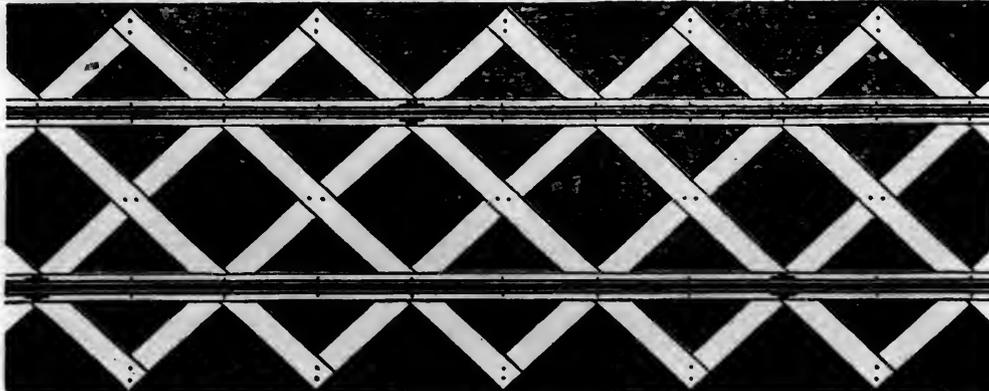
ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.
SECOND QUARTO SERIES, VOL. II., No. 5; SATURDAY, JANUARY 31, 1846. [WHOLE No. 501, VOL. XIX.]

W. R. CASEY, CIVIL ENGINEER, NO. 23 Chambers street, New York, will make surveys estimates of cost and reports for railways, canals, roads, docks, wharves, dams and bridges of every description. He will also act as agent for the sale of machinery, and of patent rights for improvements to public works.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY Superstructure effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for *Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON,
Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon these rates will be made.

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PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, *Agent.*

Albany Iron and Nail Works, Troy, N. Y.
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, *Agent.*
Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, or to Messrs. Baldwin & Whitney, of this city, will be promptly executed.

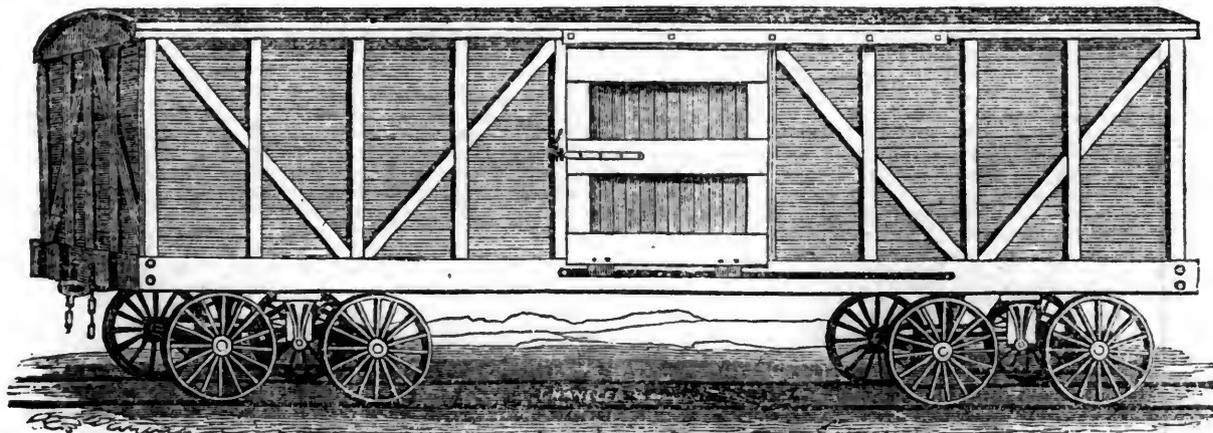
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. FRENCH & BAIRD.
Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the *Journal* of June, 1844. ja45

BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

The article is complete in itself, occupies but little space, is perfectly portable, and requires no brick work, not even to stand upon. It is valuable not only in the saving of time and labor, but in the economy of fuel, as it has been ascertained by accurate measurement, that the saving in that article is fully two-thirds over other methods heretofore in use. They are now for the first time introduced into New York and Boston by the subscriber, who has the exclusive right for the New England states, New York and New Jersey, and are manufactured by CURTIS & RANDALL, Boston; and by FORCE, GREEN & CO. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern, and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All order punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

RAILROAD IRON AND LOCOMOTIVE
Tyres imported to order and constantly on hand
by **A. & G. RALSTON**
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS.
etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
Albany, N. Y.
Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post-paid.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

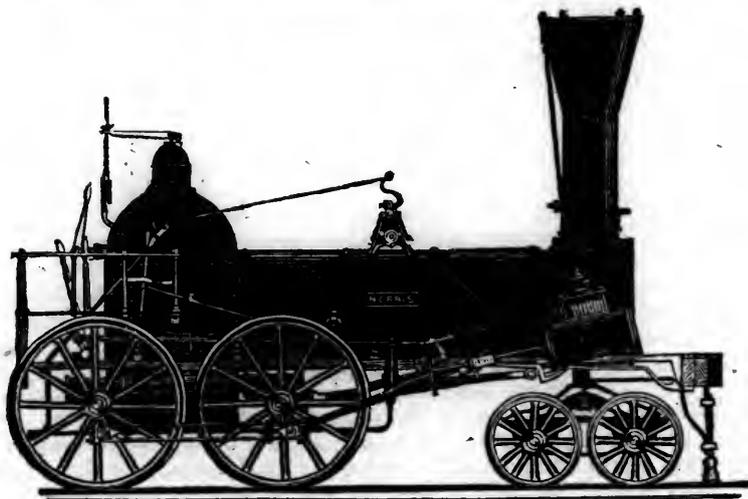
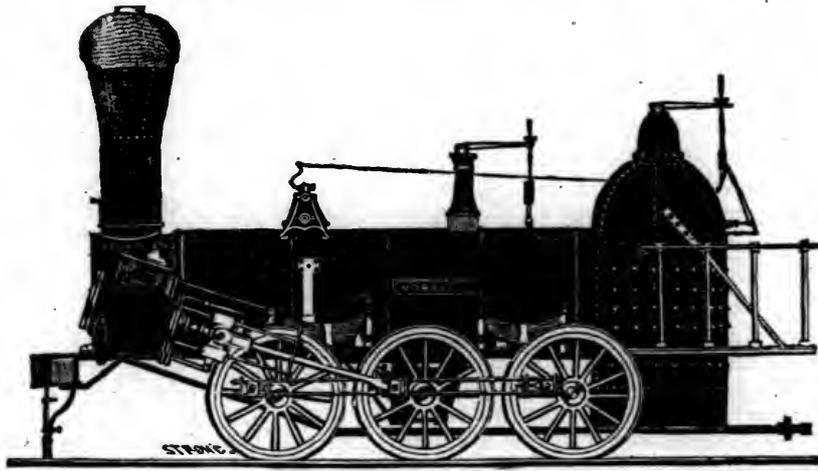
PASCAL IRON WORKS.
WELDED WROUGHT IRON TUBES
From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of	Cylinder,	× 20 inches	Stroke.
" 2,	14	"	"	× 21	"
" 3,	14½	"	"	× 20	"
" 4,	12½	"	"	× 20	"
" 5,	11½	"	"	× 20	"
" 6,	10½	"	"	× 18	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

RAILROAD IRON.—THE MARYLAND AND NEW YORK IRON AND Coal Company are now prepared to make contracts for Rails of all kinds. Address the Subscriber, at Jennon's Run, Alleghany County, Maryland.
WILLIAM YOUNG,
President.

TO IRON MASTERS.—FOR SALE.—MILL SITES in the immediate neighborhood of *Baltimore* *Coal* and *Iron Ore*, of the first quality, at Ralston, Lyoming Co., Pa. This is the nearest point to tide water where such coal and ore are found together, and the communication is complete with Philadelphia and Baltimore by canals and railways. The interest on the cost of water power and lot is all that will be required for many years the coal will not cost more than \$1 to \$1.25 at the mill sites, without any trouble on the part of the manufacturer; rich iron ore may be laid down still more cheaply at the works; and, taken together, these sites offer remarkable advantages to practical manufacturers with small capital. For pamphlets, descriptive of the property, and further information, apply to Archibald McIntyre, Albany, to Archibald Robertson, Philadelphia, or to the undersigned, at No. 23 Chambers street, New York, where may be seen specimens of the coal and ore.
W. R. CASEY, Civil Engineer,

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.
Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.
Pattern shop, 35x32 feet, with lathes, work benches, &c.
Work shop, 86x35 feet, on the same floor with the pattern shop.
Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.
Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.
Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.
Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.
Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:
Boiler house 50 feet long by 30 feet wide, two stories.
Blacksmith shop, 49 feet long by 20 feet wide.
For terms, apply to **HENRY ANDREWS, 48 State st.,** or to **CURTIS, LEAVENS & CO., 106 State st., Boston,** or to **A. & G. RALSTON & Co., Philadelphia.**

CYRUS ALGER & CO., South Boston Iron Company.

Massachusetts and her Railroads.

We find in "Hunt's Merchants' Magazine," for January, an article on the "Progress of Railroads in Massachusetts," which may be read with advantage by those interested in the advancement of the system; and as that valuable work may not reach all of our readers, we give it entire, with the remark that those who read *this*, will be very likely to look with some interest, for that which is promised in a future number.

Would not this article, if widely circulated in our own noble city, arouse those who have been prospered, and are so fortunate as to own the property which would be so largely benefitted by an extensive system of railroads, to a *wise and energetic action*? The truth is, that the people here appreciate so highly their *natural advantages*, and consider them so far beyond competition, that they have felt safe to rest quietly; or, to adopt an emphatic phrase of one of the greatest statesmen of the age, upon another important question, to pursue "a masterly inactivity," while our sister city, which, in 1830 contained only 81,500 inhabitants, and its valuation was only \$59,586,000, has advanced with almost unparalleled rapidity—her population in 1845 being 155,000, and her valuation, \$135,948,900, or an increase of the former equal to 90, and of the latter equal to 128 per cent. in 15 years.

It is *quite* time for New York capitalists, as well as for New York merchants and business men of small means, to be aroused to the subject.

A good beginning has been made. The late effort in favor of the New York and Erie railroad, shows what a few spirited and liberal minded men *can* do, when they undertake with a determination to succeed; even when the great capitalists and owners of real estate, who, more than *any other* class, are to be permanently benefitted by such works, give the cold shoulder to, and even ridicule those who, with less money, have more public spirit, more disinterested liberality, and more good sense. But the ice has been broken, and the tendency is onward, therefore *now* is the time for New York to come forward, and enter the lists with Boston, in a fair, honorable competition for the business of the north and west; which must, at no distant day, take its departure from *Burlington*, (*Vt.*) for a seaport. What say the citizens of New York? Shall it go to Boston by the *Central and Connecticut river valley* route? or by the way of *Rutland* and the *Fitchburg* route, which is sure to be constructed? or still by *Rutland* and *Bennington* to *Pittsfield*, and thence to Boston by that *noble* work, the

Western—or, as the *union* road is to be termed, the *BOSTON AND ALBANY* road? or will you, citizens of New York, come forward and construct the *very best* road in the country, to connect this city with the last mentioned road near *Stockbridge*? and *then* aid in constructing a good road from *North Adams*, about 75 miles, to *Rutland*—that from *Pittsfield* to *North Adams*, 18½ miles, is now under contract, and that from *Rutland* to *Burlington* will, we doubt not, be constructed immediately, by the people along the line, who have made the best country subscription *ever* made in this country, on a line of equal extent—and thus come in for a share—the *lion's share* if you can—of the rich business of western Vermont, Canada, and that which is to pass over the *Champlain and Ogdensburg* road? Here is a noble field for competition, and you must *bestir* yourselves if you would secure, even a fair proportion of it, as you will be convinced when you have read the following article from a Massachusetts director, who once crossed the Atlantic, visited the principal roads in England and on the continent, wrote a sketch of them, and was again at his post in about sixty days.

"Progress of Railroads in Massachusetts.

"Nature has not been liberal to Massachusetts in soil, climate or navigable streams. Her territory, confined within narrow limits, is generally rugged and unequal—her winters long and severe. With the exception of the Merrimac, no great rivers have their outlets in her ports; and the Merrimac, by its bars and rapids, gives little encouragement to navigation; and yet with all these drawbacks, with no articles for export but ice and granite, her progress has been rapid and astonishing. Her harsh climate has invigorated her hardy sons—her ungrateful fields have given them lessons of frugality and enterprise—her forests have been moulded into ships to pursue the cod, the seal and the whale, have sought wealth in foreign climes, and become the great carriers of the union. With the funds thus gathered on the deep, or in richer lands accumulating in frugal hands, they have made the very roughness of nature subservient to art. The streams have been arrested in their precipitous fall to the sea, and compelled to toil, to spin and to weave. The boulders and ledges which defaced the fields have been lifted from their beds to build the foundations of factories, or to line the wells and cellars of a growing population, imparting to her fields the fertility originally denied by nature.

"But commerce and art demand easy communication, and so essential has Massachusetts deemed it to its progress, that she has bent herself to supply the absence of navigable waters. Commencing with a noble system of town and country roads, she early embarked in turnpikes, diverging in all directions from her metropolis; coaches and

wagons were soon in motion, connecting her with the interior, and Boston became distinguished for lines of stages, unrivalled in speed and comfort, throughout the union. But a new agent began to exert a mighty influence. The genius of Fulton gave to the water an ascendancy over the land, and the fast coach and the slow wagon were vanquished by the steamboat. Armed with the power of steam, New York made the East and the North rivers the arteries of commerce, and extending these great routes by navigable canals, she grasped not only the west, with Vermont and Canada on the north, but pierced the very heart of Massachusetts, pushing her improvements up the valleys of the Connecticut, and the Blackstone, to Springfield and Northampton, and even to Worcester, but forty miles west of Boston. The steamboat, in alliance with the canals, running down the natural watercourses, seemed destined to make Massachusetts a mere tributary; a vortex was opened whose attraction was irresistible; how could the manufacturer or the artisan of the interior afford to pay five cents per mile for conveyance by the coach, or fifteen cents per mile a ton for the transit of his goods to Boston, when steamboats and canals had reduced the transit to New York from fifty to eighty per cent., and made her the eastern outlet of the prolific west?

"Massachusetts had tried canals in advance of all the states; she was first in the race; she had surmounted the summit between the Merrimac and Boston, by the Middlesex canal, before the war of 1812, and she remembers with pride that the commissioners of the Erie canal, before commencing that great work, came to Massachusetts to learn the rudiments of canaling. But canals were not adapted to the rugged surface of the state from the intervening of ridges between Boston and the interior. The manufacturer, too, could poorly await for the melting of a channel ice-bound half the year. Between the close of 1825 and the beginning of 1831, gloom and despondency seemed to settle down upon Massachusetts. Her sons left her to build up rival states and cities, and her fairest and richest daughters were courted away to grace more prosperous lands. The grass began to invade the wharves and pavements of her commercial centre, and the paint to desert the fronts of her villages; her pride was in the glories of the past, and in these she will ever be rich—not in the achievements of the present or the promise of the future. She seemed to stand at the ancestral tomb, sorrowing that she could not partake of the progress of the age, or to be dropping a tear beside the old hive as it grew yearly darker, or crumbled away, while swam after swam left it for sunnier skies. But her spirit, though chilled, was not subdued; a new era was at hand; art was preparing for another bound; the east was about to requite the west for the discoveries of Fulton, and to make steam more powerful on land than he had made it on the water. A star, the presage of future progress, broke forth in the east when Robert Stephenson applied the modern locomotive to the rail, and gave to England and the world

the finished railroad. The noble viaduct which spans the Tyne, at Newcastle, on the main route from London to Edinburg, is soon to bear a costly statue dedicated to the great genius of modern times—to the master-spirit who is revolutionizing the whole intercourse of the world; and Massachusetts owes him a statue also for his discovery, which, more than aught else in modern times, makes her what she is, and is to be.

"So chilled was her spirit by the adverse current from 1825 to 1831, that she could scarcely see, in the twinkling star rising beyond the ocean, the beacon that was to light her onward. Wedded to the systems of the past, she could not realize that men and merchandize were to be whirled through her granite hills and deep ravines, winter and summer, regardless of frost and snow; and those who first ventured to name the fire-horse and the rail in her streets, journals and legislative halls, encountered the smile of derision, and the name of visionaries and enthusiasts. There are those still on the stage who remember the obscure chamber and studied privacy in which the first measures were concerted to enlighten the community. The glowing zeal of Allen, who saw in advance 'a car from each town join the train as the caravan came along,' the enlarged intellect of Sedgwick, and keen forecast of Degrand, could not shield them from the shafts of ridicule. The transition from darkness to light was too sudden, the mental eye could not, for months, accustom itself to the new field of vision.

"But the incredulity of Massachusetts had its prototype in England, as we learn from the lips of Robert Stephenson himself. When he went to London, as the engineer of the Liverpool and Manchester railway, to obtain a charter, he was cautioned as to his testimony. 'Be sure,' said the counsel, 'when you testify before the committee, not to say your locomotive will make more than ten miles per hour. I know you honestly believe you can attain fifteen, but the public are not prepared for it, and will not believe it, and we may be laughed out of parliament.' Stephenson went before the committee; he proved his case, and claimed a speed for his machine of ten miles per hour, but when the opposing counsel asked him, in his cross examination, with a significant smile, 'do you not believe you can run this fire-horse of yours even twenty, or five and twenty miles an hour?' the conscientious man of science admitted the fact, and the dangerous admission of but half of what he accomplished, startled the committee and nearly lost him the case. The success of the Liverpool and Manchester lines, however, was soon appreciated, and first effort, and one of the first lines finished in Massachusetts at once entered the field. Her America, was the Quincy railroad; then followed the Worcester; the Lowell and the Providence opened in 1834-5; then the Easton, Boston and Maine, Western, Nashua, Norwich and Worcester, Taunton, New Bedford, Fitchburg, Old Colony, and a net-work of railroads now in progress, overspreading the entire surface of the state, so widely dis-

seminated that ere many months have elapsed few points will be found in the old bay state, more than one hour's ride from the cars.

"The railroad system of Massachusetts has made such progress that it connects her great seaport not only with Albany and lake Erie, but also with the principal towns of all the New England states, save Vermont, and is rapidly advancing across Vermont, via Windsor, Montpelier and Burlington, to lake Champlain, northern New York and Canada. Under the mighty impetus thus given, the march of Massachusetts has been onward; manufactures, agriculture, commerce and the arts have flourished; property has advanced in value; the cost of transit has fallen; population has been retained and drawn in from other states, and Boston, the commercial capital, is pressing onward with renewed vigor. In 1830, the population of Boston and the immediate suburbs, Charlestown, Cambridge, and Roxbury was, by the census, 81,500; in 1845, by the census, it is 155,000, showing a gain of 73,500, equal to 90 per cent. in fifteen years. In 1830, the valuation of Boston was \$59,586,000; in 1845, it is \$135,948,700, showing a gain of \$76,263,700, or equal to 128 per cent.

"The progress of the state itself, although not as rapid as that of Boston, has been striking also. In nearly all directions new structures meet the eye; value has been given to forests, quarries, mill sites, and produce in the interior, and it is safe to predict that the census of 1850 will give to the state a population of 1,000,000, and a valuation of \$500,000,000, and to Boston and its suburbs a population of 200,000, and a valuation of \$200,000,000. It would not be just, however, to ascribe, all this to the railroad system; a part is doubtless due to commerce, manufactures and the fisheries; but the improved system of communication has given to them a vast impulse, and they have exerted a powerful influence on the system itself. Tusserene, in his report on the Belgium railroads, informs us that the tonnage of arrivals and departures increased 50 per cent. in two years at Antwerp, and 30 per cent. in one year at Ostend, on the completion of single lines of railways. If single lines have done so much, how much may be ascribed to seven distinct lines leading from Boston?

"Character of the Massachusetts Railroads.—The art of constructing railroads has been and still is progressive. At the outset it was thought essential to secure the most favorable gradients, and great expenses were incurred to reduce them below 30 feet to the mile on the Worcester and Lowell railroads. Deep trenches were dug and filled with broken stone for foundations, and stone sills, or sleepers, were introduced at great cost on one of the lines. The early engines were of moderate power, but were soon made more efficient and the improvement of motive power obviated most of the objections to higher gradients, and on some of the modern lines gradients of forty, sixty, and even eighty-three feet to the mile have been introduced, and in practice. Thus far, roads with gradients of forty feet, have been run as cheaply as those

more level. Surface roads conforming to the undulations of the country are thus constructed, and the absence of deep cuts and embankments exposed to the action of the elements, lightens their burthen of repairs.—Most of our lines have single tracks, and for these the roadbed is usually formed twenty-four feet wide in the cuts, and fifteen on the embankments. Five rods is the usual width of the surface taken for a road, and the fences are now constructed by the companies. In place of broken stone, a bed of gravel or sand well elevated above the drains, is now generally adopted as a foundation; all clay is removed, and water, the great enemy of railroads, courted away by a careful system of drainage. The stone sills, although at first thought most durable, have been found liable to break, and more costly and less elastic than wood. To avoid a jar, the blacksmith places his anvil on wood, and such is the jar on stone foundations, that the wear of cars and engines, both in Europe and America, has been diminished by substituting wood for stone. The rails are now generally laid on sleepers, or cross ties, averaging seven feet by eight to twelve inches, and hewn on two sides, beneath which are hemlock sub-sills.—The second growth chestnut has been found most durable for ties, and the most approved distance is two feet six inches from sleeper to sleeper. Across these are placed the rails; these are rolled iron, averaging 18 feet in length, and weighing usually 56 to 60 lbs. per yard. The pattern in most general use has a flat base, with a flat or rounded head; the base rests on the sleeper, and is attached to it by spikes with heads lapping on the rail, and the ends of the rail are connected and confined by clasp chairs of iron. At the outset, rails of various patterns were adopted. On the Worcester, a light edge rail of 39 lbs. to the yard was used, but was found inadequate, and which has been partially replaced with a rail of 60 lbs. to the yard. On the Lowell, the fish-belly rail of 35 lbs. to the yard has been tried, condemned, and replaced by one of 60, but as yet no good rails of the modern pattern and size have given indications of failure. A few of indifferent iron, whose upper surface had been rolled too thin may have occasionally split at the edge, but in other particulars even ten years' use seems to have made little or no impression, and the problem is still unsolved, how long will they endure?

"The engines now in use, and the proximity of the sleepers, favor the endurance. In England, ten to twelve thousand lbs. weight is often thrown upon a driving wheel, but in Massachusetts eight thousand pounds is the maximum, and on many lines the average is from five to seven thousand pounds only. With cautious use, a long duration, and freedom from repairs may be anticipated for the best rails. The plate rail has received little or no countenance in Massachusetts. Its insecurity and instability—the inequality of surface which attends its use—the loss of speed and diminution of power which it entails, and extra cost of maintenance, which must exceed the interest on the extra cost of a heavy

rail, have deterred directors and engineers from adopting it. As the first president of the Western railroad once happily expressed it, 'he would not have for a railroad a hoop tacked to a lath.' The only specimen in Massachusetts is the upper section of the Housatonic line, which runs in from Connecticut, and a new association is preparing to replace it with a heavy rail. The success and popularity of the system may be ascribed in a great degree to the choice of the rail.

"Cost of Management.—When the Chevalier de Gerstner visited the United States in 1838, the average cost through the union of running a train, was reported by him to be one dollar per mile run. In 1840, Professor Vignolles, an eminent English engineer, in his report to the British association, makes, as the result of a careful analysis of many English lines, an average cost of three shillings, or 72 cents per mile. In Massachusetts the average is not far from 65 cents per mile, while three of the more recent lines have actually run for the last two years, with a large traffic, at less than 40 cents per train a mile, and in all the lines the average size of the trains has greatly increased in addition. The first engines on the Liverpool and Manchester line, from which our earliest patterns were copied, are stated in the report of Teisserenc to have run but seven thousand miles each year, at a cost of £400 for repairs, or 29 cts. per mile run. The Boston engines of the present day, with six to eight wheels, four-fold the tractive power, and far lighter on the rail, perform with ease twenty-eight thousand miles a year, at a cost for repairs of three cents per axle run. In the wear of cars the improved axles, chilled wheels, the trucks and elongated frames, soft metal boxes for the journals, and springs beneath and between the cars, have effected an almost equal improvement. The training and discipline of operatives, establishment of inflexible rules, arrangement of depots, increase of reserved stock of engines and cars, judicious purchase and preparation of fuel, improved rails and adjustment of track, and increase of traffic, have all tended to reduce the cost of management, and it may be safely stated that the cost of conducting the business has been reduced more than fifty per cent.

In the printed report of the directors of the Boston and Worcester railroad company,* dated April, 1840, it is stated that the cost of transporting a ton between Worcester and Boston, including loading and unloading, was, in 1835, \$2 33, and the number of tons carried, 9,359; in 1839, it was \$1 94, and the number of tons carried, 29,108. In 1844, the Worcester company, in a case with the Western company as to tolls, claimed that the cost, in 1843, was \$1 11 per ton, amount carried, 88,324 tons; but the Western company would concede but 57 cents per ton, objecting to large items of deterioration and repairs, as belonging to prior years. The medium between them is 88 cents per ton, doubt-

* In 1845, the accounts of the Fitchburg railroad company indicate that the cost of transporting freight, exclusive of loading and unloading, will be less than one cent per ton a mile.

less not far from the actual cost, which continues to decline with the increase of traffic. The cost on the Fitchburg is materially less. The modern lines, with superior roadbeds and rails, improved engines and cars, and less outlay on cuts and embankments, have, of course, the advantage in the race; but the managers of the old lines are generally aware that their policy is like that of the factories, 'to work out the old and work in the new,' and to keep pace with the progress of events; and their first choice of routes, and the business concentrated on their lines by an earlier start, aid them in their efforts.

"Already railroads have decided advantages over canals in the monopoly of mails, passengers, and the business of six months of winter. Canals in a long series of years have reached, or nearly attained, their highest point of perfection. Railroads, on the contrary, are yet in their infancy, and yet susceptible of improvement; have an indefinite capacity for trains, and with each increase of trains the cost of transit diminishes.* A great further reduction in the cost of transportation by railroads in Massachusetts may be relied upon as certain.

"Increase of Traffic.—The ratio of increase on the lines of Massachusetts, has kept pace with the extension of the system. At a reduction of charges, and a diminution of cost, the business has doubled at least once in eight years, and this increase promises to be progressive. Occasionally, a disastrous year, an error in policy, or a rival line, causes a temporary reaction; but the vacuum is soon filled and the traffic again overflows. The question most frequently discussed by directors is, 'how many new cars and engines shall we order?' and 'how shall we enlarge our depots?' At first, two or three acres were thought ample for a first class depot; a few years after this, the author was thought extravagant in advocating twenty for the Western and Fitchburg lines. The question now is, 'will twenty be sufficient?' The London and York propose fifty for a metropolitan depot; but when we consider the result produced by the combined effects of reduced charges, extension lines and the growth of the country, a liberal provision for depot grounds will be found most judicious. Our commercial cities provide extensive water fronts, miles of stores, docks, piers and levees for the reception of navigation: and when railroads are to receive and deliver, as they now do annually at Boston, half a million of tons, and the ratio of increase is ascertained, space must be provided.

"The Policy of Massachusetts in her Charters.—The great question of the Warren and

* With respect to the repairs of the road and track, the annual average cost in Massachusetts, has been less than \$400 per mile of railroad, which is considerably less than the average annual repairs of the Erie canal; as the principal part of the repairs is independent of the amount of traffic, consisting in renewal of culverts, bridges, sleepers, embankments and clearing the cuts, but a trifling amount of repairs will fall on an increase of traffic.

In 1839, the entire expense of repairs, inclusive of supervision, on the New York canals, were \$121,678 90, an average per mile of \$658 87, losing not far from 26-100 per ton a mile, and the cost of freight not far from 90-100 of a cent per mile.

Charles river bridges, inspired Massachusetts with a salutary caution in granting her charters. The Charles river bridge claimed under a general grant of a toll for a long term of years, an exclusive right, which, if enforced, would have given the proprietors in 1844 a net income of \$65,000, or about one hundred and fifty per cent. per annum. This case was decided about the date of our earliest railroads. To secure the public, and obviate all questions for the future, Massachusetts has reserved to herself the right of reducing tolls, if the income exceeds ten per cent., and a right of purchase after twenty years, on payment of the principal and ten per cent. income, deducting the tolls received. England has been more liberal in her charters. In a country where money produces less than in Massachusetts, she allows the income to reach ten per cent. reserves the right to buy, but provides that in such event, she will, if the road earns ten per cent., pay therefor a capital that shall produce ten per cent. at twenty-five years' purchase, or at the rate of four per cent. per annum. She virtually stipulates to pay a premium of one hundred and fifty per cent. to each successful enterprise, while Massachusetts is to pay par and ten per cent. A successful stock, therefore, rises in England from one hundred to two hundred and fifty, while in Massachusetts it has in no case exceeded forty per cent. premium. But the stimulus in England is too great; it has apparently crazed the whole community, both male and female. In Massachusetts it is sufficient to enlist the wary capitalist, and the enterprising and spirited merchant, who expects an accession of trade as well as large dividends; it has created a race of engineers, managers and contractors, who look for business to branches and extension lines, some of whom embark largely in the new lines as proprietors, as well as contractors, and both directly and indirectly, impel the system onward.

"One topic remains untouched, which has occasioned much discussion on both sides of the Atlantic, particularly during years of depression, but it would be impossible to compress it within this article. It is a topic of deep interest. Mountains may be tunneled or surmounted, deep rivers may be bridged, and remote regions united by iron bands, but tariffs of charges may be interposed, more impassable than mountains, streams and boundaries. An injurious tariff, if too high, may prohibit trade, or throw it on rival cities; or if too low, may undermine the prosperity of the improvement itself.

"The tendency of the rates has been rapidly downward, and with beneficial results, both in Massachusetts and in England; the reduction of the cost of transit at least one-half, demonstrates the power to carry with profit at half the original rates; reduced charges will open new fountains, but the charges still vary on the different lines, and the subject may be better discussed in a future number.* E. H. D."

* The railroads of Massachusetts are eminently successful. The net income of 1845 will average nearly eight per cent., and the stocks average about ten per cent. above par.

AMERICAN RAILROADS.

NAMES OF RAILROADS.	Length in miles.	Cost.	Loans and debts.	Number of shares.	Paid on share.	1843. Income.		Div. per cent.	1844. Income.		Div. per cent.	1845. Income.		Div. per cent.
						Gross.	Nett.		Gross.	Nett.		Gross.	Nett.	
Maine. 1 Portland, Saco and Portsmouth.....	50	1,200,000				89,997	47,166	7	131,404	62,172	6			
N. Ham. 2 Concord.....	35	750,000									12			
Mass. 3 Boston and Maine.....	56	1,485,461				178,745	68,499	6	233,101	86,401	6½			
4 Boston and Maine extension.....	17½	455,703	unfin.											
5 Boston and Lowell.....	26	1,863,746				277,315	144,000	8	316,909	147,615	8			
6 Boston and Providence.....	41	1,686,135	none.	18,600	100	233,388	110,823	6	282,701	156,109	6			
7 Boston and Worcester.....	44	2,914,078				404,141	162,000	6	428,437	195,163	7½			
8 Berkshire.....	21	250,000	not stated				17,500	7	17,737					
9 Charlestown branch.....		280,260						13	34,654	13,971	5½			
10 Eastern.....	54	2,388,631				279,563	140,595	6	337,238	227,920	8			
11 Fitchburg.....	50	1,150,000	just op'n'd						42,759	26,835				
12 Nashua and Lowell.....	14½	380,000				84,079		8	94,588	34,944	10			
13 New Bedford and Taunton.....	20	430,962				50,671	24,000	6	64,998	24,000	6			
14 Northampton and Springfield.....		172,883	unfin.											
15 Norwich and Worcester.....	66	2,290,000	900,000	16,535	100	162,336	24,871		230,674	99,464	3			
16 Old Colony.....		87,820	unfin.											
17 Stoughton branch.....	4	63,075	unfin.											
18 Taunton branch.....	11	250,000					20,000	8	96,687	20,000	8			
19 Vermont and Massachusetts.....														
20 West Stockbridge.....	3	41,516	200		100						4			
21 Western, (117 miles in Mass.,).....	156	7,686,202	4,686,202	30,000		573,882	284,432		753,753	439,679	3			
22 Worcester branch to Milbury.....	3½	42,000												
23 Housatonic, (10 months,).....	74	1,244,123							150,000					
Conn. 24 Hartford and New Haven.....	38	1,100,000	100,000	10,000	100						6			
25 Hartford and Springfield.....	25½	600,000	400,000	2,000	100									
26 Stonington, (year ending 1st Sept.,).....	48	2,600,000	650,000	13,000	100	113,889			154,724	79,845				
N. York. 27 Attica and Buffalo.....	31	336,211				45,896	7,522		73,248	48,033				
28 Auburn and Rochester.....	78	1,796,342	200,000	14,000	100	189,693	112,000		237,667	152,007	6			
29 Auburn and Syracuse.....	26	766,657			133½	86,291	27,334		96,738	52,544	6			
30 Buffalo and Niagara.....	22	200,000		1,500										
31 Erie, (446 miles,).....		5,000,000												
32 Erie, opened.....	53						48,000		126,020	59,075				
33 Harlem.....	26	2,250,000	750,000	30,000					140,685	62,399				
34 Hudson and Berkshire.....	31	575,613			50				35,029	1,789				
35 Long Island.....	96	1,610,221	392,340	29,946					153,456	58,996				
36 Mohawk and Hudson.....	17	1,317,893	400,000	10,000	100	69,948	58,780		79,804	45,763				
37 Saratoga and Schenectady.....	22	303,658				42,242	3,000	1	34,666	8,455				
38 Schenectady and Troy.....	20½	640,800				28,043			32,646	6,365				
39 Syracuse and Utica.....	53	1,115,897	none.	16,000	62½	163,701	72,000		192,061	120,992	8			
40 Tonawanda.....	43	727,332				76,227			114,177	75,865	5			
41 Troy and Greenbush.....	6	180,000												
42 Troy and Saratoga.....	25	475,801				44,325	21,000		38,502	9,971	2½			
43 Utica and Schenectady.....	78	2,168,165	none.	20,000	100	277,164	180,000	9	331,932	199,094	8			
N. Jersey. 44 Camden and Amboy.....	61	3,200,000				682,832	383,880		784,191	404,956				
45 Elizabethtown and Somerville.....	26	500,000												
46 New Jersey.....	34	2,000,000												
47 Paterson.....	16	500,000									6			
Penn. 48 Beaver Meadow.....	26	1,000,000												
49 Cumberland Valley.....	46	1,250,000												
50 Harrisburg and Lancaster.....	36	860,000	645,929									77,538	9,988	
51 Hazleton branch.....	10	120,000												
52 Little Schuylkill.....	29	900,000												
53 Blossburg and Corning.....	40	600,000												
54 Mauch Chunk.....	9	100,000												
55 Buck Mountain.....	4	72,000												
56 Minehill and Schuylkill Haven.....	19½	396,117	25,000	7,019	50			12			12			
57 Norristown.....	20	800,000												
58 Philadelphia and Trenton.....	30	400,000												
59 Pottsville and Danville.....	29½	1,500,000												
60 Reading.....	94	9,457,570	7,447,570	40,200	50				597,613	343,511				
61 Schuylkill valley.....	10	1,000,000												
62 Williamsport and Elmira.....	25	400,000				20,000								
63 Philadelphia and Baltimore.....	93	1,400,000				43,043	200,000			210,000				
Delaware. 64 Frenchtown.....	16	600,000												
Maryl'd. 65 Baltimore and Ohio, (1st Oct.).....	188	7,742,410	1,153,709			575,235	279,402		658,620	346,946		738,603	374,762	3
66 Baltimore and Washington.....	38	1,800,000				177,227	71,631		212,129	104,529		208,813	95,094	6
67 Baltimore and Susquehanna.....	58	3,000,000												
68 Wrightsville, York and Gettysburg.....	12½	500,000												
Virginia. 69 Greensville and Roanoke.....	18	284,433	37,544	2,000	100				25,368	6,074	3			
70 Petersburg.....	63	969,880	63,000	7,690	100				122,871	72,898	6			
71 Portsmouth and Roanoke.....	78½	1,454,171												
72 Richmond, Fredericksb'g and Potomac.....	76	800,000							185,243	85,688				
73 Richmond and Petersburg.....	22½	700,000												
74 Winchester and Potomac.....	32	500,000												
N. Car. 75 Raleigh and Gaston.....	84½	1,360,000												
76 Wilmington and Raleigh.....	161	1,800,000									5			
S. Car. 77 South Carolina.....	136	5,671,452		34,410	75	201,464	77,456		532,871	140,196				
78 Columbia.....	66													
Georgia. 79 Central.....	190½	2,591,723	440,000	20,510	100	227,532	93,190		328,425	180,704				
80 Georgia.....	147½	2,650,000				248,026	158,207		248,096	147,523				
81 Montgomery and West Point.....	89	500,000	170,000		100				35,000	15,000				
Kent'ky. 82 Lexington and Ohio.....	40	450,000												
Ohio. 83 Little Miami.....	40	400,000												
84 Mad river.....	40	152,000										24,984	3,280	
Indiana. 85 Madison and Indianapolis.....	56	212,000	50,000			22,110	8,639	8	39,031	10,065	9½			
Canada. 86 Champlain and St. Lawrence.....	15						12,000		58,000	21,000				

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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The Gauge Question.

This important question continues to occupy considerable attention in England. It appears to excite little interest elsewhere, and the rival parties are now making experiments under the observation of a "government commission on the guages," for the purpose, probably, of renewing the controversy before parliament, during the ensuing session.

A series of experiments were commenced, on the Great Western road, on the 16th December, in presence of the commissioners, Sir F. Smith, and Professors Barlow and Airey. The first experiment was made with the locomotive *Trion*, driven by Mr. Brunel and Mr. Gooch, C. E., with Mr. Bidder and Mr. Berkley, the champions of the narrow guage, on the platform, with eight carriages, six first and two second-class attached, weighted with iron, to a gross load of 81 tons 13 cwt., exclusive of engine and tender, which may be taken at 32 tons more, and equal to a train of 342 persons.

They left the first post beyond Paddington at six minutes past ten, with 24 gentlemen on board. The distance from Paddington to Didcot is 53 miles, and the distance from the first mile-post, 52 miles, was performed in 1 hour and 4 minutes, or at the rate of 51 miles an hour; and the return in 1 hour 1 1/2 minutes. The second day's trip from Paddington to Didcot, with seventy tons, was performed in 1 hour 2 1/2 minutes, and the up trip in 59 minutes.

Next comes the experiments on the great North-of-England line, between York and Darlington, 43 miles long, narrow guage, on the 30th December, in presence of Professors Barlow and Airey, of the commissioners; Messrs. Brunel, Saunders, and Seymour Clarke, of the broad guage; and Messrs. Hudson, Bidder, Gooch, Cabry, Harrison, Harding, and Berkley, of the narrow guage. The engine used was a new one, built by Mr. R. Stephenson, with six wheels, seven feet four inches high to the top of the boiler, with cylinders outside; it had been in use only about a week, in experimental trips; with a load of fifty tons only, or 20 tons lighter than the lightest load on the Great Western. They did not, however, succeed in accomplishing much over 40 miles an hour, or 43 miles in 1 hour, 13 minutes 53 seconds, which is greatly inferior to the results on the broad guage. These, however, are not fair results on either of them, as better time has been made, on other roads, and can be made on almost any road in England, than that upon the great North-of-England. We shall, however, give the two statements in our next number, and further accounts as they come out.

The Iron Trade.

We have received by the Hibernia our regular files of the London Railway and Mining Journals to the 3d inst. The Mining Journal of 6th December says, in relation to the iron trade, that the Glasgow pig-iron trade was very dull on the 2d, that several thousand tons were offered at 72s. 6d. cash, and 1000 tons were sold at that price, and the Glasgow quotations for that day were 70 to 72s. cash.

The London quotations on the 5th December were, bar £9 to £9 5s.; rails £12.

In France the price of iron is very high. "White cast metal" was sold on 29th November, in large quantities, for £7 5s. to £7 10s.; and £7 10s. and £7 15s. were offered for two other lots of 400,000 and 500,000 kilogrammes each, which were not received. The manufacturers of wrought iron had announced their intention of advancing the price from £16 to £16 10s.

In the same journal of the 13th, we find that the price of pig-iron had advanced; Scotch to from 75 to 80s., and Welsh to 77s. 6d., with purchasers. Rails continued at £12. The high prices continue in France.

Dec. 20th.—The manufacturers continue to ask 80 to 90s. for Scotch pig, which are, however, just now merely nominal quotations, as the trade is in the hands of speculators, who are offering for 72s. 6d., with very little doing, and rails have fallen a trifle, being quoted this week at £12 a £11 10s.

The Glasgow market on the 19th was very quiet, only a few sales, varying from 72s. 6d. cash, to 76s. The manufacturers, however, still ask 85 to 90s., and on the 23d, sales were made at 77s. 6d.; rails remaining the same in London on the 26th, as last week. In France, on the 18th, at St. Dizier, large lots brought £16 10s., and small lots brought £16 16s., though little was doing in Paris, as the merchants would not give £16.

Jan. 2d.—There has been very little change in the pig-iron trade of Glasgow for the month past, as will be seen by the following report from a Glasgow paper of 30th December, though the fluctuations have been very great during the year, varying from 57s. 6d. to 120s. Railway bars remain about the same as for several weeks past, the quotations £12 a £11 10s. being continued.

GLASGOW, Dec. 30.—There seems to be a very good feeling this week, speculators looking forward to the French legislature modifying their tariff regarding foreign iron. Cash transactions, however, have been very few. In the present state of our market, three or four thousand tons forced, for cash, would not command 70s., while, on the other hand, were as large a quantity wanted at once, 75s. would require to be paid. One of our largest makers has this week (or end of last week) made a contract with a house in town for 2,000 tons, at 80s., paying a small deposit, the iron to be delivered where required. The sellers were open for farther contracts at one shilling advance. The price we quote at 72s. 6d. It may be interesting, at the close of the year, to note some of the fluctuations which have taken place:—January, price 65s. to 70s.; February, 90s.; March, 120s. per ton. From this period till 1st June, prices gradually receded to 57s. 6d.; June, 80s.; July, 60s.; August, 55s.; September and October, 90s. to 97s. 6d. per ton. From that time it has gradually fallen to the present quotation of 72s. 6d. per ton.—*Glasgow Nat.*

It may, we think, be safely concluded that iron will be in good demand, especially for railways, and for ship-building, for some years, and that investments in its manufacture upon the most improved plans, will not only be safe but lucrative.

Hudson River N. York and Albany Railroad.

We had the pleasure, a few evenings since, of hearing Mr. Jervis read his report, in presence of a

large number of gentlemen interested in the river route of the railroad to Albany. We were late at the meeting, and therefore did not hear the first part of it; nor were we aware that copies of it were to be had at the meeting, or we should have obtained one. We have now, however, through the politeness of Mr. Jervis, a copy of it, and shall give it an early insertion in the Journal, as we have those which have preceded it from time to time, upon the same subject, viz: "a railroad between New York and Albany."

We have, for many years, advocated the construction of a railroad, of the best—the very best—kind, between the commercial and political capitals of the state, even when many of its present advocates laughed at the idea of its paying its working expenses—much less a dividend to its stockholders; but such has been the apathy—we might almost say the wilful blindness, and indifference of those in this city who were to be most benefitted by it—we mean the property holders and business men, that we have for the past few years almost ceased to refer to it, except to publish the reports and letters, which have been put forth at different times by those interested in the different routes, by way of keeping the people apprized of the fact that light was beginning to dawn upon a few men of wealth just in the ratio [as they thought their local interest along the line was to be affected by the movements and progress of other lines—not in proportion to the vast importance of this particular link in the great system, by which, and from which, mainly, this city is to maintain its natural *relativæ* position among the cities of the union.

A want of strength on the interior line, and the opposition of those interested along the river, have been sufficient to prevent the *fer*, at each terminus of the line, who really desired the road to be built, from making progress, but now that a third party comes forward, after years of "masterly inactivity" for any good to the cause, and show a disposition to force a road through, in connection with a short, but not *thus far* properly constructed road now in use, we find those gentlemen, who are abundantly able to make the road, but who have heretofore been either in opposition, or apparently indifferent to its construction, advocating a line of road directly along the margin of, and in many places actually in, the river for the first sixty miles, and then varying from one to three miles, according to circumstances, for the next eighty-five miles, to compete, at all the landings, with the best steamboats in the world, on the best navigation in the country, for the business, instead of through the interior of the counties, where it would accommodate a region, rich in a fertile soil, ample water power, and mineral deposits, yet without easy access to market, even a part of the time. But we have always said that we are for a good railroad to Albany, and we have but one other point to make in relation to it, and that is, that it be located where it will accommodate the most people at the lowest rates, in the shortest period of running time. Four to five hours is all we allow them, and this report is based upon an estimate for a road of this character, with rails of 70 lbs. per yard, grades on the first 60 miles under 10, and on the other 85 miles not exceeding 17 feet per mile, and no curve, we believe, with a radius less than 2,000 feet, which will justify a speed of 35 miles an hour. This is as it should be, and for this bold and business like recommendation of the engineer we give him full credit, as we do also for the useful information which he has embodied in his report; and we congratulate the cause upon the accession of so able a member of the profession to its future support. We shall give the report entire, and have something more to say in relation to the relative merits of the two routes.

Atmospheric Railway in the United States.

The seed has taken root and the tree will be of rapid growth, even though he who cultivates the first plant in this country predicts otherwise.

We are led to these remarks from reading the following extract from a letter, dated *Ithaca*, January 21st, 1846, from Mr. *W. R. Casey*, who has been re-locating a part of the route of the old *Ithaca* and *Owego*, or as it is now called, the *Cayuga* and *Susquehanna* railroad.

To many of the readers of the Journal it is known that the ascent, from the *Cayuga* lake to the summit level, is about 600 feet, which was mainly overcome by an inclined plane at an angle of about 40°, [we speak from recollection only] which has not been found either convenient or safe; and the present proprietors, are about to re-locate the road and distribute this heavy gradient over the first three or four miles and it is upon this *new* line that Mr. *Casey* proposes to introduce the atmospheric principle of traction.

It will be seen by the last number of the *Railroad Journal*, that Mr. *Casey* is fully borne out in his views, by Messrs. *Brunel* and *Vignoles*, both of whom recommend the adoption of the atmospheric on the *Blackburn* and *Bolton* road, even though it was chartered and partly graded for a double track locomotive line, where they have to take a heavy trade over an elevation of *six hundred* feet in seven miles; and we do not hesitate to say, that if Mr. *Casey* is sustained in his views by the directors and is entrusted with the construction of the work, it will be eminently successful, and not only be the most economical and efficient plan they can adopt but also a curiosity in itself which will attract thousands of visitors to their village to examine and pass over it, as has been the case at *Dalkey*, and will be at *Croydon* and other roads in *England*, constructed upon this plan. Mr. *Casey* says:

"It is my intention to recommend the adoption of the atmospheric system of traction on three or four miles of the *Cayuga* and *Susquehanna* railway, where I believe it will effect a saving in first cost as well as in subsequent expenses, besides adding to the capacity and increasing the efficiency of the entire work. Out of the coal regions there are few railways in the United States where this kind of power can be advantageously employed, even in part, as the mere cost of the pipes and fixtures equals that of a first rate railway, with a single track, complete in all its parts and prepared for an extensive business. At *Carbondale* it will be invaluable and I was glad to find; on a visit there nearly two years since, that the engineer of the *Del. and Hud.* coal company, Mr. *Archbald*, was fully alive to its importance. It might perhaps also be advantageously used in the immediate vicinity of our large cities, where frequent trains and great speed are necessary for the accommodation of the public, and therefore, indispensable to permanent success; but the general introduction of the atmospheric system into the United States is out of the question for the nineteenth century at least."

We shall furnish further and important information on this subject, in the *Railroad Journal* from time to time, and feel quite confident that this first movement will be followed by others of a similar character and that the atmospheric railway will become common in this country. *We shall see.*

The following letter contains, in duplicate, what is quite interesting to us, and useful to our readers. Enough such would enable us to enrich the columns of the *Journal* to an extent which would insure its wide circulation—because those interested

in railroads could not afford to do without it. Such would be the result if only one in ten who are benefited by railroads would adopt the first two lines, and act in accordance therewith, of this letter.

For the American Railroad Journal.

"ROCHESTER, JANUARY 21, 1846.

"I enclose five dollars for the *Railroad Journal* for the ensuing year. Having just made out the required annual report of the *Tonawanda* railroad, I give you such items as I see you insert in the *Journal*, as

Length of road.....	43½ miles.
Cost.....	\$751,053 28
Loans and debts.....	140,000 00
Number of shares.....	6,000 issued.
There are besides 1,500 reserved shares not issued.	
Amount paid per share.....	\$100
Income for 1845—gross.....	\$116,670 60
“ “ net.....	79,664 48
Dividend for year 1845.....	9 per cent.
Yours respectfully."	

Iron Tie-bars instead of Wooden Cross-ties.

Extract from a letter from Mr. *James Herron*, dated, "*Philadelphia*, January 20th, 1846."

For the American Railroad Journal.

"In regard to my iron tie-bar track, it may be proper that I should state, more fully, that the distinctive feature in this track, is the combination of longitudinal bearing timbers, [which support the iron rails] with iron cross-ties, instead of wooden ones, which is the old and usual plan. The details of the plan admits of various modifications, more or less perfect, and more or less cheap; which is looked to more than to perfection. I have, however, matured the details of a track on this plan that will be very cheap, and, also, free from any mechanical difficulty in construction. The modification, described by Mr. *Reynolds*, will present serious difficulties of a mechanical character, in laying it round curves of the road; and, as I have previously noticed, in my former communication, a bar two inches wide is besides quite too narrow to join the ends of the rails upon. The tie-bars used by Mr. *Reynolds* are 2 inches wide and ¼ inch thick. This form is simple, and it is of the exact dimensions of the flat tie-bars shown on the drawings annexed to my patent, but it is neither the most economical, nor is it the best proportion that the material in the bars can be disposed in. For instance, a round tie-bar ¾ inch in diameter, will be of sufficient strength to hold the track in gauge, and will contain less than half the material in the 2 inch wide bars; but say half. Now, if we take the remaining half of the bar, which will be about 72 inches long, 1 inch wide, and ¼ inch thick; or equivalent to two plates, each 6 inches square and half an inch in thickness, we shall have suitable plates, or by turning up the edges, 'wrought iron chairs' for the joints of the rails; and by attaching the tie-bars to these chairs, by a simple swivel joint, all mechanical difficulty in constructing the track is avoided.

"The most approved arrangement of the joints of the rails in a track, is to place the joints of the rails on the one side opposite the middle of the rails on the other side of the track. But this takes double the number of tie-bars, as there should be a tie-bar at each joint. From the number of tie-bars used by Mr. *Reynolds*, I infer that the rails he has used, are only 15 feet long, and that the joints are placed opposite. By using the ¾ inch round tie-bar, instead of the broad flat one, the same quantity of material will produce double the number of tie-bars, and the joints of the rails on the opposite sides of the

track may be made to alternate with the middle of the bars. The arrangement of the joints opposite each other, is, however, the cheaper, and it may be found sufficient, as it will be much superior to the wooden cross-tie tracks.

"Iron cross-ties had been previously used to keep the stone blocks from spreading; and, also, I believe, between the heads of the wooden pile track; but I claim to have originated the plan of track in which longitudinal timbers, under the rails, are, with the latter, held in gauge by iron tie-bars."

To Contractors.

We would call the attention of contractors to the following notice of the *PROVIDENCE AND WORCESTER RAILROAD COMPANY*.

"The route of this road will be prepared for examination by contractors on the 16th of February, and proposals for the graduation, masonry, bridges, timber, spikes, chains, etc., will be received after that date, until the 25th of February.

"Blank proposals, with specifications attached, may be obtained, and the profiles examined, at the offices in *Worcester* and *Providence*, after the 16th of February.

"T. WILLIS PRATT, Engineer."

The prompt and energetic action of this company indicates a determination to have their road completed in the shortest possible time. It also shows clearly the difference between the difficulties of getting a project under way at this day, and fifteen years ago. This road, we venture to say, will be in use in less time, from the application for a charter, than was usually spent in preliminary operations for a road of equal length fifteen years ago.

Annual Report of the Michigan Board of

Internal Improvement.—We have received a copy of this report—even wet from the press and unstitched—for which considerate kindness we desire to express our gratitude. We doubly value documents of this kind which reach us early, and shall always give such the earliest insertion that our previous arrangements will admit of. We feel that the *Railroad Journal* is the legitimate channel for their first appearance and when others evince similar opinions, by furnishing us with one of the first copies we shall reciprocate the favor by giving it the earliest possible insertion in the *Journal*, and this report of the *Michigan Board* would have appeared in No. 4, or January 24th, but for the fact that our type was occupied by other matter when it came to hand. But when the *Journal* is not recollected, until persons less connected with the cause are supplied, and we are furnished indirectly, instead of, as we should be, directly with a copy, we shall consult our own convenience, in publishing or noticing the report. We are always obliged to our friends for the loan of documents which, from their greater enterprise, or more extensive association with gentlemen in the management of railroads and canals, they receive in advance of the *Journal*, and shall be gratified to reciprocate their favors; but, when reports reach us through such a medium, instead of coming directly from those who issue them, we apprehend that a publication or notice in the *Journal* is not desired, and therefore hesitate, or certainly do not make great effort to give them an early notice.

We now owe it to ourselves to acknowledge that we have in some—quite too many—cases allowed important reports to remain unpublished for a length of time, even when received at an early day after publication, and in atonement for these cases of omission we have only to say that it is our intention to mend our habits, and to be, hereafter, as prompt.

as our limits will allow, giving at least one or more reports each week when we have them in hand. Should we not do so we deserve to be neglected—which we do not intend to permit—as we shall endeavor not to deserre.

OFFICE OF INTERNAL IMPROVEMENT,
Detroit, December 1st, 1845.

To the Hon., the Legislature of the State of Michigan:

The undersigned, commissioners of internal improvement, in accordance with law, respectfully report. No changes have been made in the engineer corps since our last annual communication, and the former secretary of the board is still continued. During the past year the board have had under contract forty four miles of railroad, the completion of sixteen miles of canal, which also includes the contract for locking Clinton and Kalamazoo canal into Clinton river, and the improvement of the navigable portions of the Flint and St. Joseph rivers. The season has been in most respects propitious for the prosecution of these works, and they have progressed in a satisfactory manner. The railroads would have been completed by this time to Kalamazo, had there been no difficulty in procuring sawed timber, and some unforeseen delay in the receipt of iron and spike. Notwithstanding these untoward circumstances, some sixteen miles of the road are now finished, in the balance will be completed in six or eight weeks. The whole number of miles in successful operation at that time, will be two hundred and twenty-two, seventy-four of which will have been added within the twenty-two months last past. The receipts from the Central and Southern roads, the only paying works for the last two years are as follows:

Central road.....	\$413,916 41
Southern do.....	123,056 13
Total.....	\$536,992 54

Of this sum there has been received and disbursed under the administration of the present board, within the last nineteen months, four hundred seventy-eight thousand, five hundred eleven dollars and eighty-four cents. Within the time last before mentioned, the stock of the Central and Southern railroads have been increased, two hundred four thousand eight hundred ninety-four dollars and eighty-two cents, to wit:

Central road.....	\$150,365 92
Southern do.....	54,528 90

This is over and above the amount paid for construction in internal improvement and land warrants, which are issued upon certificate of the acting commissioner, and for which amount we respectfully refer the legislature to the report of auditor general.

The present cost and value of the railroads, and furniture of the road and shops, including materials on hand, are as follows:

Central road, as per auditor's books..	\$1,837,046 29
Iron purchase of 1843, '44 and '45....	103,071 53
Furniture of road and shops, etc.....	114,467 27
	\$2,054,585 09
Add ten per cent. interest during construction.....	183,704 63
Total cost of road and furniture, etc..	2,238,289 72

Southern railroad proper.....	\$904,886 03
Tecumseh branch.....	22,000 00
Iron in 1843, '44 and '45..	37,087 84
Furniture, etc., as above..	71,128 18
	1,035,102 05
Interest as above.....	90,488 60 1,125,590 65

Total value of both roads.....\$3,363,880 37

In addition to the above sum, the invoice of sundries in the internal improvement office, and instruments, books, maps and furniture in the office of the chief engineer, to the amount of one thousand dollars, should be added.

The destruction of West Lowell bridge, which occurred on the 23d of August, resulted in the following damage and loss:

Total loss of flour.....	\$281 57
Damage to cars.....	825 00

The passenger cars made regular daily trips with but slight interruption, but very great delay and difficulty was experienced in forwarding freight. A large number of men were industriously employed for twenty-six days without interruption, and, until the breach was repaired. The bridges upon the Rouge and Huron have always been to the board a source of lively anxiety, and they have frequently been subjected to the close and careful examination of engineers and mechanics. No prudential measures for keeping them unquestionably safe had been spared, and the failure of the one in question, though disastrous to the character and revenue of the road, is undoubtedly to be classed among those providential occurrences which no human foresight could anticipate or avert. The present bridge is remarkably well planned and built, and the materials used were selected with great care. All the bridges over the streams before named have been thoroughly examined and strengthened, and no fears are entertained of any present danger. Nevertheless, the time is not very distant when they must all be rebuilt.

Since the date of our last annual communication, the car-house at Ann Arbor, with a large amount of private property has been destroyed by fire. This calamity was occasioned, it is supposed, by sparks from the engine finding their way through some crevice in the plastering to the under side of the roof. The original cost of car-house was about six thousand dollars, and the value of the fixtures connected therewith was, as nearly as can be ascertained, about one hundred dollars more. To supply the wants of that station a cheap water-house and wood shed are being built, at an expense of seven hundred and seventy-five dollars, which will answer all the indispensable demands of business for some time.

The increase of business on the line of the Central railroad has made it necessary to construct several new side tracks, especially in the immediate vicinity of mills, and very much to extend some others which were constructed when the road was built. The expenses of this work have been charged in the construction account and been paid for out of the receipts of the road.

The Tecumseh branch of the Southern road, which has been under contract for renewing the superstructure, has been comple-

ted, and the iron is now being laid. At the date of our last annual communication to the legislature, it was supposed that twelve thousand five hundred dollars would fit the road for the iron as far as the village of Tecumseh. This belief was founded upon the presumption that a long and expensive bridge over the valley of the river Raisin could be repaired and made safe for the passage of a train of cars for about seven hundred dollars.— Upon a closer examination, however, it was thought to be impracticable to repair it, and the board decided to erect another bridge, and in this way \$5,160 of the appropriation was absorbed, leaving a balance of \$7,340 which has all been expended upon five miles of the road. There is still due the contractors upon this part of the road in land warrants, the sum of \$1,577 49. Most of the road north of the bridge (four miles) has been renewed by the citizens of Tecumseh under the supervision of the engineer having charge of the road, and it is believed to be well done. The timely aid afforded by the patriotic citizens of Tecumseh has enabled the work to go on to completion at least twelve months sooner than it otherwise would. The amount of their expenditures is \$3,739 62. There is about one thousand dollars due for engineering, well-digging and putting in turn round at Tecumseh, which, added to above sums, exhibits a deficit for this work of seven thousand, two hundred and fifty-two dollars in land warrants. The parties to whom this amount is payable rely upon the justice of their claim in enlisting the early action of the legislature, and the board respectfully recommend a provision for its payment. Could this branch have been completed by the 10th of August, its receipts would have more than confirmed the favorable opinion we expressed in our last report. There have been manufactured and forwarded from the two mills at Tecumseh the past autumn, 26,133 barrels of flour. The number of bushels of wheat sent to Monroe and Adrian by teams is not definitely known, but the quantity is exceedingly large. To above add the flour made at Clinton, Manchester, Brooklyn, Jefferson and other points, whose natural outlet would be this road, besides the large amount of merchandize which would have been carried over this road to these flourishing villages. The destination of the flour of the Manchester mills for the last three years has been such that it has paid no revenue to the state. The owner says, "my flour for the last three years has all gone to Toledo, all of which would have gone to Tecumseh had the railroad been completed to that place." This branch will prove to be an important addition to the Southern road, and may always be relied upon for more than the interest upon its cost.

Application will be made to the legislature for an appropriation to repair and iron the Palmyra and Jacksonburg branch of the Southern railroad to the village of Clinton, 5 miles north of Tecumseh, its present termination. This road, when in the hands of the company, was completed and used upon wooden rails as far as Clinton, and of the seventy thousand dollars expended in its construction,

twenty-two thousand were contributed by the citizens of Clinton and vicinity. But this fact, though showing the deep interest felt by the citizens of that place in the completion of the work, and their faith in the profitability of the investment would constitute but a feeble argument in favor of now completing the road in connection with the Southern road, unless from authentic data it could be shown that the business that would be done upon it, would pay the interest of the amount now required to put it in operation.

An estimate was made by Mr. Hart, the engineer upon that branch of the Southern road, at the request, and in behalf of the citizens of Clinton, of the amount necessary to fit the five miles between Clinton and Tecumseh for iron. He reports 6,847 acres of land as heretofore appropriated, sufficient for that purpose. Should the legislature appropriate 8,000 acres of land, and ten thousand dollars for the purchase of iron and spike, it would give \$20,000 as the amount necessary to put the road in operation. Seven per cent interest upon this sum, would produce \$1,400. From statements furnished the board as obtained from the actual business done at the several mills, whose business would be done upon this road, if it were completed to Clinton, we select the following: The Atlas mills made and sent off 8,000 barrels of flour from last harvest up to Dec. 1st. The Manchester mills over 8,000, the Jefferson and Brooklyn mills 4,000 each, and the Novelty mill 3,000, within the same period. Had it not been for the low stage of water, 12,000 barrels at least would have been floured in the time mentioned in each of the mills at Clinton and Manchester, and a like increase at the other mills. Estimating this at one third of the year's business at the above mills, the Clinton and Manchester mills would furnish annually for transportation from Clinton, from 24,000 to 36,000 barrels, say 30,000 barrels each, and the other mills say 30,000. This estimate would give 90,000 barrels of flour yearly, which, at 3 cents a barrel for the five miles, would yield \$2,700, or at 2½ cents, would give \$2,250. The wheat that would probably be sent off in bulk, is estimated at 80,000 bushels, which at one cent a bushel, would give \$800 and estimating all the up freight at say \$1,000 it would make the gross receipts, without a cent for passengers, or for carrying the mail, about \$4,000. After deducting one-half for expenses, and \$600 for over estimate, we still have remaining the seven per cent. interest upon the appropriation asked for. From what cursory personal examination the board have been able to give to the proposed extension, they are satisfied of the correctness of the above data.

In the vain attempt to bring forward all the produce which has been brought to the Central railroad, since the late abundant harvest, 7 locomotive engines, and 96 cars and racks have been running night and day, for three months. The disaster at Lowell, no doubt occasioned some accumulation of flour and grain at the western stations early in Sept. Nevertheless, the character of the road, and

the limited number of our engines and cars must have prevented the prompt removal of freight, had there been no such impediment. The board are fully convinced, that a railroad through the central tier of counties to be used for freight, and the stock of which should be good to its owners, and achieve the object of its construction, must be built in the most substantial manner, and laid with a heavy T or H rail. The best of flat bar roads are of too slight a structure for a heavy freighting business, (such as must ever be done upon the Central road,) as they soon get out of repair and become so uneven, that trains passing rapidly over them, are liable to be, and often are, thrown off the track. The repairs of machinery and cars consequent upon a rough road, even where they are so fortunate as to keep the track, is at least four times greater than the like repairs of machinery and cars running upon the smooth and solid surface of a T rail.

The Lancaster and Harrisburgh railroad company report the annual expenditure for repairs, at 425 dollars per mile, upon the plate rail portion of their road, while the repairs upon that part laid with the T rail was only \$75 per mile. It may be proper to say that this statement which is believed to be correctly made, rests upon recollection, and is not made on reference to the printed report, none being at hand. The Reading railroad, which cost ten millions of dollars, is enabled to make money for the company, although the cars on their return trips are generally empty. The price of freight upon this road is lower than upon any other road in the United States. The cost of transporting coal, including repairs of engines and cars, for 94 miles upon this road, is less than forty cents per ton of 2,240 lbs., and the average load per engine is one hundred cars, laden with three hundred and eighty tons. The average cost of renewals and repairs of freight cars, as appears in the company's report of last year, is 5.9 cents per ton hauled. The average cost per ton on the Central railroad, including repairs of engines and cars, is 92 15-100 cents.

The expenses of the freight and passenger train, including repairs of road and wear and tear of machinery upon the Fitchburg railroad, as appears by the company's report of 1844, is 28 $\frac{1}{10}$ cents per mile, for every mile run by locomotives. It should be remarked that this road was entirely new, and that it was not in operation for the twelve months preceding the report, but a part of that time. Total number of miles run by locomotives, 55,324.

By subjecting the Central railroad to the same test for the fiscal year now closed, it gives the expense of running the road per mile, 61 $\frac{1}{10}$ cents; whole length of the line in operation some portions of the year, is one hundred and twenty-three miles, the number of miles and the period of time following:

Detroit to Ypsilanti	30 miles, since Feb., 1838.
Ypsilanti to Ann Arbor	10 " " Oct., 1839.
Ann Arbor to Dexter	10 " " July, 1840.
Dexter to Jackson	30 " " Jan., 1842.
Jackson to Marshall	30 " " Aug., 1844.
Marshall to Battle Creek	13 " " Nov., 1845.

Total 123 miles.

By making a just allowance for a greater dilapidation of the Central road, and of the machinery and cars, an account of there having been much longer in use than the before mentioned road, the legislature will readily discover how much greater is the expense of doing business upon a plate road, than upon a T or H railroad.

[To be continued.]

Boston, its Enlightened Mayor, and New England Railroads.

We find, in the Boston Courier, the address of the mayor, JOSIAH QUINCY, JR., on the organization of the new city government. It is a whole, just what might have been anticipated from a gentleman of his intelligence, enlarged views and honest old fashioned patriotism. It is concise—filling only a column and a half of the Courier—yet it touches upon all the important topics falling under the supervision of the city authorities, showing that he understands his position and duties, and also that he intends to discharge them with fidelity.

After referring, in detail, to matters requiring the attention of the councils, he speaks of Boston as it was a few years ago—as it now is, and of its future. His remarks are so full of truth, and instruction to those who are disposed to learn, that we give them a place in the Journal, in the hope that they may be in this city, like seed sown upon a fertile soil—like the grain of mustard seed putting up a "main stem," or trunk, from which branches put out in every direction and are soon loaded with seed, thus returning to the cultivator a thousand fold for his labor. So is it with Boston, from the construction of numerous railroads, and so will it be with New York when she pursues a similar wise policy. He says that:

"A few years ago, Boston had no facilities for communicating with the interior. And when the west and the north began to develop their vast resources, and become at once the consumers of our manufactures and the producers of our food, our easiest communication with them was through our sister cities.

"To them our manufactured articles went—to them, our merchants resorted—our city was shut out from the advantages of the fertilizing tide that was flowing between the old world and the new, and we were almost stationary, while other cities progressed. But the railroad has changed all this, and giving us a new facility for the transaction of our old business, has created and developed new and incalculable resources, and given perhaps a greater impulse to our city than to any other in the world. Five years ago, Boston had comparatively no back country. Now 900 miles of New England railroads centre here, and as many more within New England are in the process of construction. These render Boston emphatically her capital. And I know of no prouder position for a city, than to be the point that concentrates the energy

and wealth of such a body of industrious, intelligent and virtuous freemen—of Americans, natives of the soil, who promote her prosperity in peace, as readily as their fathers defended her in war.

"Considered in this light alone, the position of Boston is one of present power, with a certainty of rapid advancement. But her connections already stretch far beyond New England—she is on the high road between Europe and the west; and that vast country has become tributary to her increase. The car that leaves our city this morning, may deposit its merchandise in thirty six hours on the shores of lake Erie, five hundred miles from the place of its departure—from thence inland seas, navigable for vessels of the largest class, stretch away for hundreds of miles along shores fertile for agriculture, or rich in minerals.

"Canals already connect these lakes with the valley of the Mississippi, and with the navigable waters of her, and her tributaries, which, extending 20,000 miles, communicate with 40,000 miles of shores unrivalled in fertility.

"But more rapid modes of communication will this year be opened. The railroad from Cincinnati to Sandusky, built by the aid of citizens of Boston, will bring the Ohio within a journey of three days—enabling the traveler to reach Boston from Cincinnati in twelve hours less time than he can Baltimore, although the latter place is 300 miles the nearest.

"But these are but a small part of the railroads that are to increase the prosperity of Boston. There are already in process of construction, roads stretching towards Montreal, Burlington, Ogdensburg—roads branching from Albany will reach Kingston, and extend thence through Canada West—others running from Buffalo to Detroit on both sides of lake Erie, will ere long reach the upper sources of the Mississippi—and the child is now born who will see them terminate at the Pacific. The time may come when the expectation that led Columbus to seek a passage to India from Europe by proceeding west, will be realized, and the direct communication between those points may pass through the city of Boston.

"Such facilities of intercourse, joined to the character and wealth of our population, render the progress of the city a matter of certainty. Occupying the nearest point to Europe, and connected with the north, the west, and the south, by thousands of miles of internal communication, her increase will surpass the most sanguine anticipations of her friends.

"If such are the prospects of our city, how great is the responsibility of those who from time to time are invested with the power of improving and preparing it for the multitudes by whom it will one day be occupied! We regret that our fathers did not anticipate the progress, and lay out thoroughfares and squares that are even now called for by the necessities of the inhabitants. Let us remember that we are the fathers of the generations that will succeed, and that we have not the

apology of being ignorant of the probable destiny of our city.

"The effects of a wise and liberal policy will not be confined to our own limits. Boston "is a city set upon a hill." Go where you will throughout this continent, you will find natives of New England. And you will find them among the most active and influential members of their respective communities. These turn towards the capital of their native section, as to a place whose wealth, whose age, and the character of whose citizens entitle it to the honor, and impose on it the duty of setting an example to its younger sisters.

"Let us then, gentlemen, enter upon the several duties of our stations with the determination to advance the present and future interests of the city of Boston, by proposing to ourselves the highest standard in intellectual, moral and religious training, and by promoting everything that may tend to the physical convenience and comfort of the inhabitants. So shall we contribute to render it delightful for a temporary, and eligible for a permanent abode, and do our part in handing down the blessings we have received, to those who shall come after; and, whatever be the temporary popularity or unpopularity of our measures, have the consolation of having faithfully endeavored to promote the permanent good of the city, and feel in this consciousness a satisfaction, in comparison with which earthly applause is but as the dust of the balance."

The closing paragraph of this address should be printed in *letters of gold, on plates of brass*, and hung in the *private* apartment of every public officer in the land, as well as in the *council rooms, and legislative halls* of our country. Public officers, or individuals who are influenced by the motives and principles here recommended cannot be *very* dangerous citizens, nor wholly deficient in patriotism and love of country; nor entirely devoid of a kind regard for the poor, even though they are not always boasting of what they do not practice—of being mindful of the best interests of the dear people. Boston, under such councils, and with such men to watch its interests, cannot but be prosperous.

The Macon and Western Railroad.—The title to this road has at length been perfected, and the purchase money paid up in cash. The delay that has occurred in the consummation of the contract, has arisen from the very proper desire of all concerned to have such titles passed, that there may be no future contingencies to be provided for.

The new company has completed its organization by the election of directors and officers. The demand for the stock exceeds the supply, and at this time we know of several who are anxious to purchase stock, but are unable to obtain it.

The price of the shares has been fixed to effect these ends—payment of the purchase money, relaying and fully equipping the road with new engines, cars, etc., and realizing a reserved fund of \$150,000.

* * * We have all the best of reasons to congratulate ourselves upon the final consummation of this arrangement. The new proprietors of the road are gentlemen who keep their own counsels, and who sedulously abstain from taxing the credulity of the public by representations of what they are going to do; but this we can say, from their accredited

means and well known enterprize, more will be accomplished than any of us anticipate.

To our enterprising townsman, Mr. Jerry Cowles, all who are acquainted with the particulars of the negotiation are willing to award the credit of having commenced, and by his indomitable energy and perseverance with the co-operation of one or two more of our citizens, successfully consummated the sale of this road to these northern capitalists.

It has come to our knowledge, that the services of Mr. Cowles were requested as a director in the re-organization of the company, but he deferred to others from considerations which are properly appreciated.

We like to see these onward movements, and therefore give place to the foregoing from the Macon Messenger, of 8th January. Those who projected, and were mainly instrumental in carrying through, this movement, deserve the thanks not only of the people of Macon, and along the line of the old Monroe railroad, but also of Savannah, and all who desire to travel this route; and conspicuous among the number stands Mr. Jerry Cowles, of Macon; and we only regret that his name does not appear in the direction. It should be there.

Railroad Meeting.—The railroad meeting at the court house, on Saturday night, December 27th, says the Louisville democrat, was well attended, and the manifestations in favor of proceeding at once to complete the railroad to Lexington were strong and unanimous. After the meeting had been called to order by the chairman, Mr. Guthrie read the report of the committee appointed on Tuesday evening. It consisted of the form of a petition to the legislature, praying the passage of such a charter as will, 1st, authorize the old Lexington and Ohio railroad company to proceed in the work; 2d, provided this company does not within a given time accept of this charter, then that a new company may be formed for the same purpose; and, 3d, in case the state does not deem it expedient to part with that portion of the road now in operation between Frankfort and Lexington, that a company may be formed to construct the road from Frankfort to Louisville.

After the reading of the petition, Mr. W. J. Graves rose and spoke very warmly in favor of the measure; expressing his conviction, that the road would not only yield a large dividend, but be of immense importance to the business of Louisville.

The petition having been adopted; on motion of Mr. Shreve, it was referred back to the same committee, with instructions to have it printed and circulated for signatures; the said committee to report again to the meeting on Saturday evening next at the court house. The meeting then adjourned.

We are gratified to learn that the people of Kentucky are at length moving in this matter. They have delayed quite too long—they should therefore now move with the more spirit, and the greater energy. Nor should they stop with completing a railroad to Louisville. That short road between Louisville and Lexington should be only the first section in the several lines of railroad in Kentucky. Let the prominent men of the state turn their attention to such works rather than to politics. The former will benefit the people—the latter usually debases the individual.

Macon and Western Railroad Company, Georgia.—This company, the purchasers of the Monroe railroad and franchise, was yesterday organized under the amended charter, when the following named gentlemen were elected to manage its concerns: Daniel Tyler, president; J. G. Forbes, secretary. Directors—Theodore Dehon, of New York; Edward Whitehouse, do.; Rufus H. King, do.; David Henshaw, Massachusetts; A. Boody, do.; Ker Boyce, Charleston; Andrew Low, Jr. Savannah; Charles J. McDonald, Marietta; N. C. Monroe, Macon; Washington Poe, do.; Charles Day, do.

Philadelphia and Trenton Railroad.—We learn, says the United States Gazette of 19th inst., that at the last meeting of the directors of the Philadelphia and Trenton railroad company, it was resolved to relay the road from Bristol to Kensington with a widest

track, and with a heavier rail than is now used upon any road in the country.

We also understand that, desirous of sustaining American manufactures, the contract has been made for the rails with a rolling mill in the vicinity of the road, and that the necessary quantity will probably be furnished during the ensuing spring and summer.

When this road is thus completed, there will be no difficulty in travelling at the rate of thirty miles an hour with perfect safety, if required. The time of passage between the cities has been reduced of late to four hours.

This is as it should be. Let them also lay a double track from Trenton to New Brunswick, and then we may go to Philadelphia in four hours at the most, and not be obliged to back and fill along the canal, out of pure politeness to those whom we expect to meet.

The Iron Trade.—A new anthracite iron furnace, says the Baltimore American, owned by Peter Haldeman, Esq., was put in blast near Columbia, Pa., last week. It is calculated that 80 tons of iron will be turned out at these works each week. The engine of 60 horses power, was built by Mr. John Watchman, of this city, and is said by the Columbia Spy to be one of the best ever made in the United States.

An extensive mine of superior coal, supposed to be the cannel coal, has been discovered near Falling Rock creek, a branch of the Kanawha river, sixteen miles from Charleston, Va., and about one mile from navigation. The Cincinnati Atlas, speaking of the discovery of the vein, says: "It is well situated for distribution to all places below the mouth of the Kanawha, and if it proves to be extensive, and of the quality indicated, it will form a valuable addition to the fuel of the Ohio valley, and greatly contribute to the comforts of the Queen city."

Railroad Items.

The steamer Narragansett, with the mails, says the Tribune of Thursday, 23d, arrived yesterday morning at seven o'clock, from Stonington—the railroads have been freed from the ice which obstructed them on Saturday night.

This speaks well for the energetic management of the Boston and Providence and Stonington roads. We had seldom had a more severe storm in this vicinity and delays might be tolerated now if ever—and we are therefore the more gratified to find that the traveller is not now as formerly, before the birth of railroads, liable to be detained any great length of time even by the most severe falls of snow.

The Danville Railroad.—About fifty thousand dollars' worth of stock of the railroad from Danville to Shamokin, says the Ledger was subscribed at Danville during the three days on which the books were opened. It is stated that the different iron companies at the former place have agreed to furnish the iron for the road, the pay for which they will receive in toll. This being completed, there would be but about 28 miles of road to be made to connect the Pottsville road with the Susquehanna.

We like the spirit of the Danvillers. They will insure the construction of their road by thus leading in the important measure of subscribing for the stock—this will give confidence to others.

Utility of Railroads.—"They advertise Berkshire charcoal," says the Boston Courier, "on a large scale, with storehouses, agencies, etc. It is brought, as we suppose, by railroad, from the extremity of the state, from the rough mountains of Berkshire.

"This mode of sending the forests to market, will be profitable in many other places. The interior can thus convert into cash, what would otherwise be too heavy, with its great bulk, for distant transportation."

This is one only of the numerous important advantages to be derived by large cities, from railroads.—There scarcely an article of necessity to the poor as well as the rich, that will not be furnished of better quality and at cheaper rates than before railroads were introduced.

Philadelphia, Wilmington and Baltimore.—At an election held for directors in the Philadelphia, Wilmington and Baltimore railroad company, says the Ledger, the following named gentlemen were chosen: *Pennsylvania*—Edward C. Dale, M. Brooke Buckley, John A. Brown, A. J. Lewis, C. H. Fisher. *Delaware.*—James Rodgers, Geo. Bush, Mahlon Betts, Wm. R. Sellers, Merrill Canby. *Maryland.*—J. J. Cohen, Jr., Hugh McEldery, Thomas Kelso, Joseph Coudon, John C. Groome. And at a meeting of the board of directors, the following officers were unanimously elected: Edward C. Dale, president; J. J. Cohen, Jr., vice president; A. Campbell, secretary and treasurer.

LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture and for sale by

MORRIS TASKER & MORRIS, Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 111

THE SUBSCRIBERS, SOLE AGENTS

for the sale of Codorus, Glendon, Spring Mill, and Valley, Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L KIMBER, & CO., 59 North Wharves, Jan. 14, 1846. [1y4] Philadelphia, Pa.

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

KITE'S PATENT SAFETY BEAM.

MESSRS. EDITORS.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

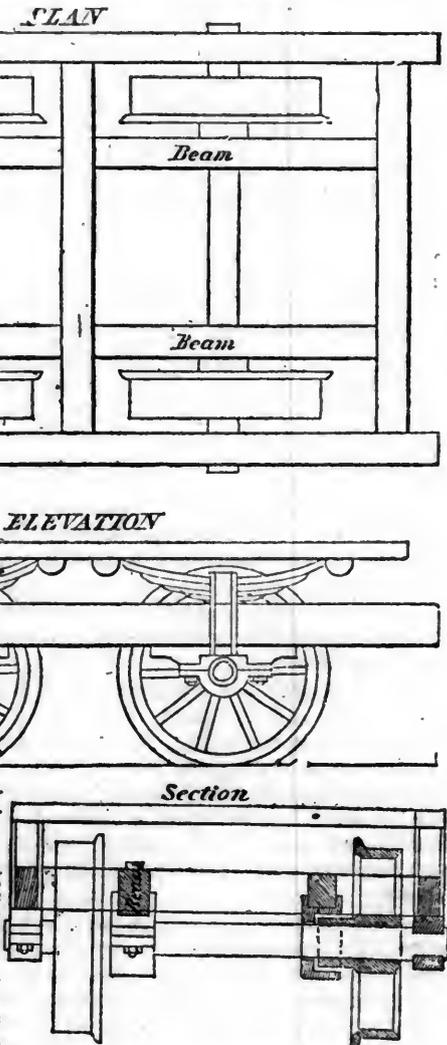
On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheeled passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.

Wilmington, Del., Sept. 28, 1840.

The undersigned takes pleasure in attesting to the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.

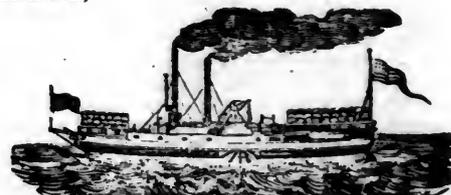
In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.

JOHN FRAZER, Agent, GEORGE CRAIG, Superintendent, A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 71 Hanover st., N. York.



AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

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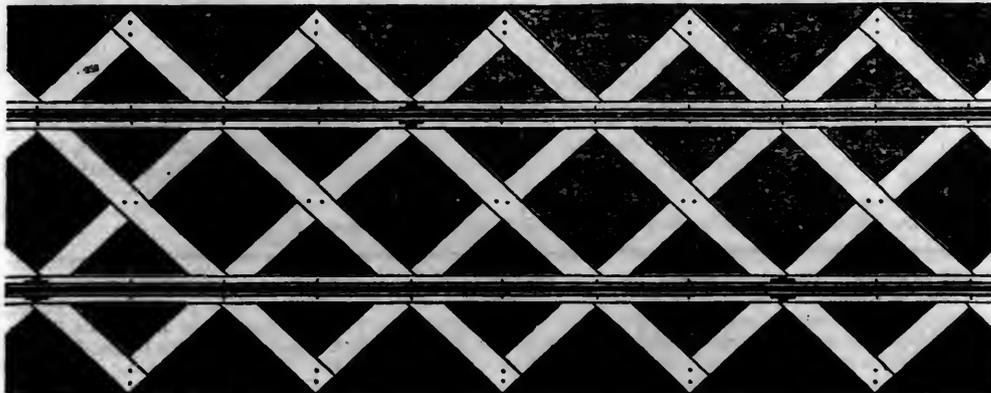
SECOND QUARTO SERIES, VOL. II., No. 6;

SATURDAY, FEBRUARY 7, 1846.

[WHOLE No. 502, VOL. XIX.]

W. R. CASEY, CIVIL ENGINEER, NO. 23 Chambers street, New York, will make surveys, estimates of cost and reports for railways, canals, roads, docks, wharves, dams and bridges of every description. He will also act as agent for the sale of machinery, and of patent rights for improvements to public works.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY Superstructure effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for *Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

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ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adr.)
S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adr.)
NORRIS, BROTHERS, Philadelphia Pa. (See Adr.)
KITE'S Patent Safety Beam. (See Adr.)
FRENCH & BAIRD, Philadelphia, Pa. (See Adr.)
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PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, *Agent.*

Albany Iron and Nail Works, Troy, N. Y.
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, *Agent.*

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, or to Messrs. Baldwin & Whitney, of this city, will be promptly executed.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the *Journal* of June, 1844.

ja45

BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

The article is complete in itself, occupies but little space, is perfectly portable, and requires no brick work, not even to stand upon. It is valuable not only in the saving of time and labor, but in the economy of fuel, as it has been ascertained by accurate measurement, that the saving in that article is fully two-thirds over other methods heretofore in use. They are now for the first time introduced into New York and Boston by the subscriber, who has the exclusive right for the New England states, New York and New Jersey, and are manufactured by

CURTIS & RANDALL, Boston; and by
FORCE, GREEN & CO. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern, and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All order punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

RAILROAD IRON AND LOCOMOTIVE
Tyres imported to order and constantly on hand
A. & G. RALSTON
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
ja45 President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS.
etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

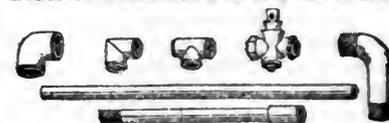
W. Mc. C. CUSHMAN, *Civil Engineer,*
Albany, N. Y.
Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T's, L's and other fixtures to suit, fitting together with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

RAILROAD IRON.—THE MARYLAND AND NEW YORK IRON AND Coal Company are now prepared to make contracts for Rails of all kinds. Address the Subscriber, at Jennon's Run, Allegheny County, Maryland.

WILLIAM YOUNG,
President.

TO IRON MASTERS.—FOR SALE.—MILL SITES in the immediate neighborhood of *Bituminous Coal and Iron Ore*, of the first quality, at Ralston, Lycoming Co., Pa. This is the nearest point to tide water where such coal and ore are found together, and the communication is complete with Philadelphia and Baltimore by canals and railways. The interest on the cost of water power and lot is all that will be required for many years the coal will not cost more than \$1 to \$1.25 at the mill sites, without any trouble on the part of the manufacturer; rich iron ore may be laid down still more cheaply at the works; and, taken together these sites offer remarkable advantages to practical manufacturers with small capital. For pamphlets, descriptive of the property, and further information, apply to Archibald McIntyre, Albany, to Archibald Robertson, Philadelphia, or to the undersigned, at No. 23 Chambers street, New York, where may be seen specimens of the coal and ore.

W. R. CASEY, *Civil Engineer,*

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 feet, with lathes, work benches, &c.

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 51x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

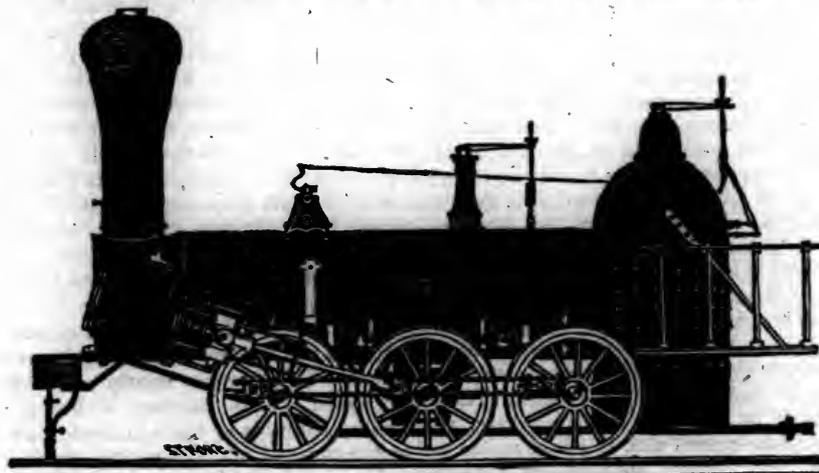
Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia.

CYRUS ALGER & CO., South Boston Iron Company.

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of Cylinder,	× 20 inches	Stroke.
" 2,	14	" " " "	× 24	" "
" 3,	14½	" " " "	× 20	" "
" 4,	12½	" " " "	× 20	" "
" 5,	11½	" " " "	× 20	" "
" 6,	10½	" " " "	× 18	" "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

the second rate 16½ cents. Making a difference to the farmers of Calhoun county, upon their late crop, at the highest price charged by the Western railroad, of \$46,165 86 cents and at the lowest rate, \$49,481 64 cents.— A like proportionate loss is suffered upon all the marketable productions of the interior, and to all the counties sending their surplus productions to market over the Central railroad. The whole crop of Calhoun county is deemed surplus only for the use of example. It would be desirable to know definitely the surplus quantity of wheat and other productions in the counties of Jackson, Calhoun and Kalamazoo, and exhibit the actual loss to the producers of those counties, consequent upon forwarding upon a plate, rather than a T railroad. That, however, cannot be ascertained, but the board entertain the belief that it is not less than \$125,000, and to all the counties doing business upon this road an amount larger than the interest upon the cost of both the Southern and Central roads. This statement is based upon the presumption that the business of the country can be done upon a plate railroad. The experience of the past year, however, dissipates entirely this idea. Although the most unwearied efforts have been made to clear the road, it has been impossible to do so. This circumstance at one time drove wheat out of the market, even for "goods," at least two of the most important wheat markets of the west, and even when it commanded cash, there was not as much spirit and competition among purchasers as could be desired. The only thing that can give stability and prominence to the wheat market of the central counties of this state is the early improvement of the railroad in the manner suggested. It may not be imperatively necessary to lay the T rail upon the whole line immediately, but the board do not hesitate to recommend the reconstruction of the road from Detroit to Dexter at the earliest possible moment, and the remaining portion in sections of thirty miles each, to be annually rebuilt until it shall have been thus constructed, at least as far west as Battle creek. Beyond that point a plate road might answer for a few years; and yet we doubt not, the true policy of the state demands a continuance of the construction of a T railroad to the mouth of the St. Joseph river, so soon as it shall be permitted by the internal improvement fund. In submitting these reflections to the legislature the board do not lose sight of the fact that the revenue from our public works is pledged by legal enactment to the payment of the interest accruing upon a portion of the public debt, and hence cannot be used in the reconstruction of the Central road. This consideration, however, does not deter them from suggesting improvements, which they deem infinitely desirable and which sooner or later must be made. The Central railroad of this state may not be inaptly compared to the Erie canal of the state of New York. It is and must forever be the great channel of business for the central tier of counties, and one of the indispensable and most important links in the great chain of communication between the Atlantic cities

and the valey of the Mississippi. It is confidently believed that in one or two years at farthest, a substantial railroad will be in successful operation on the northern shore of lake Erie, upon both of which freight will be transported at all seasons of the year, thereby immensely enhancing the passage and freighting business of the Central and Southern roads. To avail ourselves of this increase of foreign business, and to be fully prepared for the timely transportation of our annually increasing crops as well as the large importations of merchandize which must pass over the road, we again respectfully repeat that it must be entirely rebuilt.

In view of these facts, it remains with the legislature to adopt such measures as will secure to our citizens doing business upon our railroads, a cheap and certain market. By the provisions of the amended constitution, money cannot be borrowed by the legislature for any purpose, without the consent of the people; and it may be considered doubtful whether a majority of the whole people would consent to the passage of a law which should authorize a debt for the re-construction of the Central and Southern railroads, or either of them. There would then appear to be but one remedy, to wit: a speedy sale of our public works to a company, who would have the ability as it would be for their interest, immediately to renew a great portion of the superstructure and lay the T or H rail. By a judicious sale of our roads, providing for their early extension and securing our citizens against an extortionate monopoly, our citizens residing in their vicinity, or doing business upon them, would be greatly benefitted in the increased value of their property, and more than three millions of dollars of the public debt would be extinguished, leaving a small sum unpaid in comparison with the resources and enterprise of the people of Michigan. The board would therefore respectfully recommend the sale of our public works to the favorable consideration of the legislature.

The amount paid for killing and maiming animals upon the railroads is becoming enormously large. If animals are allowed to run upon our road tracks, very many must inevitably be killed; and when killed, and where no want of care on the part of the engineer can be proven, should not the loss fall entirely upon the owner of the property destroyed? If the owner is not debarred from collecting any portion of the loss, should he not, at least share in the risk, say to the amount of one-half the damage? These suggestions are thrown out in the belief that some change in the present mode of settling damages is imperiously required.

In our last annual communication, the board expressed their conviction that the gross receipts of the Central road in the year now closed, would not fall short of two hundred and seventy-five thousand dollars. This large increase was based upon the presumption that the exports of the state, particularly grain and flour, prior to another harvest, would be equal to the export of the corresponding months of the previous year. Such,

however, has not been the case, as fully appears, from the monthly statements which follow, to wit:

Wheat and flour.		Wheat and flour.	
Dec. 1843.	\$5,197 39	Dec. 1844.	\$1,869 87
Jan. 1844.	6,169 17	Jan. 1845.	994 23
Feb. " "	6,548 88	Feb. " "	1,121 87
Mar. " "	4,490 69	Mar. " "	1,406 06
April " "	6,051 82	April " "	1,893 75
May " "	7,066 76	May " "	1,387 79
June " "	6,203 82	June " "	157 26
July " "	2,743 52	July " "	184 93
Aug. " "	2,747 21	Aug. " "	2,497 80
\$47,219 26		\$11,513 56	

The deficiency upon these two items alone amounts to \$35,695 70, in the first nine months of the last fiscal year. In consequence of our light harvest, a wise and general check was also given to mercantile operations, and the revenue under this head, which had heretofore kept pace with the increase of our population, and had therefore been annually increasing in amount, had fallen off \$743 94, in the nine months above mentioned.

While the board regret the diminution of revenue from our public works, yet, under the state of facts as demonstrated in the foregoing table, we see not only a satisfactory explanation, but cause for congratulation, that our business men have so universally limited their business to the ability of the country to pay.

The following sums have been received for the transportation of the following articles and the sale of old iron, to wit:

Sundries.	In.	Out.	Total.	Total receipts.
Flour	124,540	....	124,540	bls. \$47,186 80
Whiskey	1,102	368½	1,470½	" 770 50
Pork	831½	40	871½	" 82 47
Salt	3	4,455	4,458	" 2,942 94
Beer	98	276½	374½	" 159 99
Cider	1	601½	602½	" 396 48
Fish	....	435	435	" 282 16
Wheat	91,480	....	91,480	" 11,874 10
Agricul.	883,586	2,236,568	3,210,154	lbs. 6,822 00
Mdz.	1,187,041	8,752,554	9,939,595	" 32,011 37
Ashes	920,609	28,194	948,803	" 2,088 07
Vehicles	14,572	213,409	227,981	" 764 21
Wool	189,015	1,805	190,820	" 394 26
Lumber	16,882	105,436	122,318	feet 242 14
Shingles	218	730½	948½	M 400 70
Wood	30	2½	32½	cords 41 39
Horses	7	1	8	" 37 12
Cows	1	....	1	" 4 00
Sheep	5	70	75	" 63 40
Hogs	8	4	12	" 11 67
Calves	....	2	2	" 2 00
				\$106,577 84
Passengers	24,105	27,030½	51,135½	89,128 03
U. S. mail	....	....	....	6,782 87
Sale of old iron	....	....	....	257 83
Received of J. H. Cleveland, Supt S.R.R.	....	....	....	8,391 78
Balance from last report	....	....	....	2,936 74
				\$214,075 09
Disbursements at stations	....	....	....	18,369 54
Do. for repairs and working road	....	....	....	23,611 84
Repairs machinery and cars	....	....	....	8,191 93
Freight and passenger train	....	....	....	33,097 86
Repairs of road	....	....	....	6,548 01
Pay of engineers	....	....	....	3,738 83
Oil account	....	....	....	10,560 08
Other disbursements,	....	....	....	6,759 32
State treasurer	....	....	....	29,401 71
Iron account C. R. R.	....	....	....	6,381 62
New locomotive, S. R. R.	....	....	....	316 90
Detroit warehouse	....	....	....	26,217 87
Building new cars	....	....	....	10,997 37
New locomotive, C. R. R.	....	....	....	1,807 46
Construction	....	....	....	1,074 75
Cash on hand	....	....	....	\$214,075 00

Statement showing the whole total of the receipts upon the Central railroad for the year ending November 30th 1845.

	Freight out.	In.	Passengers out.	In.	Whole total received.
1844-Dec...	1,880 83	2,588 83	1,728 12	1,725 96	8,621 43
1845-Jan...	950 04	1,507 27	1,637 41	1,766 83	6,412 83
" Feb...	855 02	1,638 82	1,604 74	1,736 49	7,308 47
" March...	944 70	1,963 10	1,823 39	2,121 20	6,977 81
" April...	1,965 77	2,976 16	2,940 81	3,135 95	11,607 15
" May...	4,289 68	2,445 32	2,986 21	3,602 34	15,624 55
" June...	3,443 45	764 16	5,445 73	4,666 55	15,381 71
" July...	4,512 53	972 21	4,276 17	4,276 17	14,655 79
" Aug...	2,117 21	2,785 69	4,167 30	4,134 83	14,081 93
" Sept...	4,658 02	8,019 40	7,230 25	5,731 04	25,638 71
" Oct...	7,920 33	323 65	7,340 74	5,683 70	44,439 12
" Nov...	5,871 13	18,661 50	4,152 99	3,178 45	31,997 07
	39,008 73	67,569 11	47,368 52	41,759 51	292,746 57
U. S. mail					6,782 87
Old iron					257 53
\$3,630 57 received in specie funds;					68,224 00 in par funds;
\$130,832 00 in scrip.					

The expenditures upon the Central railroad, as per certificate of the chief engineer.....\$77,636 91

Add to the above sum the amount paid engineers and appraisers, which has been charged against the appropriation, also amount allowed by the board of commissioners and auditors, etc..... 21,654 24

Total amount.....\$99,291 15

Southern railroad, chiefly upon the Tecumseh branch..... 13,985 35

Clinton and Kalamazoo canal..... 17,320 63

Improvement of St. Joseph river..... 5,733 28

" Flint river..... 4,029 68

" Grand, Maple and Kalamazoo rivers..... 811 13

Detroit and Grand river road..... 28 25

Northern railroad..... 300 00

Balance of appropriation upon some of the above works, unexpended as follows:

Central railroad.....\$6,222 17

Southern railroad, renewing Tecumseh branch..... 1,250 90

Improvement of St. Joseph river.....11,975 06

" Flint river..... 499 69

Southern Railroad.

The receipts for the year 1845, exhibits the small increase of \$2,395 11, over the receipts of the previous year. The officer in charge of this road sufficiently accounts, we apprehend, for the sum being no larger, as will fully appear on reference to his report to this office, and which is appended hereto.— He says, "by an examination, it appears that the receipts for the first eight months of the last fiscal year were not quite one-half what they were in the corresponding months of the previous year." This is owing to the fact that there was a great deficiency in the wheat crop, and a corresponding caution in the purchase of merchandise and other articles of traffic which ordinarily enters the country by the way of the railroads. In making an estimate of the amount likely to be realized from our public works for a given period of time, the principal contingency to take into the account, is that referring to our harvests. When they are abundant, our receipts will be large not only from the actual receipts of its transportation, but because a large crop gives an impulse to all commercial transactions. The board estimated the

receipts of the past year at one hundred thousand dollars, provided the Tecumseh branch was completed before the commencement of the fall business. The branch is still unfinished. Had it have been completed, it would have swollen the aggregate of receipts considerably, although not sufficiently large to have fulfilled our predictions of last year.

On the 22d of October, the iron safe in the office of the superintendent at Monroe was opened, and \$1,540 75 was abstracted therefrom. Soon after the occurrence, two members of the board repaired to Monroe, and made such an examination into this matter as appeared to them necessary. They ascertained that on the night of the robbery, Mr. Murphy left the office at a late hour at night and returned to it again between 3 and 4 o'clock in the morning; and in the interim the office was entered and the safe opened, and that together with a table drawer, rifled of their money contents. The key of the safe was usually kept in the back part of a table drawer, and it is alleged by Mr. Murphy, that upon the morning of the robbery, it had not been removed from the "peculiar position" in which he kept it. What would seem to confirm this opinion, is the fact that some violence was used in opening the safe, and yet a part of the business must have been done with a key, either the true or a false one.

As the integrity and faithfulness of Mr. Murphy is beyond all question, we did not think his removal called for, and he is therefore retained.

Diligent scrutiny is being made in certain quarters for the lost money, and some hope is entertained that the thief, at any rate, will be discovered.

The highest speed attainable upon railroads, consistent with safety, is the minimum of modern expectation and requirement. Forty miles an hour, and even faster, is performed on the T rail with the passenger train, and one-half that rate with a train of loaded cars. When we run twenty miles an hour with passengers, and ten miles an hour with freight, we are doing all that can be done with prudence. Sometimes we do more, especially with freight trains; but nothing can justify it. By way of palliation we say that our motive power bears no proportion to the length of the road and the amount of business done upon it. To exhibit our deficiency in this respect by comparison, we give the following statement:

Railroads.	Miles long.	Locomotives.
Utica and Schenectady.....	78.....	12
Syracuse and Utica.....	53.....	9
Auburn and Syracuse.....	26.....	3
Anburn and Rochester.....	78.....	10
Tonawanda.....	43.....	5
Michigan, Central.....	110.....	7
Southern.....	68.....	4

The whole number of miles run on the Central railroad the past year is 138,598.

The engine which has exceeded all others is the Dexter, F. Gauriet engineer, exceeding the highest number attained in the previous year, 1,692 miles. Whole number of miles run by this engine is 27,282. We take great pleasure in bearing testimony to the neatness and general good order of the ma-

chinery in the hands of the engineers upon the Central road.

The warehouses and mills at Marshall, the western terminus of the Central railroad were emptied some weeks sooner than other portions of the line, in consequence of the great number of cars engaged in the transportation of merchandise and other freight destined for the counties west, and north and south of that place. During the latter part of October and the most of November, the large quantity of iron hauled to Marshall for the extension of the road, also gave to that point additional facilities for the transportation of such kinds of freight as should be properly loaded upon racks.

This explanation is given in exculpation of the board and its agents, whose motives and conduct have not in all cases been duly appreciated, and in some instances have been, as we apprehend, wilfully misrepresented. We respectfully refer the legislature to the reports of Joseph H. Cleveland, Esq., superintendent of the Southern road, Col. John M. Berrien, chief engineer, and D. Shook, Esq., superintendent Clinton and Kalamazoo canal, for more ample information in reference to the works more immediately under their control.

All which is respectfully submitted.
O. C. Comstock, Jr., Robert P. Eldredge, George Redfield, Commissioners of Internal Improvement.

REPORT OF SUPERINTENDENT OF THE SOUTHERN RAILROAD.

To the honorable the Board of Internal Improvement: The undersigned has the honor to report, that the receipts on the Southern railroad for the year ending November 29, 1845, were as follows:

	1845.	1844.	Correspond. months last year.
Dec'ber, 1844, ..	\$1,462 99	Dec'ber, 1843, ..	\$4,580 59
Jan'y, .. 1845, ..	1,267 72	Jan'y, .. 1844, ..	4,182 49
Feb'y, .. " ..	998 69	Feb'y, .. " ..	3,337 09
March, .. " ..	1,267 80	March, .. " ..	2,631 32
April, .. " ..	2,051 94	April, .. " ..	4,748 33
May, .. " ..	3,221 18	May, .. " ..	8,332 92
June, .. " ..	2,135 33	June, .. " ..	4,296 62
July, .. " ..	2,615 35	July, .. " ..	4,247 23
August, .. " ..	8,417 90	August, .. " ..	4,289 16
Sept'ber, .. " ..	12,654 71	Sept'ber, .. " ..	7,590 10
October, .. " ..	13,333 91	October, .. " ..	7,330 84
Nov'ber, .. " ..	10,354 12	Nov'ber, .. " ..	4,766 80
			\$60,340 51

Carrying U. S. mail,	2,907 36
Rent of rooms at Hillsdale,	36 00
Old stoves sold,	6 00
Broken barrels flour, damag'd by cars, sold,	4 62
	\$62,735 62

The following are the expenditures for this year:

Repairs of road,	\$21,915 34
Building and repairing cars,	12,021 34
<i>Running expenses, viz.</i>	
Pay of engineers,	3,859 00
Wood,	2,198 13
Oil,	1,454 54
Depot, station, and sundry other payments, etc.,	21,020 22
Cash on hand,	267 65
	\$62,735 62

It will be seen that the increase of receipts over last year is small, and for the purpose of exhibiting the cause, I have included a statement of the receipts of the corresponding

months for the fiscal year ending Nov. 30, 1844. By an examination it appears that the receipts for the first eight months of this year were not quite half what they were for the corresponding months in the year previous.

An explanation from me will hardly be needed upon this point, as all who are familiar with our business know, that in the early part of the fiscal year of 1844, we were engaged in carrying off the crop of 1843, while in 1845 we had no old crop on hand to aid us, and the unexampled one of the present year has produced the greater amount of this year's receipts, and will continue to furnish the road with an abundant business up to, and perhaps including, the month of June next. With this prospect before us, we may confidently look for a very large increase of receipts and of net proceeds the ensuing year.

It is gratifying to be able to state, that the road is, and has been during the past season, in an excellent state of repair, enabling us to run it with great regularity, and without serious accident or inconvenience.

There is a great lack of motive power on this road, and my own experience proves that it is poor economy to be in this condition, and especially in future, when the advantages for obtaining motive power have so much improved. Upon this road, three engines only have been in use the past year, the fourth one having recently been put in operation. The road needs now at least four new locomotives, two of which should be placed on the road early in the spring, and two as early as July next; and then this amount of motive power would be by no means sufficient for the business offered in the months of September and October, but would, no doubt, be all that it would be found profitable to add in one year. An increase of motive power would be good economy without an increase of business, as having more, we should be able to pass over the road at a less rapid rate, at a greater saving to machinery, cars, and road, thereby greatly lessening the expenses in rebuilding and making repairs. I am aware that it will not be good policy to augment the facilities to such an extent as to do all the down freighting in three months, and remain nearly idle the balance of the year; but sufficient should be had to do all that is done, because if it goes by some other mode, it is forever lost to the state, and inasmuch as the state has engaged in the carrying trade for the country or vicinity through which this road passes, it seems to me they should be prepared to do all that *must* and *does* go forward. I am well aware that considerations of a pecuniary nature have heretofore prevented the purchase of the motive power needed, but I trust that *crisis* has passed, and especially in reference to this road, and believe that no difficulty exists in the way of making the requisite purchases, and that the additional net proceeds of the ensuing year would more than pay for the purchases recommended.

The addition to this road of the Palmyra and Jacksonburgh railroad, and the probability of its farther extension to Clinton at an early day, will bring a large increase of bu-

siness to this road, and hence the necessity of increasing the motive power and cars to meet the demand.

The net proceeds of this year are as follows:

Paid on construction S. R. R.,	\$275 84
Do. do. on Tecumseh branch,	
on account of freight, &c., on iron,	1,292 11
Paid to sinking fund,	1,130 94
Cash paid O. C. Comstock, jr., act. com'r.,	8,391 78
Paid on old claims,	700 00
12 new covered fl. cars (6 old ones razed),	3,300 00
2 new double racks built (1 old one razed),	600 00
Rebuilding locomotive,	1,500 00
Cash on hand,	267 05
	<hr/>
	\$17,447 72

I have also to inform you, that on the 22d of October last, the office at Monroe, in charge of S. Murphy, Esq., collector, was robbed of money belonging to the state, to the amount of \$1,540 75, of which no trace has been to this date obtained.

All of which is respectfully submitted.
J. H. CLEVELAND, *Sup't.*

Improvements in Blasting.—The Baron de Liebhaver, of Paris, has obtained a patent for improvement in the formation of the hole for the charge of powder in blasting rocks. Instead of the hole being perfectly cylindrical, as usual, he enlarges the lower part so as to form a chamber twice the diameter of the hole itself, by dissolving the stone with muriatic acid. To effect this, he bores a hole to the required depth; a tube is then inserted, and sealed round at its lower end, to prevent the froth, or vapors, from passing up between the outside of the tube and the hole, and thereby corroding its sides. Within this tube there is a smaller one, through which the acid passes into the hole, and the froth and vapors from the enlarging chamber up the annular space between the two tubes. The inner tube is bent up at bottom, to prevent the froth going up through it; when the hole is sufficiently large, the contents of the hole are removed, and being well washed out, and dried with tow, it is ready for the powder, which is discharged in the ordinary manner. It will be found necessary, in some cases, to use other acids, instead of muriatic, according to the nature of the rock.

Atmospheric Railways.—On Monday last, Mr. Henry Cowper Marshall, Mr. Newman Cash, and Mr. C. G. Maclea, being a deputation from the Leeds and Thirsk railway company, accompanied by Mr. John Gott and Mr. James Marshall, two of the directors of the Leeds and Dewsbury railway company, and by Mr. Bott, their secretary, as well as by Mr. M'Candlish, the assistant engineer, and Mr. Fenton, the secretary, and Mr. Ed- dison, the solicitor of the Leeds and Thirsk company, visited the Croydon railway, near London, to ascertain how far the atmospheric principle might be beneficially applied to other railways. On their arrival they were met by Mr. Wm. Cubitt, the engineer in chief of that railway, and Mr. Joseph Samuda, the patentee, and Mr. Benj. Cubitt, the resident engineer, from whom they received a considerable amount of information as to the atmospheric principle, and the working

details. Without entering into the particulars, the deputation, on their return, reported that they felt satisfied of the superiority of the atmospheric over the locomotive principle, both as regards speed, safety, and comfort; but that they require further time for inquiry before they can give a positive opinion as to which of the two is the most economical, combining the construction of the road with the expense of working after the railway is completed.—*Leeds. Mer.*

The Iron Bridge on the Norfolk Line.—The opening of the iron bridge over the Wensum, near Norwich, which was inspected by General Pasley, the government inspector, took place on Monday. The bridge connects the Norfolk line with the Norwich and Yarmouth. Its weight, including the piles, which are of iron also, head plates, etc., exceeds 323 tons. It is a swing bridge, so as to admit vessels navigating the river. The turning is effected by a windlass, and the arrangement is so simple as to afford a single person full power to work it. The centre forms sixteen arches of thirty-three feet in length, and on each side are the standards, forming piers, surmounted by gas lamps, showing red and green glasses, according to the state of the tide. The bridge is the manufacture of Messrs. Grissell and Peto, the contractors.—*London Mining Journal.*

Another Railroad Sold.—The Raleigh and Gaston railroad was sold by auction, at Raleigh, N. C. on the 19th ult. Governor Graham bid \$363,000, the amount due the state under the mortgage, and it was knocked down to him. Thus the state for \$363,000 obtains a road that cost \$1,500,000. It will no doubt prove a highly profitable investment.

Niagara Ship Canal.—In the house of representatives on the 10th ult., Mr. W. Hunt, of New York, moved the following resolution:

Resolved, That the committee on commerce be directed to inquire into the expediency of making an appropriation for the purpose of connecting lakes Ontario and Erie by means of a ship canal around the falls of Niagara, on one of the routes surveyed by Capt. Williams, under the authority of congress in 1835.—*Oswego Palladium.*

Election of Directors—Reading Railroad.—At the annual meeting of the stockholders of the Reading railroad company, on Monday last, John Tucker was elected president, and Samuel Norris, C. H. Fisher, John Towne, Wm. R. Legee, M. S. Richards and C. Loeser, managers.

Western Railroad.—The prospect of increasing business on this road, for the next year is so large that orders have been given for the construction of engines and cars to the amount of \$70,000.

A Railroad at Public Vendue.—The Somerville and Elizabethtown railroad, with all its property and privileges, is advertised, we understand, to be sold at public vendue, on the 22 of March, by Isaac H. Williamson, a master in chancery. This is in pursuance of a foreclosure of the mortgages which were upon the road.

Debt of Pennsylvania.—According to the message of gov. Shunk, "the public debt of Pennsylvania was on the 1st inst. including the funded debt, relief notes, interest certificates outstanding, and the amount due domestic creditors was \$40,986,393 22. The aggregate amount received into the treasury for the year ending 30th of Nov. '45, together with the amount in the treasury on the 1st of Dec. '44, was \$3,673,914 22. The payments from the treasury for the same period were \$3,269,028 13, leaving a balance in the treasury on the 1st December '45 of \$384,866 09."

AMERICAN RAILROADS.

NAMES OF RAILROADS.	Length in miles.	Cost.	Loans and debts.	Number of shares.	Paid on share.	1843. Income.		Div. per cent.	1844. Income.		Div. per cent.	1845. Income.		Div. per cent.
						Gross.	Nett.		Gross.	Nett.		Gross.	Nett.	
Maine. 1 Portland, Saco and Portsmouth.....	50	1,200,000				89,997	47,166	7	131,404	62,172	6			
N. Ham. 2 Concord.....	35	750,000									12			
Mass. 3 Boston and Maine.....	56	1,485,461				178,745	68,499	6	233,101	86,401	6½			
4 Boston and Maine extension.....	17½	455,703	unfin.											
5 Boston and Lowell.....	26	1,863,746				277,315	144,000	8	316,909	147,615	8			
6 Boston and Providence.....	41	1,886,135	none.	18,600	100	233,388	110,823	6	282,701	156,109	6			
7 Boston and Worcester.....	44	2,914,078				404,141	162,000	6	428,437	195,163	7½			
8 Berkshire.....	21	250,000	not stated				17,500		7	17,737				
9 Charlestown branch.....		280,260						13	34,654	13,971	5½			
10 Eastern.....	54	2,388,631				279,563	140,595	6	337,238	227,920	8			
11 Fitchburg.....	50	1,150,000	just op'n'd						42,759	26,835				
12 Nashua and Lowell.....	14½	380,000				81,079		8	94,588	34,941	10			
13 New Bedford and Taunton.....	20	430,962				50,671	24,000	6	64,998	24,000	6			
14 Northampton and Springfield.....		172,883	unfin.											
15 Norwich and Worcester.....	66	2,290,000	900,000	16,535	100	162,336	24,871		230,674	99,464	3			
16 Old Colony.....		87,820	unfin.											
17 Stoughton branch.....	4	63,075	unfin.											
18 Taunton branch.....	11	250,000						8	96,687	20,000	8			
19 Vermont and Massachusetts.....														
20 West Stockbridge.....	3	41,516	200		100						4			
21 Western, (117 miles in Mass.,).....	156	7,686,202	4,686,202	30,000		573,882	284,432		753,753	430,679	3			
22 Worcester branch to Milbury.....	3½	42,000												
23 Housatonic, (10 months,).....	74	1,244,123							150,000					
Conn. 24 Hartford and New Haven.....	38	1,100,000	100,000	10,000	100						6			
25 Hartford and Springfield.....	25½	600,000	400,000	2,000	100									
26 Stonington, (year ending 1st Sept.,).....	48	2,600,000	650,000	13,000	100	113,889			154,724	79,845				
N. York. 27 Attica and Buffalo.....	31	336,211				45,896	7,522		73,248	48,033				
28 Auburn and Rochester.....	78	1,796,342	200,000	14,000	100	189,693	112,000		237,667	152,007	6			
29 Auburn and Syracuse.....	26	766,657			133½	86,291	27,334		96,738	52,544	6			
30 Buffalo and Niagara.....	22	200,000		1,500										
31 Erie, (446 miles,).....		5,000,000												
32 Erie, opened.....	53						48,000		126,020	59,075				
33 Harlem.....	26	2,250,000	750,000	30,000					140,685	62,399				
34 Hudson and Berkshire.....	31	575,613			50				35,029	1,789				
35 Long Island.....	96	1,610,221	392,340	29,846					153,456	58,996				
36 Mohawk and Hudson.....	17	1,317,893	400,000	10,000	100	69,948	58,780		79,804	45,763				
37 Saratoga and Schenectady.....	22	303,658				42,242	3,000	1	34,666	8,455				
38 Schenectady and Troy.....	20½	640,800				28,043			32,646	6,365				
39 Syracuse and Utica.....	53	1,115,897	none.	16,000	62½	163,701	72,000		192,061	120,992	8			
40 Tonawanda.....	43	727,332				76,227			114,177	75,865	5			
41 Troy and Greenbush.....	6	180,000												
42 Troy and Saratoga.....	25	475,801				44,325	21,000		38,502	9,971	2½			
43 Utica and Schenectady.....	78	2,168,165	none.	20,000	100	277,164	180,000	9	331,932	199,094	8			
N. Jersey 44 Camden and Amboy.....	61	3,200,000				682,832	383,880		784,191	404,956				
45 Elizabethtown and Somerville.....	26	500,000												
46 New Jersey.....	34	2,000,000												
47 Paterson.....	16	500,000									6			
Penn. 48 Beaver Meadow.....	26	1,000,000												
49 Cumberland Valley.....	46	1,250,000												
50 Harrisburg and Lancaster.....	36	860,000	645,929									77,538	9,988	
51 Hazleton branch.....	10	120,000												
52 Little Schuylkill.....	29	900,000												
53 Blossburg and Corning.....	40	600,000												
54 Mauch Chunk.....	9	100,000												
55 Buck Mountain.....	4	72,000												
56 Minehill and Schuylkill Haven.....	19½	396,117	25,000	7,019	50			12			12			
57 Norristown.....	20	800,000												
58 Philadelphia and Trenton.....	30	400,000												
59 Pottsville and Danville.....	29½	1,500,000												
60 Reading.....	94	9,457,570	7,447,570	40,200	50				597,613	343,511				
61 Schuylkill valley.....	10	1,000,000												
62 Williamsport and Elmira.....	25	400,000				20,000								
63 Philadelphia and Baltimore.....	93	1,400,000				43,043	200,000			210,000				
Delaw're 64 Frenchtown.....	16	600,000												
Mary'ld 65 Baltimore and Ohio, (1st Oct.).....	188	7,742,410	1,153,709			575,235	279,402		658,620	346,946		738,603	374,762	3
66 Baltimore and Washington.....	38	1,800,000				177,227	71,691		212,129	104,529		208,813	95,094	6
67 Baltimore and Susquehanna.....	58	3,000,000												
68 Wrightsville, York and Gettysburg.....	12½	500,000												
Virginia 69 Greensville and Roanoke.....	18	284,433	37,544	2,000	100				25,368	6,074	3			
70 Petersburg.....	63	969,880	63,000	7,690	100				122,871	72,898	6			
71 Portsmouth and Roanoke.....	78½	1,454,171												
72 Richmond, Fredericksb'g and Potomac.....	76	800,000												
73 Richmond and Petersburg.....	22½	700,000							185,243	85,688				
74 Winchester and Potomac.....	32	500,000												
N. Car. 75 Raleigh and Gaston.....	84½	1,360,000												
76 Wilmington and Raleigh.....	161	1,800,000									5			
S. Car. 77 South Carolina.....	136													
78 Columbia.....	66	5,671,452		34,410	75									
Georgia 79 Central.....	190½	2,581,723	400,000	20,510	100	201,464	77,456		532,871	140,196				
80 Georgia.....	147½	2,650,000				227,532	93,190		328,425	180,704				
81 Montgomery and West Point.....	89	500,000	170,000		100	248,026	158,207		248,096	147,523				
Kent'ky 82 Lexington and Ohio.....	40	450,000							35,000	15,000				
Ohio 83 Little Miami.....	40	400,000												
84 Mad river.....	40	152,000										24,984	3,280	
Indiana 85 Madison and Indianapolis.....	56	212,000	50,000			22,110	8,639	8	39,031	10,065	9½			
Canada 86 Champlain and St. Lawrence.....	15						12,000		58,000	24,000				

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.

Saturday, February 7, 1846.

Providence and Worcester Railroad.

We had for a time last summer some doubt as to the immediate progress of this work. There appeared to be some delay in obtaining a subscription of the million of dollars required. That delay did not, however, long continue, as we learn, from a source to be relied on, that the "railroad is now located, and will very soon be under contract; and that a contract has been made for the rails with a company in Providence; they are to be of the T pattern—weighing 57lbs. per yard; contract price, \$77.50 per ton. The length of the road will be 43 miles; and probably cost about \$1,100,000. The contractors are to have all 1846 or rather until April 1, 1847, to complete the grading; and it is expected the road will be in operation in the summer of 1847."

Railroad Map.

We have to acknowledge the receipt from B. H. Latrobe, Esq., of a map showing the several routes examined with a view to the extension of the route of the Baltimore and Ohio railroad through north-western Virginia, to the Ohio river, as well as the different railways and canals completed and projected within that state. Showing also the various lines of improvement existing and proposed between Cincinnati on the Ohio, and Richmond, Baltimore, Philadelphia, New York and Boston on the Atlantic. The Baltimore and Ohio railroad company have done good service to the cause, in this, as in numerous other ways. It shows conclusively, we think, that Parkersburgh is the place where their road ought to terminate, and we have no hesitation in saying that Virginia will do injustice to her own citizens as well as to the citizens of other states if she persists in her refusal of the right of way.

We should like exceedingly to have a thousand copies of this map to send to the readers of the Journal.

Worcester and Western Railroads.

In a recent number, we referred to the controversy between these two companies and requested those in the management to send us a copy of such documents as would enable us to understand the whole subject. We have now to acknowledge the receipt from a friend of a copy of the "report of the proceedings of a committee of stockholders of the Western railroad corporation," on this subject, but nothing

from the Worcester company. Will they please oblige us?

Hudson River, or N. York and Albany R. R.

We referred in our last to the report of Mr. Jarvis, in relation to the proposed railroad from New York to Albany, along the river; we then intended to commence its publication in this number of the Journal, but other matters previously in hand required so much space to complete them, that the report is deferred until next week, when we shall give the first part of it.

Anthracite Furnaces in Pennsylvania.

The following list of furnaces in Pennsylvania, using anthracite coal, has been furnished us for publication by an intelligent dealer in iron. The object is to show what is doing in the manufacture of iron now in this country, and what we have to rely upon for our supplies during the next three or four years; we shall be under still greater obligation to him for a similar one of the charcoal furnaces and the rolling mills in the state, as we desire to show those interested in the construction of new railroads, that we shall soon be able to meet the demand for iron for all our own purposes, especially for railroads.

Names of Furnaces	Proprietors.	Ft. bos.	Yds per wk.
1 Lackawanna	Scranton & co.	10	30
2 Fishing creek	Iron Dale company . . .	14	150
1 Roaring creek	S. R. Wood	9	35
1 Danville	Groves	9	35
1 "	Montour iron com'py	7 1/2	30
2 "	" "	12	130
1 "	" "	15	80
1 Red Pt. 3 m. below	Samuel R. Wood	14	75
1 Shamokin	Bryant & Wood	10	45
1 Harrisburg	David R. Porter	11	55
1 Mount Joy	W. Stewart & co.	8	30
3 Columbia	Proprietors unknown . .	8	30
1 York	" "	10	40
1 St. Clair	Burd Patterson	14	75
1 Pottsville	G. G. Palmer	9 1/2	35
1 Valley 6 m. above	Pomroy & Harbeson . . .	8	30
1 Reading	Eckert & Broth	14	75
1 Phoenixville	Reeves, Buck & co. . . .	9	35
2 "	" "	12	130
1 Conshohocken	S. Colwell & co.	10	40
1 Spring Mills	Kunzi & Farr	10	40
1 1/2 mile below S.M.	Livingston & Lyman . . .	13	60
1 South Easton	Goodell & co.	9	35
1 " "	" "	11	50
1 Glendon 1 1/2 m. ab.	C. Jackson, Jr.	10	60
1 " "	" "	12	75
1 Cranesville	Lehigh Crane iron co. . .	14	85
1 " "	" "	12	65
1 " "	" "	18	100

* In blast. † Nearly completed. ‡ Preparing to blow in. § Now erecting.

We find the annexed paragraph in a western paper, which we republish with the view of eliciting accurate information on the subject; and we shall be greatly obliged to any gentleman who may read these remarks, for any information he may furnish which will enable us to give an accurate list of all the furnaces, rolling mills, and other iron works in the state—and, indeed, in every state in the union.

"Iron and Coal Convention.—A large meeting of iron masters and proprietors of coal mines in Pennsylvania, was held in Philadelphia on Thursday morning, at the board of trade room at the Merchants' Exchange, for the purpose of taking into consideration the condition and prospects of these great staples of Pennsylvania, in connection with the all-engrossing subject of the tariff of 1842. A report from a committee appointed at a previous meeting, containing much statistical information, was received and referred to a committee, with instructions to report at an adjourned meeting, to take place yesterday morning. The number of charcoal furnaces reported in the state, was 183—together with 20 anthracite, and 85 charcoal furnaces estimated."

Railroad Iron.

We take the liberty of publishing the following extract from a letter, not designed for publication, written by a gentleman of great experience in railroad matters, having been connected for many years with some of the best railroads in the country, and therefore his opinions are entitled to much consideration. He says:—

"It is clear to my mind that all our rails for this country must be made in it. At the present rates of English rails; with our present tariff they may be produced here about 20 per cent. less than the importation price. And such is the demand in Europe, there is no probability of a reduction of the cost, unless the duty here is removed, and it is very doubtful whether that would reduce the cost much. But if it remains fully protected, competition at home will, I think, reduce the cost to \$70. Put an end to all uncertainty as to the continuance of the present duty for the next ten years, and capital enough would forthwith go into the manufacture to produce an ample supply in less than two years."

Kyanizing Timber.

The following extract from a letter dated "Baltimore, January 28th, 1846," is in reply to the inquiries made by us in the Journal of Oct. 30, '45, and is very satisfactory as far as it goes—but we shall be greatly obliged to Mr. Trimble for a definite statement in relation to the quantity of mercury used, and the length of time that the timber was immersed. The fact stated by "L. W.," in relation to the timber having been prepared while green, is an important one, and leads us to make the further request of those who have made the experiments, to state whether it was upon green, dry, or partially seasoned timber. We desire to investigate this subject thoroughly, as it is one of great importance. The writer says:

"In one of your numbers published in November last, I observed that you ask for information of any successful attempts to Kyanize timber. The instance which I relate may have been already communicated; but not having seen an account, I take pleasure in making it known. In the summer and autumn of 1838, about 300 cross-ties of chestnut and oak, 6 x 9, were Kyanized for the Baltimore and Susquehanna railroad, under the direction of I. R. Trimble, Esq., the engineer of the work. The exact proportions of submuriate and water used, I am not able to state precisely, nor the cost, but presume Mr. Trimble might very nearly; but of the lasting qualities of the cured timber there is no longer room for doubt, as not one of those ties up to this period, have shown the least symptom of decay. I was shown a stick of that timber some 18 months since, which was in every respect perfectly sound, with the advantage of having improved in stiffness and weight under the process. It may be necessary to remark that this timber, when exposed to the curing process, was perfectly green, to which might be ascribed the success of the experiment. I observe that attempts have been made, I know not how successfully, to force the fluid into the pores of the wood. This must be expensive, and a prolonged operation for a large amount of timber, that would be rendered unnecessary, I would suppose, if the timber, say 6 x 8 inches was exposed to the fluid in a green state.

"The failures in several attempts to cure timber by this process, might be accounted for, by bearing in mind one single fact, viz: that when timber is entirely or partially seasoned, the albumen of the sap is not in a fluid state, and certain elements of the sap may have changed or escaped from the wood; and

hence the impossibility of, or the tardy yielding to, the chemical affinity between the albumen and mercury. With the hope that your inquiries may lead to satisfactory conclusions in regard to this important subject, I remain your ob't serv't,
L. M."

Paterson and Dover Railroad.

The following statement in relation to this road is from the gentleman who surveyed the route, for which we are much obliged to him.

For the American Railroad Journal

"Bordentown, January 26, 1846.

"Sir: I send you below a short statement of the proposed Paterson and Dover railroad.

Respectfully yours, J. W. ALLEN.

"The line as surveyed leaves the Paterson railroad, one mile south of the Paterson depot, and passes through the Garrit rock by a tunnel 400 feet in length, to the valley of the Passaic river, which it follows to Pine brook, the line then passes through the town of Parsipany, to the valley of the Rockaway, and continues through it to Dover, passing near the large iron works at Pompton, and by the New Jersey iron company's works at Boonton, Scott's works at Powerville, Jackson's and others at Rockaway, into the heart of the iron region at Dover.

"Nine miles will be level grades, three miles 10 feet to the mile, the remainder varying from 24 to 50 all [with the exception of a half mile of 24 feet grade] descending east, and no curve of less than 1800 feet radius.

"The distance from the junction with the Paterson railroad to Dover is 27 miles, from junction to Jersey city 15 miles, making the distance from Dover to Jersey City, 42 miles. Estimated cost, \$400,000."

This short line opens an easy communication into the midst of the iron region of New Jersey, and in the direct line from the city of New York to the coal region of Pennsylvania—into the *midst* of which we must have a *railroad*, that we may, at all times, *winter* as well as *summer*, have the means of obtaining *fuel*. The period is at hand when this work *must* be commenced, and *carried through* to the Susquehanna, at, or near Wilkesbarre, if, as we believe they will, the grades will allow it.

Buck Mountain Coal Company.

The following extract from the report of Professor Johnson, and certificate of Messrs. Starbuck, and Gatzmer, give this coal an exceedingly good character.

The following is an extract from the report of an analysis made by Prof. Walter R. Johnson.

"The specific gravity of Buck Mountain coal is 1.559, consequently one cubic yard will weigh 2630 pounds. Its constituents are,

Water.....	390
Gaseous mater including some agate volatile at bright red heat.....	5-515
Carbon, not volatile by heat alone.....	91-016
Earthy mater and oxide.....	3-079

100-

"The ashes are of a reddish buff color, rather light and present some portions perfectly white, the proportion of ashes in this coal is far below the average of the anthracites of Pennsylvania; few even in that rich part of the central coal district in which your lands are situated will be found to yield either *less* earthy matter, or *more* fixed carbon than the sample above analyzed.

"WALTER R. JOHNSON."

Coal consumed on board steamboat New Philadelphia, between Philadelphia and Bordentown.

Average for six days.

Average amount of coal burnt in one day out of six.

Under larboard boiler. Starboard.	
Against tide nearly all this time	
with Lehigh coal.....	7,533½.... 6,300 lbs.
Tide with us half this time with	
Buck Mountain coal.....	6,966½.... 5,933½
	566½.... 366½

The above experiments in the use of Lehigh and Buck Mountain coal were made on board of the steamboat New Philadelphia in the fall of 1843 and the engineers pronounced the Buck Mountain the most free burning coal they have used, and a great generator of steam. W. M. H. GATZMER, Ag't.

Camden and Amboy railroad co. Philadelphia, January 20, 1844.

Troy, January 20, 1845.

This may certify, that we purchased during the past season from J. M. Downing, agent, Bristol, Pa., a cargo of 180 tons "Buck Mountain" coal, which we have used for *melling iron in a cupola furnace*. We melt about four tons of iron per day, and have run a furnace for twenty years past, and used at different times all the varieties of anthracite coal, such as Lehigh hard, sugar loaf, Hazelton, Beaver Meadow, etc., and after a full and fair trial of the Buck Mountain coal, we are entirely satisfied that it is fully equal to any coal we have ever used for melting iron. N. STARBUCK & SON.

Western, Vt., Railroad--Rutland Meeting.

We see it announced and "resolved" in the Middlebury Galaxy, and the Rutland Herald, that "WE WILL HAVE A RAILROAD," and we have confidence in their assertions and resolutions. We have also a letter, dated Burlington, January 23d, 1846, which says, "we have made a location of our road at this place, and shall take early steps to locate the entire line, and put the whole work under contract early in the spring."

This relates to the road from Burlington to Rutland, and we consider it one of the most favorable lines in Vermont. *Rutland is to become—if its citizens are alive to their own interest—the central point in the "Evergreen state."* From Rutland will emanate a railroad north to Burlington; another westward to Whitehall, Sandy Hill and Saratoga, unless Troy enterprize steps in and brings the *western* line through her growing city, by the way of Bennington—a result we think sure to follow, even if the road should be built, as *it will be*, to White Hall and Saratoga—another south to Manchester, Bennington, North Adams and Pittsfield, and thence to Boston, Bridgeport, and New York; a fourth to the Connecticut river, at Bellows falls, or other favorable point, and thence to Boston; and a *fifth* to the Connecticut river, at the mouth of *White river*, or other favorable point, to accommodate the *northeastern* part of New England, in its travels to the *westward*. New England is the great machine shop—the *manufactory* for the west and southwest, *even to Oregon*, not only of boots and shoes, hats, cottons, and all sorts of notions, but *also of men and women!* and they must be transported, too, from the place of *production* to the place of *consumption*; and a glance at the map will show Rutland to be in the direct line for that part of New England above 44 degrees, which is destined to reach the west through the *interior* of New York. Let the people of Rutland be awake and active. If they do not move in their *own* favor, others will not be very likely to act for them.

We also learn from the same letter that the surveys were to be commenced on the 26th January, from Rutland to Bennington and North Adams by Mr. W. B. Gilbert, of Ogdensburg, under the direction of Frederick Harbach, Esq., of the Pittsfield and North Adams road, now under construction.

The meeting at Rutland, on the 14th inst., shows conclusively that the position we have always taken in relation to the construction of a road from Rut-

land to the Connecticut river, was correct. Boston, and the Fitchburg company cannot *afford* to leave it *unmade*. They will be sure to make it in *self-defence*. The remarks of Messrs. Rice and Harrington, of Boston, and Mr. Prentice, of Keene, tell the whole story.

Mr. Rice said, "that much ignorance and many errors had hitherto prevailed in Boston in relation to our road, but recently more correct views of its merits were beginning to be entertained—that however well affected the Fitchburg corporation was to 'a *certain other road*,' he would take the responsibility of asserting, that the directors and stockholders of that corporation were deeply interested in the construction of the Rutland road, and would immediately embrace the most efficient measures to complete the subscription in Boston."

"Mr. Harrington, in a short speech, confirmed the sentiments which had been uttered by Mr. Rice, and declared, that if necessary, he would double the five thousand dollars which he had subscribed to the Rutland road."

"Mr. Prentice declared that he had never for a moment deviated from his adherence to the original line of the Fitchburg road, as projected, through Rutland to Burlington—that although the Cheshire road had ever been ready to favor any enterprize which would contribute to her business, she had ever regarded the Rutland road as the best feeder, and to secure its success, its friends might be assured that the Cheshire subscription should be doubled."

Yet they have delayed their movement in the matter until they have brought *another* line into the field to compete with them, viz: the line to Bennington and Pittsfield, as was evinced by the speech of

"Mr. Bishop, who powerfully advocated the claims of the Bennington route, to intersect the Great Western road at Pittsfield, with which the Housatonic was connected at Stockbridge. He was listened to with profound attention by the audience, and often interrupted with bursts of applause. We have been told, says the Galaxy, that in conversation with several individuals, Mr. B. gave the strongest assurances of the most munificent support of both the Housatonic and Western railroad companies to the Bennington road."

We therefore say to the Rutland, Middlebury and Burlington people, *lose no time* in constructing a first rate road from Burlington to Rutland; and by the time your cars are ready to pass from end to end, there will be at least *three* distinct lines in course of construction to connect with you, and take your passengers and freight, and to give you their's in return. The Galaxy says, that

"No man left that animating scene without an exulting hope that a railroad, either from Bellows Falls or Bennington, would soon thread through this rich and fertile region. Now is the time for every man possessing the least public spirit, to put his shoulder to the wheel of this noble enterprize. It appeals directly to the interest, the liberality, and the enlightened patriotism of every good citizen, and it cannot, and it will not, ultimately fail of a glorious completion."

We coincide entirely with the editor of the Galaxy that now is the time for every man "to put his

shoulder to the wheel." The right spirit moves the people—and it will be well to take it at the flood.

The annexed statement of the proceedings of the Fitchburg railroad company, at its annual meeting on 12th January, show that the people of Boston have not lost sight of this line of road, even if it has been delayed—*nor will they*—yet we find no indication of the *least* interest being taken in the matter by the citizens of New York. No representation from—no one to inform the meeting that there is such a place as—New York! There *is*, however, such a place—and there are a *good many* people living there who have quite an interest in this matter, but they do not seem to have become aware of it yet. Not so with Bridgeport. She had a representative there, as well as Boston and Keene, who was *heard* and listened to with much interest. So should New York have sent a delegation to say to those sturdy, indomitable Vermonters—*friends*, we heard you were *coming*, and we *came* out to meet you, even upon your own soil. *We give you the right hand of fellowship*, and will lift with you at the wheel—as did the Boston and New Hampshire delegation.

At the annual meeting of the Fitchburg stockholders, after the regular business of the day was over, and the meeting adjourned,

"Nathan Rice, of Boston, requested the stockholders to remain for the purpose of considering certain resolutions which he proposed to offer. The resolutions were then read by him, and after considerable discussion the following were adopted:

"Whereas, western Vermont, embracing the rich agricultural valley of the Otter creek, and abounding in mineral productions, is endeavoring to have a railroad communication with a seaport on the Atlantic, and whereas we are assured a decided preference is manifested in that region for a railroad leading through Rutland to the Connecticut river; and there to connect with the Cheshire and Fitchburg line, and whereas we are also informed that the subscriptions on the line of the proposed route have already been obtained, to the amount of more than a million of dollars in the country, and additional subscriptions have been promised to the amount of \$250,000 more, provided sufficient encouragement can be immediately given by Boston and her vicinity that the remaining sum requisite for the commencement of the work—to the amount of about \$600,000—will be contributed by her capitalists and merchants. Therefore,

"Resolved, 1st, That we, as stockholders in the Fitchburg railroad company, many of us being also stockholders in the Cheshire railroad company, do greet with great pleasure and satisfaction the enterprize and public spirit now prevailing in western Vermont, and in view of the important advantages to be derived by our roads from their extension to the rich valley of the Otter creek, and in view of the benefits that will follow from this extension to Boston—with whose growing prosperity our interests are identified—do hereby pledge ourselves to use our individual exertions to promote its success and to obtain the necessary subscriptions.

"Resolved, 2d, That the recent movement at East Bennington indicating that great exertions are making to induce western Vermont to build a railroad from the valley of

the Otter creek to connect with the Western railroad at Pittsfield, render it necessary we should now act with decision, energy and promptness.

Resolved, 3d, That a delegation be now appointed to attend the railroad meeting to be held at Rutland on the 14th inst., for the purpose of presenting these resolutions and of pledging our assistance in their important undertaking.

"Resolved, 4th, That Nathan Rice, Abel Phelps, T. C. Leeds, J. J. Swift and Wm. Underwood be appointed to attend this meeting, and that they be authorized to fill any vacancies in their number—and that these gentlemen with such others as they may appoint to act with them be also requested to act as a committee to obtain subscriptions for the proposed road.

"Resolved, 5th, That the delegates chosen to attend the convention at Rutland to forward the interests of that road, be instructed to do nothing in any way to affect injuriously other roads which may be tributary to the Cheshire, the Vermont and Massachusetts, and the Fitchburg roads."

"Voted, That a copy of these resolutions be transmitted to the meeting at Rutland.

"Voted, That Mr. Warren be requested to act as secretary, and take a copy of the above.

"Voted, To adjourn. Attest,

"G. W. WARREN, Secretary."

Boston, January 12th, 1846.

"The reading of the foregoing proceedings having been concluded, it was on motion of Mr. Hodges,

"Voted, That the meeting do now adjourn till 2 o'clock, P.M."

"Afternoon, 2 o'clock.—The meeting being called to order, the following gentlemen were unanimously elected directors, viz:—Timothy Follett, of Burlington; Samuel P. Strong, of Vergennes; Wm. Nash, of New Haven; Charles Linsley, of Middlebury; J. A. Conant, of Brandon; Chester Granger, of Pittsford; Geo. T. Hodges, of Rutland; Mathaniel Fullerton, of Chester; Wm. Henry, of Bellows Falls; John Elliot, of Keene, N. H.; Horace Gray, Samuel Dana, and Samuel Henshaw, of Boston."

After the election of directors, the committee presented a report, accompanied by resolutions, in which they say, among many excellent sayings, "Our aim has been, and still is, to secure the construction of the Champlain and Connecticut river railroad in its *unity* and *integrity*;" and further, they say, "Resolved, 3d, however, that in *one* direction or the *other*, by the way of Keene or Bennington, we will have a railroad!"

There was a fourth resolution in relation to calling in an instalment, and they *might* have added a *fifth*, "resolving to have a railroad *not only* by the way of Keene, or Bennington, but by the way of Keene and Bennington *also*," though it was hardly necessary, as the construction of *both* of them is, in our estimation, almost, if not altogether, a matter of course.

At this stage of the proceedings a report was presented by George W. Strong, of Rutland, from a committee of arrangements and correspondence, appointed by the meeting held at Bennington on the 2d, from which we take the following very pertinent observations, viz:

"In the opinion of the undersigned," say the committee, "a railroad from Rutland to Pittsfield in connection with the Champlain and Connecticut river railroad will present the most direct railroad connection between Montreal and New York, and Ogdensburgh and New York, and must inevitably be the great thoroughfare for the immense business between those places: it will present to the valley of western Vermont, and the stockholders of your road, the most direct communication with the large and numerous manufacturing towns of the interior of Massachusetts, Connecticut and Rhode Island—and (as we think can be satisfactorily shown) the *cheapest* communication with Boston, by means of the Western railroad; which road with the already large business of their own, can afford to do the business of western Vermont cheaper than any new road which must depend almost solely upon this large business for its support.

"The committee who have the honor of addressing you, would not speak so confidently of the advantages of the proposed road as an avenue to Boston did they speak their own sentiments only. On this subject we are happy to say we but reiterate the opinions and assertions of the most distinguished railroad authority in New England. Already has a correspondence been commenced with the Western railroad company which from the assurances already given, we have every reason to believe will result in the building of the road from Pittsfield to Rutland, provided a favorable connection can be had with your company." * * * *

"In addition to the above we have received from friends of the Housatonic road, assurances of the deepest interest in the success of our enterprize, from which we have the right to infer that the noble and courageous friends of that road will respond with the liberality to any call that may be made upon them for the prosecution of our road.

"For the above reasons we ask you to pursue a policy which while we think it must be the most for your own advantage—shall not be detrimental to the interests of the western Vermont railroad company. We ask you (if either portion of your road is to be located and contracted) to locate and contract for that portion which, while it will accommodate the largest portion of your stockholders and by far the largest amount of your business, will at the same time offer an inducement for the building of the western Vermont railroad—thus furnishing the majority of your stockholders and your business a better avenue to all the markets of the country at a less expenditure of money to your company, than will the building of the road from Rutland to Bellows Falls."

This report is signed, Leonard Sargeant, A. P. Lyman, Geo. W. Strong, and C. W. Fenton, and will have an important influence upon the movements of those more particularly interested in that part of the line between Burlington and Rutland, which should, beyond all question, be constructed *first*, and it will, like the magnet, draw the coffin of Mahomet to itself instead of going to the resting place of the prophet.

The route from North Adams through Bennington to Rutland, is found to be one of the most favorable in the country, as will be seen from the annexed letter from F. Harbach Esq., who has been entrusted with the examination and surveys of the route. His letter is addressed to the committee above referred to, consisting of the following named gentlemen, Leonard Sargeant, A. P. Lyman, G. W. Strong, and C. W. Fenton, Esqs. and is as follows:

"GENTLEMEN:—I have made a cursory examination of the route between Bennington and this place preparatory to organizing a corps of engineers for prosecuting the surveys. I have been most agreeably surprised in finding a valley of upwards of 50 miles in extent, between these mountains, where the natural obstacles and obstructions have been of so little moment. It would be next to impossibility for any engineer to say, precisely, what would be the maximum grade upon this line or in fact any other line, without first making a survey. But by comparison with the features of other lines, with the Housatonic railroad, the Pittsfield and North Adams road, now constructing, (both similarly situated in the same valley,) I do not hesitate to say that it need not exceed 40 feet per mile—and probably four-fifths of the whole line less than 20 feet per mile. The cost of this line will bear comparison with the most favored. The Pittsfield and Adams railroad, of which I have the honor to be engineer, is estimated to cost about \$21,000 per mile and contracts have been made to responsible contractors which will bring the cost within that amount—of this sum \$10,500 is estimated for the superstructure and \$3,000 for land damages leaving about \$7,500 for the graduation—either of these three items are larger than they could be upon this line—and I think I am warranted in making the statement that this route would not cost over \$20,000 per mile. I have compared notes also with Mr. Gilbert's survey to Burlington and I do not hesitate to say it can be built equally as cheap as that part of the Connecticut river and Champlain road. I have the honor to be gentlemen, your most obedient servant

"F. HARBACH."

Rutland, Jan. 14, 1846.

From this cursory examination, by a gentleman, every way competent to the object in view, it will be seen that there is a natural route, which "will bear comparison with the most favored" in its grades and cost.

We should like to give the proceedings entire, but cannot afford the space, perhaps however, the reports of the committees and the eloquent speeches made at the meeting, would be far more acceptable than the space we have occupied with our own disjointed remarks, yet we may perhaps as well have our say out now while we are upon the subject, and give others with views more enlarged and perhaps based upon better information—an opportunity hereafter. Entertaining the views here expressed, and deeming the present a proper opportunity for giving them utterance, we have spoken freely, though not for the first time, upon the subject, without consultation, or concert, and without any knowledge of the views of others, except as obtained through the public press.

We will close this article, already much longer

than we had any idea of making it, by saying to the people of western Vermont, that if the business men and property holders of New York, *know their own interest* they will not be backward in taking the stock, even if they were not at the meetings, that they may have a voice in its management; but, whether New Yorkers take the stock, or not a dollar of it, the road will be constructed, and that too, at an early day; and when it is completed, in a proper manner, it will be an excellent investment as a dividend paying stock, in addition to the increased value, it will give to property along its line: we would therefore say emphatically to the people of western Vermont, *take the stock yourselves, as far as possible*, that you may have a controlling influence in its management, and thus be always able to avail yourselves of the advantages and a choice of the two great markets, Boston and New York without being under the control of either. Let it be a Vermont road, open to the use, and for the convenience of all, but made and managed by Vermonters.

Western, Vermont Railroad.

Since preparing our article on this subject, on another page, from the proceedings of the meeting, held at Rutland, on the 14th, we have received the "State Banner" of 5th and 26th January, published at East Bennington, Vt. in which we find the proceedings of a meeting held at Bennington on the 2nd, in relation to the Western Vermont railroad.

The meeting at Bennington, on the 2nd, "was called to order by the Hon. Leonard Sargeant of Manchester, and the Hon. Highland Hall was appointed president of the convention and George W. Strong, of Rutland, secretary.

"On motion of E. L. Ormsbee, Esq., of Rutland, a committee of nine were appointed to report resolutions for the consideration of the meeting. The chair named the following: E. L. Ormsbee, of Rutland; A. L. Miner, Manchester; Wm. E. Brayton, Adams; John Fox, Wallingford; A. R. Vail, Danby; A. G. Clark, Manchester; Asahel Booth, Bennington."

The committee reported the following spirited resolutions, which we have made an unsuccessful effort to curtail, as we had already prepared copy for almost the entire number before these proceedings came to hand. They however, give such good reasons for constructing the road, and are so entirely confirmatory of our own views previously expressed that we must give them entire even though they cause other matters to lay over until the next number.

"Resolved, As the sense of this convention, that in an enterprize involving so great an expenditure as a railroad to accommodate the business of southern and western Vermont, and which, when built, will be the avenue upon which the vast business must be transacted, of the valley extending from Pittsfield to Burlington, great care should be used in selecting such a route as will meet with the least expenditure in money, both for original outlay and current outgo, produce the largest net income, and at the lowest rate do the most business for the most people.

"Resolved, That in our judgement those objects will be best effected by a road in connection with the Boston and Albany, commencing at Pittsfield and terminating at Burlington. Because, first, a railroad from Pittsfield to Burlington can be built in the most substantial

manner, and for a capacity to transact the mighty freight business destined to roll over it for a cheapness of cost absolutely without example, in so long a line and as respects current expenses, the business can be transacted with a proportionate economy.

2d, The road passes through a line of country which for its extent is unequalled in agricultural fertility in New England.

3d, The same section of country save only the means of cheap transportation to, and speedy and certain communication at all seasons of the year, with the various markets of the country, possesses great and unusual facilities for manufacturing, especially for the low priced, but heavy and bulky manufactures of iron and marble, besides an almost inconceivable variety of minor articles.

4th, When the freight and passengers of the road reach Pittsfield, they are presented with beaten avenues of trade already in successful operation, opening to them at the lowest price of transportation, the choice between an eastern, western and southern market.

5th, We believe that the Western railroad with an already overflowing business of its own and which will soon require for its own convenience, a second track can well afford to do the business of this valley at a cheaper rate from the very outset than any new road across the Green mountains for a long term of years; and we further believe that what it can thus well afford, an enlightened self interest will require it to so afford; and we further believe that this road and the Worcester (soon we hope to be one) representing as they do such extensive, and powerful interests have both the means and inclination to insure the speediest construction of any road important to the general interests of Vermont.

"Resolved, That in addition to the numerous sources of support for a railroad which have been suggested in the foregoing resolutions, is another of almost literally, immeasurable extent, in the vast quantity of lumber, which, by a transit of from 4 to 11 miles, can be thrown upon this road, from the towns lying upon the western slope of the Green mountains; while from the geographical situation of the mountains, the lumber of the same description, on the eastern slope of the mountains, must pass over a land transit of from 20 to 36 miles to reach a railroad laid in the valley of the Connecticut. The value of this lumber, as an article of export, will be more fully understood from the fact that from Bennington it pays a land transportation of 30 miles, then to be water-borne on the Hudson and sound, to supply the markets of New-Haven, and even at Hartford, to compete with the same kind of lumber brought down the Connecticut.

"Resolved, That Leonard Sargeant, Geo. W. Strong, A. P. Lyman, and C. W. Fenton, be a prudential committee of correspondence and arrangements, to procure a survey of the route from Bennington to Rutland, and to take such measures as they shall judge will best advance the interests of the people of southern and western Vermont in relation to the railroad from Pittsfield to Burlington.

"E. L. Ormsbee, Esq., of Rutland, then ad-

dressed the committee as to the wealth and resources of western Vermont, accompanied by much valuable statistical information.

"A. P. Lyman, Esq., spoke as to the importance of the road to western Vermont.

"The Hon. Geo. Bliss, president of the Western Railroad, addressed the committee as to the feelings and interests of the Western railroad in the proposed road. Mr. Bliss stated to the meeting that the road from Pittsfield to Adams was under contract, and as good a road as the Western road would be completed by the 1st Sept. next for \$21,000 per mile. From the representations which had been made of the character of the route, he had no doubt the road could be completed to Rutland, or Bennington, as cheaply. He said there were one and a third miles in the Western road which cost \$220,000 per mile, that there were nine consecutive miles which cost over \$100,000 per mile, and that the expense of the road through western Vermont was comparatively nothing.

"He said the Western road had no disposition to interrupt the Rutland road, in its original purpose: if they had been cold towards the project, it was from the belief that the interest of the Rutland road was in the direction of Pittsfield, rather than Bellows Falls. He said that, at a meeting of the friends of the Western road, it was thought that a road through western Vermont, in connection with the Western railroad, would be caught at by the people of Boston. He knew the stockholders felt a deep interest in the project, and he doubted not that any application made to Boston would be met with liberality. So far as the Western road was concerned, he would pledge himself, officially, that corporation would give them every encouragement in their power—such had always been the character of the influence of that corporation in kindred projects: and the stockholders, he doubted not, would be liberally disposed in any aid they could render this enterprize.

"Mr. Lyman introduced the following resolutions, which were accompanied by complimentary remarks from Mr. Lyman, Mr. Ormsbee, and the President.

"Resolved, That the general utility of railroads, is a subject, which, at this day, does not admit of honest diversity of opinion. The advantages already received by the community at large, from the source of internal improvement, although in its infancy, have placed that question beyond the reach of fair argument.

"Resolved, That in the triumphant completion of the great Western railroad, we have many bright examples of great ability, and untiring perseverance: and in this great and noble work, the names of Josiah Quincy, Jr., William Jackson, George Bliss, and others, will not soon be forgotten by any friend of internal improvement.

"The resolutions were responded to by the Hon. William Jackson, giving some very interesting and valuable information relative to the early history of railroads both in old and new England, and some very happy and interesting comparisons between the

early prospects and the present success of these enterprizes. Before closing his address, the convention adjourned for an hour.

"Afternoon.—Upon the re-assembling of the convention, Mr. Jackson continued his remarks.

"Mr. Jackson said, that in addition to his interest in the Western railroad, he was now so much engaged in the road from Worcester to Providence, that he thought it impossible to attend this convention. But the people of Rhode Island told him, "go—tell the people of western Vermont that Rhode Island extends to them the right hand of fellowship, and bids them God speed in their noble enterprize—we wish to draw from Vermont more directly the necessaries of life for the support of the 351,000 cotton spindles already in operation upon the line of our road." He said that the construction of the Worcester and Providence road was placed beyond a contingency, and would be constructed in the course of three weeks, [years, we presume, was meant] 42 miles long.

"Mr. Bishop, a delegate from the Housatonic road, being called upon, gave the convention a very interesting account of the road which he represented. It had, through the indomitable perseverance of its friends upon the route alone, worked out its own existence, and in the course of the present year would be relaid throughout with a heavy rail. Mr. Bishop urged the people of western Vermont to profit by the example of the people in the valley of the Housatonic, and try what western Vermont could do for herself, and she would most assuredly receive the assistance of the Housatonic road. He represented to the convention the facilities which the Housatonic road would afford to western Vermont for a direct communication with New-York—that an arrangement had been made with the Harlem road by which there would be continuous railroad communication to New-York city.

"A letter was then read from Thos. W. Olcott, Esq., of Albany, expressing the deep interest which the people of Albany feel in the success of the enterprize.

"The resolutions were then unanimously adopted.

"On motion of Mr. Sargeant, voted that the proceedings of this convention be published in such of the papers of Vermont and Massachusetts as are friendly to the enterprize.

"Mr. Ormsbee moved that a copy be furnished for the Railroad Journal, and accompanied the motion with some remarks recommending the Journal to the friends of railroads in Vermont as the best means of obtaining correct railroad intelligence.

"The convention then, on motion, dissolved.

"HILAND HALL, President.

"GEO. W. STRONG, Secretary."

Here we find some of the most prominent and active of the Massachusetts railroad gentlemen and managers, viz: the Hon. George Bliss, president of the Western railroad, and the Hon. Wm. Jackson, one of his most efficient co-laborers in that great work, and now equally active in another important enterprize, the Worcester and Providence railroad.

And what do they say, aye, what do they say? one says the Pittsfield and North Adams road, 18½ miles of the line, will be completed by 1st of Sept. next, and "he doubted not that any application made to Boston, would be met with liberality; and so far as the Western road was concerned he would pledge himself officially that that corporation would give them every encouragement in their power."

And the other gentleman says what at New York, the "great emporium of commerce" "the empire city" of "the empire state" holds out her capacious and full hands to this new enterprize, which is so favorable in its grades, and so direct in its course, that cars started at Burlington will almost, not quite, run of themselves into the storehouses at "Coenties" and "Coffee House" slips? Does Mr. Jackson or Mr. anybody say this for New York? Oh no! but Mr. Jackson says "the people of Rhode Island told me to come here and tell the people of western Vermont, that Rhode Island extends to them the right hand of fellowship, and bids them God speed in their noble enterprize!" Yes, and Rhode Island capital will be mingled with Vermont and Massachusetts—shall we add also and New York? capital to build the railroad from Rutland to North Adams and Pittsfield and thus bring the productions of western Vermont directly to her own doors, by the way of that important work, the Worcester and Providence railroad.

When we find New England enterprize and New England capital occupying so many avenues, as in these and many other cases, and turning the rich currents of trade, which nature designed for this favored outlet, across and through her mountain passes, we glory in the land of our birth and ancestry; but sometimes ask how it is that, in all other places except this, for which "nature has done so much," the sons of New England retain their natural traits of character, viz: enterprize, public spirit, enlarged and liberal views, while here, with some noble exceptions, as was evinced in the late efforts in favor of the New York and Erie road, they fall into the habits of a large majority of those with whom they live, every man for himself and "natural advantages" for New York—while in a neighboring city it is every man for Boston. The answer is a plain one, that if those "to the man or born" possessing a large proportion of the real estate to be benefited, will not act in the matter, why should they? and truly why should they?

But we grow indignant when we see so much apathy where we should see most activity, and in the same ratio we admire the enterprize of our neighbors and rivals.

There was a letter of encouragement from Albany, read to the meeting; where was Troy? On a visit to New York perhaps? That is not in character with Troy, and she will give an account of herself, yet, or we are mistaken; she ought to be looking for a branch from Bennington, or near there, that she may not be a loser by the construction of this important work.

To the gentleman who recollected the Railroad Journal in such company, and under such circumstances, we desire to make our hearty acknowledgments. We shall endeavor to render the Journal what he represented it to be.

We find in the Macon Messenger of Jan. 8th, the following which shows that the people of Georgia appreciate the advantages of railroads, and that they are resolved to persevere still further in their construction. This is right. Every mile now constructed in the extension of their present works will add

as much to the income as two or three miles did in the early periods of their operation, as most of the new business obtained by extensions will pass over the long lines now in use, and pay tolls on two hundred miles of old road. We bid them God speed.

Railroads in Georgia.—The State road is authorized to be extended to Cross Plains, with the profits of the road, and a loan of \$65,000 based on the faith of the road.

The Central railroad is authorized to build a road from Macon to Columbus.

The name of the Monroe railroad is changed to "Macon and Western railroad," banking privileges extinguished, and the company authorized to build a branch to Columbus.

A charter was granted for a road from Macon to a point on the Flint river with the privilege of branches to Albany, Fort Gains, etc.

The city of Columbus also obtained charters for railroads.

WESTERN RAILROAD.—Receipts for week ending		
January 24th.	1846.	1845.
Passengers.....	\$5,256	\$4,518
Freight, etc.....	7,861	6,868

Total.....	\$13,117	\$11,386
Net gain this week.....		1,731
Previously gain.....		8,027
Total gain this year.....		9,758

Western Railroad.—We are indebted to the politeness of S. Witt, Esq., superintendent of the Boston and Greenbush railroad, for the following interesting table showing the quantity of flour shipped at this end of the route for the year 1845. The total receipts for freight at this terminus, during the same period were \$268,450 06, exhibiting an increase since the first year this road was in operation, of more than \$101,000:

Stations.	Flour.	Stations.	Flour.
Kinderhook.....	350½	Warren.....	2,015
Schodack.....	1	West Brookfield.....	6,331
Chatham Centre.....	156	South Brookfield.....	879
Chatham.....	794	East Brookfield.....	1,310
East Chatham.....	685	Spencer.....	1,027
Canaan.....	1,171½	Charlton.....	3,727½
State line.....	3,742	Clappville.....	1,130½
West Stockbridge.....	6,003	Worcester.....	33,684½
Richmond.....	355	Millbury.....	2,719
Shaker village.....	142	Grafton.....	1,233
Pittsfield.....	9,449	Westboro'.....	4,859
Dalton.....	4,111	Southboro'.....	1,100
Hinsdale.....	1,703	Hopkinton.....	1,254
Washington.....	282½	Framington.....	4,429½
Becket.....	1,470	Natick.....	445
Chester factories.....	974	Needham.....	668
Chester village.....	1,907½	Newton.....	422
Russell.....	731	Brighton.....	1
Westfield.....	15,652	Newton corner.....	78
West Springfield.....	483	Boston.....	181,799
Springfield.....	20,344½		
Wilbraham.....	435		
Palmer.....	10,414		
		Total.....	329,850

—Albany Evening Jour.

Housatonic Railroad.—Some weeks since the arrangements were completed for placing this road upon the basis its importance and its ultimate value as a thoroughfare demanded. For several years the company has labored under pecuniary embarrassments, and the disadvantages of a flat rail not well laid. The former have been wholly removed—and the entire amount required to relay the track with a heavy edge or T rail obtained. Contracts for furnishing the iron, of the best quality, have been entered into with the Montour company, Columbia county, Pa. By the first of May the track will be reaid from Bridgeport to New Milford, a distance of 35 miles, and by midsummer, or at least during the present year, throughout the entire route.

When these improvements in this road shall be completed, it will, for the winter season at least, and until the Hudson river or the Harlem road shall be completed to Albany, constitute the most direct route from New York to the capital; for the intention of the company is to connect with the route two large and fast boats on the sound, so that the route through will be performed in 11 if not in 10 hours.—Albany Atlas.

There are many who will be gratified to learn that this company have at last surmounted the diffi-

culties under which they have labored for so many years. The people of Bridgeport will, we hope, be amply rewarded for their efforts and their losses, and the thousands who desire to visit Albany during the winter will when the road is relaid, find this at least until we have a line direct from this city, a very comfortable and speedy route.

Lake and Atlantic Harbor, and River Bill.—We give place to the following synopsis of the appropriation bill reported to the House of Representatives, on Wednesday, by Mr. Tibbatts, from the committee on commerce, for the improvement of certain harbors and rivers, from the Commercial Advertiser, and we trust that it will pass by large majorities, and early become a law.

FOR THE LAKES.

Lake Champlain.		Cleveland,.....	
Burlington,.....	\$15,000	Huron,.....	5,000
Plattsburgh,.....	15,000	Sandusky City,.....	11,000
For a steam dredge, 9,000		River Raisin,.....	13,000
		Dredge boat,.....	20,000
Total,.....	\$39,000		

Lake Ontario.		Total,.....	
Port Ontario,.....	\$10,000		\$179,000
Oswego,.....	30,000		
Big Sodus,.....	5,000		
Little Sodus,.....	5,000		
Mouth of Genesee river,.....	20,000		
Oak Orchard,.....	5,000		
Dredge boat,.....	20,000		
Total,.....	\$97,000		

Lake St. Clair.		Lake Michigan.	
St. Clair Flats,.....	\$40,000	Grand River,.....	\$10,000
		Kalamazoo,.....	10,000
		St. Joseph,.....	10,000
		Michigan City,.....	40,000
		Racine,.....	15,000
		Little Fort,.....	12,000
		Southport,.....	10,000
		Milwaukee,.....	10,000
		Chicago,.....	12,000
		Dredge boat,.....	15,000
		Total,.....	\$144,000

Lake Erie.		Total,.....	
Buffalo and sea wall,.....	\$50,000		\$144,000
Erie,.....	40,000		
Grand river,.....	10,000		
Ashtabula,.....	10,000		
Total,.....	\$110,000		

OCEAN HARBORS.

Stamford Ledge.		Rivers.	
Maine,.....	\$20,000	Mississippi river at St. Louis,.....	\$75,000
Boston,.....	40,000	Hudson river,.....	75,000
Newcastle, Dela-ware,.....	15,000	Ohio river above falls,.....	80,000
Port Penn,.....	5,000	Mississip. Missou. Breakwater,.....	75,000
Completing Dela. Baltimore,.....	20,000	and Ark. and the Ohio below the falls,.....	240,000
Hog Island Chan-nel, Charleston, S. C.,.....	25,000	Removing Red riv-er raft,.....	80,000
Savannah,.....	50,000	Preservation of Grand Wood Hole, 4,000	w'ks contracted. 40,000
Total,.....	\$245,000	Total,.....	\$670,000

Notice to Contractors.

The following notice to contractors shows that the Schuylkill Navigation company are in earnest, and that they mean what they say, and that the canal is to be completed in the shortest possible period. We are gratified with the prospect, as it will insure a warm competition, and good supply of coal for next winter, at fair prices.

If the rival companies will now agree upon a fair price for transportation, and direct their rivalry only to the quantity to be brought to market, then will all parties be benefited by their rivalry. Consumers will be supplied with coal at fair prices, the colliers will do a prosperous business, transporters will be well paid, and shareholders in both canal and railroad will receive good dividends. We shall see whether the managers are open to receive good advice.

Notice to Contractors.—Schuylkill Navigation Enlargement.—All those sections of the Schuylkill navigation, which are not now under contract, for widening and deepening, will be ready for letting after the 20th of the present month.

Contractors wishing to offer for this work, will send their proposals to the resident engineers on the line, viz.:

To Mr. Ellwood Morris, engineer of the division

between Port Carbon and Althous' locks; Antes Snyder, engineer of the division extending from Althous' locks to Vincent dam; James F. Smith, engineer of the division extending from Vincent dam to Fairmount; or to Edward Miller, Esq., chief engineer, No. 7, Sansom street, Philadelphia.

In making the contracts for this work, the company will reserve the right to prescribe the number of men that shall be placed on each contract, and to require the number to be increased from time to time, as their officers may think necessary to secure the completion of each job by the date specified in the contract.

The right will also be reserved by the company, to enter at any time with their own force upon any section which, in the judgment of their engineer is likely to be delayed, without notice and without incurring liabilities for damages. All proposals for work are to be made with this understanding. By order of the board,

CHARLES ELLET, Jr., President.

Railroad Convention at Harrisburg.—A correspondent at Harrisburg informs us that the railroad convention now assembled at that place, presents a singular anomaly. The movement originated at Ridgeway, Elk county, with the friends of the Sunbury and Erie railroad. Other counties in the north approved of the measure, and appointed delegates, some of them with instructions in favor of connecting the Williamsport and Ralston railroad with the New York and Erie.

The friends of a continuous railroad from Harrisburg to Pittsburg, by the middle route, also moved in the matter, and most of the counties on this line, along the Juniata and Conemaugh, appointed delegates instructed in favor of that project. The southern and western tier of counties, however, although late in making their demonstration, have outgeneralled all the friends of other routes most decidedly, both in numbers and tact, as will be shown as we proceed. Early in the morning of Monday it began to be whispered that the west was too strong for the balance of the state, and at the period of assembling, it was proved that the friends of the Baltimore and Ohio railroad, and the southern route to Pittsburg, were in the ascendant.

One or two delegations consequently met at Herr's hotel, to deliberate upon what course they should pursue, while the great majority met at the court house, to consummate what they supposed is for their own interest or that of the state. The meeting at Herr's did nothing but talk. The other went regularly to work, and will, it is supposed, pass such resolves as may have an influence on public opinion.

HARRISBURG, Jan. 13, 1846.

The friends of a continuous railroad from Harrisburg to Pittsburg, by the middle route, met this morning in the upper court room, and organized by appointing Hon. James Clarke, of Indiana county, president, with several vice-presidents and secretaries. The president supposed that this was the Pennsylvania convention, composed of Pennsylvanians, and in favor of Pennsylvania interests, not like the down stairs one, in favor of foreign interests. On motion of Gen. Ayres, a committee consisting of one from each county represented, was appointed, and the convention adjourned until the afternoon. This assemblage is very numerously attended.

The convention over which James K. Moorhead presides, is also numerously attended, and the committee on resolutions reported this morning in favor of the Sunbury and Erie, the middle route, the southern route, and the Baltimore and Ohio railroad.

There is little satisfaction to be derived from the contests between rival routes. In such contests the great object is lost sight of, and often defeated, by a combination of local and individual interests. Such, we fear, will be the case in relation to the project for a continuous railroad between Philadelphia and Pittsburgh—no, not between Philadelphia and Pittsburg, but between the east, the Delaware, and the west, the Ohio! This is the object in view, and it requires, and must have the united efforts of Pennsylvania to be attained. Why not then decide upon having a railroad, and then select able and disinterested engineers to examine the different routes, and decide upon one to be first constructed?

BOSTON AND MAINE RAILROAD.

Upper Route. Boston to Portland via, Charlestown, Somerville, Malden, Stoneham, South Reading, Reading, Wilmington, Ballardvale, Andover, North Andover, Bradford, Haverhill, Atkinson, Plaistow, Newtown, Kingston, East Kingston, Exeter, South Newmarket, Newmarket, Durham, Madbury, Dover, Somersworth, South Berwick, North Berwick, Wells, Kennebunk, Saco and Scarborough.

Winter Arrangement, 1845 & 6. On and after Monday, October 20th, 1845, Passenger Trains will run daily, (Sundays excepted,) as follows, viz.

Leave Boston for Portland at 7 1/2 a.m. and 2 1/2 p.m. Leave Boston for Great Falls at 7 1/2 a.m., 2 1/2 p.m. and 3 1/2 p.m. Leave Boston for Haverhill at 7 1/2 a.m., 2 1/2, 3 1/2 and 5 p.m. Leave Portland for Boston at 7 1/2 a.m., and 3 p.m. Leave Great Falls for Boston at 6 1/2 a.m., 9 1/2 a.m. and 4 1/2 p.m. Leave Haverhill for Boston at 6 1/2, 7 1/2, and 11 a.m., and 6 1/2 p.m.

Special Train.—A special train will leave Boston for Andover at 11 1/2 a.m., and Andover for Boston at 3 1/2 p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value. CHAS. MINOT, October 20, 1845. 43 ly Super't.

SPRING STEEL FOR LOCOMOTIVES,

Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel for 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, j5a3 Albany Iron and Nail Works, Troy, N. Y.

A. & G. RALSTON & CO., NO. 4

South Front St., Philadelphia, Pa. Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/2 x 1/2 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/2 x 1/2 " Flange Iron Rails. 75 " 1 x 1/2 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

MACHINE WORKS OF ROGERS,

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.

FOR SALE AT A SACRIFICE—A LOCOMOTIVE ENGINE,

4 wheels and Tender. Cylinders 10 in. dia., Stroke 16 in., Cylinders inside of smoke box. Weight of engine, with wood and water, about 9 tons. This engine and tender are new, and of the best materials and workmanship. If required, would be altered to a 6 wheeled engine.

Also, 1 20-horse High Pressure Steam Engine. 2 8-horse " " " " 1 Upright Hydraulic Press.

All of which will be sold low, on application to T. W. & R. C. SMITH, Founders and Machinists, Alexandria D. C. May 19cf

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

This Road in connection with the South Carolina Railroad and the Western and Atlantic Road now forms a continuous line of Railroad of 360 miles from Charleston to Cartersville, two miles west of the Etowa River in Cass County.

Rates of Freight, and Passage from Augusta to Cartersville.

On Boxes of Hats, Bonnets, and Furniture per foot..... 15 cts. " Dry goods, shoes, saddlery etc., per. 100 lbs. 85 " " Sugar, coffee, iron, hardware, etc. " 70 " " Flour, bacon, mill machinery etc. " 33 1/2 " " Molasses, per hoghead \$9; salt per bus. . . 22 " Passengers \$9 50; children under 12 years of age and servants, half price.

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at Augusta. J. EDGAR THOMPSON, Ch. Eng. and Gen. Agent.

Augusta, Oct. 21 1845. *44 ly

NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. G. A. NICOLLS, Reading, Pa. ja45

GEORGE VAIL & CO., SPEEDWELL IRON

Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective iron and Brass Castings of all descriptions. t ja45ly

TWO RAILROAD COMPANIES AND MANUFACTURERS

of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.

NORWICH AND WORCESTER RAILROAD.

On and after May 22, 1845, Trains will leave as follows, viz:— Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4 1/2 p.m. Leave Worcester, at 10 a.m., and 4 1/2 p.m.

The morning train from Norwich, and the morning and evening trains from Worcester, connect with the Boston, Western, and Hartford and Springfield railroads.

New York Train, via Steamboat. Leaves Norwich for Worcester and Boston, every morning except Monday, upon the arrival of the boat from New York, about 2 a.m. Leaves Worcester for Norwich and New York, at 5 1/2 p.m., daily, except Sunday.

New York Train, via Long Island Railroad.—Leaves Norwich about 3 p.m., for Worcester and Boston, daily, except Sunday. Leaves Worcester for Norwich and New York, at 7 1/2 a.m., daily, except Sunday, and arrives in Norwich at 9 1/2.

Freight Trains. Daily, except Sunday. Fares are less when paid for Tickets, than when paid in the cars.

EMERSON FOOTE, Superintendent. 32 ly

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.

This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 ly

WESTERN AND ATLANTIC RAILROAD.

The Western and Atlantic Railroad is now in operation to Martinsville, and will be opened to Cartersville, in Cass county, on the 20th of October—and to Coosa Depot, (formerly known as Borough's,) on the 20th of November.

The passenger train will continue, as at present to connect daily (Sundays excepted) with the train from Augusta, and the stage from Griffin.

CHAS. F. M. GARNETT, Chief Engineer. 43

LITTLE MIAMI RAILROAD.—DISTANCE 65 1/2 MILES. FARE, \$1 50.

From 1st November to 1st March Passenger Trains leave Cincinnati for Xenia at 11 o'clock, A.M.

Returning, leaves Xenia at 8 1/2 o'clock, A.M. Freight Trains run daily, Sundays excepted.

At Xenia, Passenger Trains connect with daily lines of stages to Columbus, Wheeling, Cleveland and Sandusky city.

W. H. CLEMENT, Supt. and Engineer. 1y 1

RAILROAD IRON.—THE "MONTOUR

Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sts. 43 ly

C. J. F. BINNEY, GENERAL COMMISSION MERCHANT

and Agent for Coal, and also Iron Manufactures, etc.

No. 1 CITY WHARF, Boston. Advances made on Consignments. Refer to Amos Binney, Boston.

Grant & Stone, Philadelphia. Brown, Earl & Erringer, Philadelphia. Weld & Seaver, Baltimore.

December 8, 1845. 1m 50

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

BALTIMORE AND SUSQUEHANNA
Railroad. The Passenger train runs daily except Sunday, as follows:

 Leaves Baltimore at 9 a.m., and  arrives at 6 1/2 p.m. Arrives at York at 12 1/2 p.m., and leaves for Columbia at 1 1/2 p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62 1/2. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3 1/2 p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc.

Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day on any passenger train.

D. C. H. BORDLEY, *Supt.*
Ticket Office, 63 North st.

31 ly

CENTRAL RAILROAD-FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

- On weight goods generally... 50 cts. per hundred.
- On measurement goods..... 13 cts. per cubic ft.
- On brls. wet (except molasses and oil)..... \$1 50 per barrel.
- On brls. dry (except lime)... 80 cts. per barrel.
- On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
- On hdds. and pipes of liquor, not over 120 gallons..... \$5 00 per hhd.
- On molasses and oil..... \$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, *Gen'l. Supt. Transportation.*

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA.—171 MILES.

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Augusta, Oct. 21 1845. *44 ly

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 25 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th-March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above.

35 ly

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Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. G. A. NICOLLS, *Reading, Pa.*

ja 45

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J.

Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to James P. Allaire, Peter Cooper, Murdock, Leavitt & Co. } New York.

J. Triplett & Son, Richmond, Va. J. R. Anderson, Tredegar Iron Works, Richmond, Va.

J. Patton, Jr. } Philadelphia, Pa. Colwell & Co. }

J. M. L. & W. H. Scovill, Waterbury, Con. N. E. Screw Co. } Providence, R. I. Eagle Screw Co. }

William Parker, Supt. Bost. and Worc. R. R. New Jersey Malleable Iron Co., Newark, N. J. Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly. 35 ly

GEORGE VAIL & CO., SPEEDWELL IRON

Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats and Shalting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective iron and Brass Castings of all descriptions.

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MACHINE WORKS OF ROGERS,

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 ly

THE SUBSCRIBERS, SOLE AGENTS

for the sale of Codorus, Glendon, Spring Mill, and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

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Jan. 14, 1846. [1y4] Philadelphia, Pa.

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Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, *Civil Engineer,* Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 ly

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Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

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RAILROAD IRON AND LOCOMOTIVE
Tyres imported to order and constantly on hand
by **A. & G. RALSTON**
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS.
etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of *letters patent* to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of *improving* their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
Albany, N. Y.

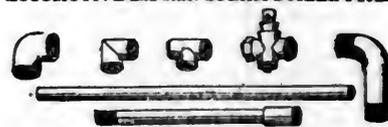
Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

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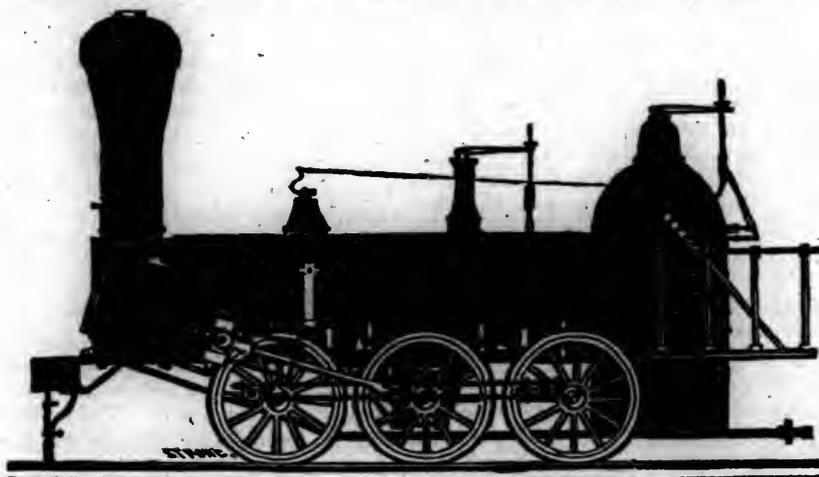
From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L's, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



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MORRIS, TASKER & MORRIS.
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NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches	Diameter of	Cylinder,	×	20 inches	Stroke.
"	2,	14	"	"	×	24	"
"	3,	14 1/2	"	"	×	20	"
"	4,	12 1/2	"	"	×	20	"
"	5,	11 1/2	"	"	×	20	"
"	6,	10 1/2	"	"	×	18	"

With Wheels of any dimensions, with their Patent A arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars

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RAILROAD IRON.—THE MARYLAND AND NEW YORK IRON AND Coal Company are now prepared to make contracts for Rails of all kinds. Address the Subscriber, at Jennon's Run, Alleghany County, Maryland.

WILLIAM YOUNG,

President.

TO IRON MASTERS.—FOR SALE.—MILL SITES in the immediate neighborhood of *Bituminous Coal and Iron Ore*, of the first quality, at Ralston, Lyoming Co., Pa. This is the nearest point to tide water where such coal and ore are found together, and the communication is complete with Philadelphia and Baltimore by canals and railways. The interest on the cost of water power and lot is all that will be required for many years the coal will not cost more than \$1 to \$1 25 at the mill sites, without any trouble on the part of the manufacturer; rich iron ore may be laid down still more cheaply at the works; and, taken together these sites offer remarkable advantages to practical manufacturers with small capital. For pamphlets, descriptive of the property, and further information, apply to Archibald McIntyre, Albany, to Archibald Robertson, Philadelphia, or to the undersigned, at No. 23 Chambers street, New York, where may be seen specimens of the coal and ore.

W. R. CASEY, Civil Engineer,

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 feet, with lathes, work benches, &c.

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 1/2 feet two stories high, with a shed part 45 1/2 x 20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide

For terms, apply to **HENRY ANDREWS, 48 State st.,** or to **CURTIS, LEAVENS & CO., 106 State st., Boston,** or to **A. & G. RALSTON & CO., Philadelphia.**

CYRUS ALGER & CO., South Boston Iron Company.

Report on the project of a railroad on the east bank of the Hudson river, from New York to Albany.—New York, January 20, 1846.

In compliance with instructions from a committee appointed by a convention held at Poughkeepsie in September last, I have examined the route of the projected Hudson river railroad.

Description of the Route.—An instrumental survey was commenced at Forty-second street, in Eleventh avenue of this city. Some examinations were made from Fourteenth street; and it has been thought best for the present estimate, to consider the route as starting from the lower end of Hudson street; following that street to its intersection with Fourteenth street; down Fourteenth street to the Eleventh avenue; and thence on this avenue to the point above mentioned, at Forty-second street, where the survey was regularly commenced. The line continues in the Eleventh avenue to Fifty-eighth street, and there diverges to the shore of the Hudson; it then follows the shore, (in the Twelfth avenue, for about one and a half miles,) occasionally cutting off points of projecting land, to the mouth of Harlem creek. Several of the projecting points are rock, the most important of which is that opposite Fort Washington. The shore of the river is generally favorable for an embankment, where it is necessary, between the projecting points, and along the banks that are too steep to admit the work to leave the river. The depth of water, as far out as the embankment will extend, at those places where mostly or entirely in the river, is generally from one to two feet at ebb tide; and in no place exceeds three feet. The loose stone that may be obtained along the shore, out of the earth that will be excavated to form the embankment, and from the rock excavation, will furnish sufficient materials to protect the river side of bank against the wash of the river.

In crossing the bay at the mouth of Harlem creek, a draw bridge will be required to accommodate vessels that pass up the creek a short distance to stone quarries. The channel is shoal, only admitting vessels at high water. The bay is sixteen hundred feet wide, and has from nothing to three feet depth of water at ebb tide. It may be crossed, partly by carrying out an embankment, and partly by a bridge supported on piles.

From Harlem creek the line continues on the shore of the river, in a position similar to that already described, until it reaches Tarrytown. On this portion very little rock occurs; and not sufficient stone is found to make all the protection against the river that will be required. The balance may be obtained from quarries in the vicinity. The river bank is generally less bold than along New York island, and a less amount of embankment will be required. The depth of water at ebb tide, rarely exceeds two feet at the outer base of the embankment. Except where the bank crosses bays between projecting points, the level of the ground at the centre line of road will generally be above high water level. At Yonkers, a draw bridge will be required, for vessels to pass up

Sawmill river; no other bridge will be necessary at this place.

At Tarrytown the line leaves the river, and runs across a point of land that projects too far to pass around. The summit of this point, where the line crosses it, is forty feet above the grade level of the road. The width across it, between points that are eight feet above grade, is thirteen hundred and twenty feet. It appears to be composed of earth that will be easily removed. A considerable portion of the earth from this cut will be required for an embankment across the low ground and marsh above, through which a small stream, called Mill river runs. This stream will require a bridge of thirty feet span. After crossing the marsh, the line passes over a low narrow neck of land, and then regains the river shore, which it follows to near Sing-Sing, much in the same manner and with similar facilities as described for the line below Tarrytown. About half a mile below Sing-Sing prison, a bold rocky point occurs, that forces the line out, and compels it to run three thousand seven hundred feet across Kemys' bay below. The water in this bay is of greater depth than usual; a portion of it is seven feet deep at ebb tide; materials for embankment may be conveniently obtained for a part of the distance, and the balance may be crossed by bridging on piles. After passing the point above mentioned, the line leaves the river, and passes over moderately uneven ground to the state prison at Sing-Sing, where it may go through between the prison and the hill, without, in any respect, injuring the safety or convenience of the prison. To do this, however, will require rather heavy expense in deep earth and rock cutting, in walls and in bridges, to accommodate the passages to and from the prison. Most, if not all, the work at this place could be done by the convicts.

After leaving the prison a short distance, the line curves around near the hill, so as to leave the most important wharves of Sing-Sing unaffected by the line of road; one of the docks at this place will require to be extended.

At Tarrytown and Sing-Sing, several small buildings will require to be removed; none of which are of great value.

From Sing-Sing, the line follows the shore of the Hudson to Croton bay. The Croton river empties into this bay, and a draw bridge will be required. The north side of the bay is bounded by Teller's point, which requires a deep cut to cross it. The length across the point that is above ten feet cutting, is thirteen hundred and eighty feet, and the greatest height above grade is seventy feet. It appears to be composed of sand and gravel of easy excavation, and will be used to a great extent in forming the embankments across the Croton bay on the south, and Collaberg bay on the north. After crossing the latter bay, the line reaches Collaberg village, running in rear of most of the wharves; it continues along the shore of the river for about four miles above Collaberg. This shore is in general more rocky and uneven than that before described below Sing-Sing. Several

brick yards are passed; some of which will require extra expense to provide for their accommodation. At this place it leaves the river, and enters a valley, that requires the grade of the road to rise for two miles, at the rate of thirteen feet per mile, and then descend by a similar grade to the shore of the Hudson, near Peekskill. It then follows the shore of the river, passing through Peekskill between the hill and some of the wharves, and just outside of others. The latter will require to be extended, so that vessels may reach them outside of the railroad.

At Peekskill the Highland section commences. After leaving the village, the line follows the shore of the river nearly half a mile, to a rocky point on the south side of Peekskill creek. Thence it crosses the broad bay at the mouth of this creek, a distance of three thousand five hundred feet, to a bold point called Royer Hook. The bay is shoal—generally two feet (but a few places three feet) water at ebb tide. A bridge supported on piles will be most suitable to carry the road across a greater part of this bay; a portion of it may be advantageously embanked. Vessels occasionally pass up the Peekskill creek, and a draw bridge must be provided for their accommodation. Passing Royer Hook the line continues along the shore of the river, two and a half miles, cutting off some rocky points, to a narrow promontory known as Anthony's Nose. The water is shoal, generally, at ebb tide, from one to two feet deep at the outer base of the bank. This shore is nearly all rock. The embankment will be formed mostly from the masses of loose rock that lie along the shore, and from that excavated from the cuts across several narrow points. The quantity required for the bank is not large, and the line very good. At Anthony's Nose the water is deep a few feet from the shore, but this is not material, as the direction of the line, to pass the nose, with a radius of two thousand feet, requires a deep cut across it, or a tunnel of about four hundred feet in length. Passing Anthony's Nose, the line enters a marsh, between an island and the eastern shore, and follows it about one and a quarter miles; then, crossing a low narrow ridge, mostly rock, it again by a direct line, reaches the river shore, which it follows for three-fourths of a mile. This shore is rocky, not very bold; the water, shoal, requiring a moderate amount of excavation for the grade of the road. The next three-eighths of a mile (the line continuing along the shore) the water is deep, requiring the most part of the road bed to be cut out of the rock. The line along the shore is very direct. The next fourth of a mile the water along the shore is shallow, and the line favorable. The line now leaves the river; cutting through a ridge one thousand feet across, it reaches a valley, which it follows; giving a direct line to West Point bay. The grading is very favorable through this valley until it comes nearly opposite the house of Mr. Phillips, where a deep cut must be made mostly through rock. This is the most formidable cut that is encountered on the route. Its length is one thousand nine hundred and

eighty feet, gradually rising from zero to sixty-two feet deep. A tunnel of five hundred feet will be estimated for, which will so reduce the quantity of rock that the balance may be advantageously used for the bank in the bay above. The bay is shoal water, and is to be crossed partly by an embankment and partly by a bridge on piles. The line then crosses a marsh, and part of Constitution island, to a small bay of shoal water, which it crosses immediately below Cold Spring landing, by a direct line of about two miles. It then passes through the village of Cold Spring, crossing the main street by a cut that admits a bridge over the railroad. From Cold Spring to Breakneck hill, a distance of two miles, nothing of note occurs; the line may be graded at a moderate expense. Breakneck is a short, bold point, and, to secure a good line, must be cut through. It will require a tunnel of five hundred feet in length. It rises abruptly to its summit, requiring no great amount of cutting, to reach the point to be tunnelled. After passing Breakneck hill, there is no serious obstacle to the line to Fishkill landing. It follows along and near the shore, where the water is shallow, and no great amount of rock occurs. The embankments and excavations will, mostly, be earth. It passes inside of Denning Point, and crosses the street leading to the main wharf at Fishkill landing, in a deep cut, that permits a bridge to be carried over the railroad.

Thus far the line has mainly followed the shore of the river. The total distance from Chambers street in New York city, to Fishkill landing, in Dutchess county, is sixty miles and a half.

On the route there are several places where bays are crossed, that will require culverts, or bridges, to allow small boats to pass under the railroad, as well as to provide for the flow of the tide into the bays. These culverts or bridges will provide for the streams that fall into the bays. In general, the estimate will be based on building permanent embankments across the bays, as well as along the margin of the river; protecting them from the wash of the river, partly by a regular wall, and partly by a mass of stone compactly formed on the river side of the bank. The bank to be raised ten feet above ebb tide, as the ordinary grade of the road; an additional height to be given at such points, as, from their exposure to ice, or heavy spray, appear to require it. Across some of the large bays previously noticed, where it is not convenient to obtain materials for embankment, it is proposed to construct the road on a bridge supported by piles, similar in plan (although much less length will be required for the piles) to that used for several railroads at Boston. For the several pieces of marshy ground that have been described, which mostly occur in the Highland district, where materials for embankment will not be convenient, a piled road is also proposed. These places may be easily filled up after the road is completed, and before the piles decay. The piles may be protected from decay, so as to last twenty or thirty years, during which time the embankments may be formed. Culverts will

be required to pass small streams at other places than those provided for in the cases above stated; the plan of these will be common to the whole line.

It has been stated that draw bridges will be required—one at Yonkers, one at Harlem creek, one at Croton river, and one at Peekskill creek. The first will be the most used; probably an average of six times per week; the others probably three times per week during the season of navigation. At this time they would not be used as much.—The plan proposed for the draw bridges, is one of recent adoption on a railroad in the vicinity of Boston, by James Hayward, Esq., civil engineer, which is found to operate very satisfactorily.

In the estimate provision is made for a wide road bed, particularly along the river, that will be sufficient to guard against any danger of running the cars into the river in the event of their being thrown off the track. It may be remarked, however, that railroads in many cases pass along on the banks of large rivers with only common width of roadway, without protection of any kind against such accidents as alluded to above, and they are scarcely noticed as circumstances of peculiar danger. It is nevertheless most prudent to make the protection afforded by a wide road bed.

The grade of the road from the point where it leaves the influence of the grades of streets in New York, is, with the exception of the line between Collaberg bay and Peekskill, (a distance of about five miles), essentially level. The departures being only cases to more effectually provide for the drainage of the road in deep cuts; and to rise at certain points, where it is supposed the ice or spray from the river may incommode the use of the road; all of which are for short distances, and will not materially affect the movement of a train of cars, the momentum of which will carry them over these short ascents.

The route from New York to Fishkill landing has been traced by instrumental survey. As this portion presented the difficulties of the enterprise, the surveys and examinations have been made with much care. It is quite probable that further surveys will indicate facilities for more or less improving the line; the estimate, however, is a computation made on an actual location; and may be regarded as sufficient for the requisites of the line, and will be presented in as much detail as is believed to be necessary for a full understanding of the subject.

The only instrumental survey between Fishkill landing and Albany was made by R. P. Morgan, civil engineer, in 1842. Mr. Morgan's survey does not appear to have been made as thoroughly as the one above presented; probably from the want of time and means to make it more complete. It is proper, however, to remark, that the delineation of country on his map and profile, and his description, so far as it goes, have been found by the recent survey to be substantially correct.

I have made a reconnoissance of the country between Fishkill landing and Albany, following the route surveyed by Mr. Morgan.

With his map and profile in hand, I could trace his line so far as to see its general correspondence with the formation of the country. It was not practicable, from this examination, to pronounce on the accuracy of the grades given by him; but the general form of the country, and the accuracy of his map and profile on the part that has been followed by instrumental examination, leave no doubt his map and profile are essentially correct for the remainder of the route. With these remarks I proceed to the reconnoissance from Fishkill landing northwards.

After passing Fishkill landing, Mr. Morgan's line follows the river about one mile, when the grade, (sixteen feet to the mile,) begins to leave the river shore, and, following a gentle slope, rises towards the table land, that prevails very generally between the village of Fishkill and Albany, at a distance of from one to five miles from the river.

The country from Fishkill landing presents a highly favorable appearance for carrying a line of easy grade to this table land. At a distance of about nine miles from Fishkill landing, the line crosses Wappinger's creek at an elevation favorable for a bridge over it. The bed and shores of the creek at this place are of rock, affording safe and convenient foundation for a stone bridge. The grade line has here attained an elevation of about one hundred and thirty-five feet above the level of the river. Continuing on various grades, of from two to ten feet per mile, the line reaches Poughkeepsie at an elevation of one hundred and seventy-five feet above the river. There are several small streams between Fishkill landing and Poughkeepsie that will require culverts; two, of ten feet span; two of six feet, and four of two feet span. There are four valleys crossed on this section of the line, that will require considerable embankments. Generally, the cuttings and fillings are of moderate extent.

On leaving Poughkeepsie, the line crosses Fall creek, a stream that will require a bridge of from thirty to forty feet span. Proceeding northwards, the country is irregular for a distance of three miles. The line passes small knolls and hollows; some of the former are rocky, though in general there are materials convenient for the embankments required. The soil inclines to heavy loam, with gravel and sand interspersed. The prevailing rock is graywacke. The line here reaches a beautiful plain, very moderately undulating.—With very light work it passes the village of Hyde Park. After passing Elbow creek, half a mile north of Hyde Park, the country is moderately irregular to Rhinebeck. A large portion of this is under the grade level; requiring, generally, light embankments, with two valleys, one of twenty feet, and one thirty feet below grade; materials for filling are easily obtained at short distances. Rock appears in several places, and becomes more slaty. About Hyde Park the soil is sand and gravelly loam; as the line approaches Rhinebeck, the soil becomes a stiff clay loam, and near Rhinebeck sand and gravel again prevail. Near the village of Rhinebeck, the line crosses Landman creek; which will re-

quire a bridge of twenty-five feet span. With the exception of this and Fallkill at Poughkeepsie, there is no stream requiring a culvert larger than ten feet. Elbow creek requires a culvert of ten feet; and for other streams, one of six feet, two of four feet, and three of two feet, will be required.

At Rhinebeck the line is on a beautiful table land, over which the grade is maintained very easy, to the village of Red Hook, a distance of nine miles. The surface soil is sandy loam; resting probably on clay, and in some places on slate rock. Very little rock appears in the immediate vicinity of the line; though it appears at several places in small ridges from one-fourth to one mile from it. The rock continues to be graywacke and slate. Saw Kill creek is the only stream of note on this section; and will require a culvert of ten feet span. Other small streams will require two culverts of four feet, and three of two feet span.

From Upper Red Hook the country continues highly favorable to Clermont. About one and a half miles north of the latter place the line crosses Ancram creek, a stream that will require a bridge with sixty feet water way. Thence to Hudson, the country presents a surface that may be graded for a moderate expense. The soil is generally a clay loam; sand and gravel appear to occur but seldom. The prevailing rock of this section is graywacke and slate. Near Hudson, two limestone ledges occur. The rock generally occurs in insulated ridges and knolls, at a distance of one-fourth to one-half a mile from the line. One culvert of ten feet, two of six feet, two of four feet, and five of two feet span, will be required.

From Hudson the line inclines easterly, passing over favorable ground about three miles to Claverack creek. This creek will require a bridge of eighty feet water way. For a distance of two miles, including the valley of this creek, the ground is uneven, requiring embankments of considerable extent in crossing ravines in the table land, which, with the exception of these ravines that have been cut by small water courses, presents a favorable surface. It then for two miles presents light work, to a valley opposite the print works, near the mouth of Claverack creek. This valley will require a heavy embankment. After leaving it the line is highly favorable for three miles, where it reaches the Kinderhook creek, a short distance above Stuyvesant falls. The situation for crossing is very favorable, presenting a rock foundation for a bridge. The bridge will require a water way of one hundred feet. After crossing this creek, the line continues on the Kinderhook plains, and for about one and a half miles, (which brings it opposite the village of Kinderhook,) will be graded at a small expense. The surface of the ground then becomes considerably irregular, for about one mile: the line being frequently crossed by narrow ravines, that fall below the general surface of the plain. It then presents a very favorable surface for about four and a half miles to Mitchell's creek. This stream will require a culvert of

fifteen feet span. The embankment across its valley will be heavy. From Mitchell's creek to Van Buren creek, a distance of three and a half miles, the country is moderately irregular, without any important features, and will be of a medium character in expense of grading. The line is here descending from the level of the Kinderhook plain, to regain the banks of the Hudson. From Van Buren's creek, for five miles north, it is intersected by numerous ravines, the most prominent of which are those of Mourdeners' creek and Vredi Kill. Van Buren's creek will require a bridge of forty feet span; Mourdeners and Vredi Kill 20 feet each. This section of five miles will be expensive grading. After passing it, the line occupies very favorable ground for the next five miles, which brings it to the banks of the Hudson opposite Albany. In addition to the bridges and culverts mentioned in the above description, there will be required, between Hudson and Albany, one of eight feet span, one of six feet span, five of four feet span, and eight of two feet span. The soil on this section is with few exceptions a heavy clay loam. The rock in the vicinity of the line is mostly slate with a small proportion of graywacke.

In reference to the general character of the country from Fishkill landing to Albany, it presents a very favorable surface to obtain easy grades, and good lines for a railroad. It is quite probable the line run by Mr. Morgan may, by a thorough survey, be much improved in several places. In order to prepare an estimate, computations of quantities have been made from Mr. Morgan's profile, and my own observations, which will be made the basis for the line above Fishkill landing. The estimates provide that all bridges on this division, (above Fishkill landing) and all culverts are to be constructed of stone masonry. At situations where the ground admits of it, public roads are provided to pass over the railroad on bridges, composed of stone abutments and timber flooring.

From the surveys and examinations above detailed, it may be remarked, that the project of a railroad from New York to Albany, on and near the east shore of the Hudson, is not only practicable, but may be accomplished at a reasonable expense, as compared with railroads generally in this country. The grading of about twenty miles through the Highlands will be, decidedly, of an expensive character; but less so than might be expected from the general appearance of the country. About forty miles, extending from New York to Peekskill, running mostly along the river shore, will be rather heavy in the expense of grading. The remaining distance of eighty-four miles, from Fishkill landing to Albany, is, in general, a line that may be graded at a medium rate of expense. The great length of favorable line, as compared with that most expensive, so modifies the general average of grading, that the route as a whole, cannot be regarded as very expensive. It may be further remarked, that after the grading is accomplished, all other expenses, such as superstructure, depot stations, engines, cars, etc., will be essentially

the same for roads of equal excellence, irrespective of the cost of grading.

Character and Importance of the Trade.

Before proceeding to the estimate of expense, it is necessary to consider the character and magnitude of the traffic the road is designed to accommodate.

It will not be controverted that the construction of railroads within the last ten years, in opening new, and improving old avenues of intercommunication, has produced a material influence on the relative advantages of commercial towns. Natural obstacles to trade, heretofore deemed insurmountable, have been to a great extent overcome, and in a greater or less degree, advantages equalized. There seems no good reason to doubt that this mode of improvement will go on still more to equalize advantages by those means which have hitherto proved so successful, and cases will no doubt occur where the artificial channels of communication will supercede the natural to a much greater degree, and change the commercial aspect of towns.

This city enjoys natural advantages for trade of a very high order; and these have hitherto carried her forward at such a rapid rate, that her citizens have not thought it necessary to make any important movement to improve these advantages. The Hudson river and the canals of the state have borne their immense commerce to her wharves.— Until recently, it was supposed that nature had set its barriers so firmly against any change, that no diversion from this course of trade could be effected. While it is fully believed these advantages will continue to afford the elements of extensive business to the city, it cannot, on the other hand, be doubted, that efforts for diversion, in the manner above alluded to, will be successful to a great extent. The present object, therefore, is to consider how the enterprize under consideration may be made beneficial in maintaining and advancing the ascendancy of the city, in the present and prospective commerce of the country.

While the western and northern trade depended wholly on the canals for transportation to the Hudson, there was comparatively little importance in the means of winter transportation on the river. When the ice closed the Hudson, it also closed the canals, and the transit of property was suspended throughout. The opening of the railroad from the Hudson river to Buffalo for the transportation of freight during the winter, has materially changed the aspect of this question. During the close of navigation on the Hudson, the only convenient avenue to an Atlantic market, for the produce brought down the railroads from the western part of this state, is to Boston. Last winter was the first under this arrangement of trade; its influence was not very great; still it made considerable change in the direction of agricultural products—particularly in the pork trade from the western part of this state.* If the pork trade takes

* It appears that pork in the hog is worth from 25 to 50 cents per hundred more, if it can be carried to Boston or New York, than if packed in the country. This is an inducement for farmers to keep it, until the weather will permit its being sent to Boston by

that direction, other articles will go with it, and, more or less, the whole produce trade will be affected. And as produce finds a market in Boston by means of superior facilities in transportation, merchants from the country will be led to that market for the supply of goods they need, and manufacturers for the cotton, etc., they want in the winter season. Connections once formed will naturally lead to more or less business at all seasons; an advantage, it is not probable the enterprising merchants of Boston will leave unimproved.

As a naval depot, it is very important this city should have a good winter communication with the interior, without which other Atlantic cities, having far less advantages in other respects, will be preferred, from the facilities which railroads will give them of keeping up their communications throughout the year.

It is believed to be unnecessary to dwell more on this point. The fact that the roads west of the Hudson are authorized to carry freight in the winter, renders it obviously of great importance that a continuation of these roads should extend to New York, in order that this city may have a fair participation in the trade—may at least be a competitor—and our fellow citizens in the interior have a choice of markets.

This may, and probably will, be greatly affected at times by the state of the Atlantic markets in the winter. But as an enterprise of the extent of the projected work cannot be sustained by the trade that may be occasionally stimulated to unusual activity, it is not regarded as suitable data on which to rely for its prospects of usefulness, though it may often be quite important to the commerce of the city, and the profits of the railroad.

The position will hardly be denied, that a railroad on the route proposed, adapted to the most economical transportation of freight during the winter season, would be of great commercial importance, both to this city and the interior of the state. At the same time, it cannot be supposed that a railroad on the margin of the Hudson would carry any important amount of freight, when the river was not obstructed by ice. Probably one freight train per day, would be as much as could be sustained at remunerating prices during the season of navigation; and, depending mainly on a winter business, averaging about four months of the year, it is not believed the road would afford an income sufficient to remunerate the capital required for its construction.

The legislature, by repeated acts, have authorized the construction of a railroad between New York and Albany; and efforts at different times have been made to obtain the funds required for its construction. But hitherto it has not sufficiently commanded the

the railroads. The experience of last winter, as a first specimen of this new course of trade, leaves no doubt that the main export from the Mohawk valley the western and much of the northern part of this state, will go to Boston, unless some new channel is provided for a winter transit. It is said that the principal export of pork, last winter, from Rensselaer, Saratoga and Albany counties, was to Boston.

confidence of capitalists to obtain the requisite means. The prominent reason has probably been, the belief that no railroad could compete with the Hudson during the season of navigation, even for the passenger business.

It is now proposed to investigate the capacity of a railroad to compete with steamboats for a portion of the passenger trade.

A few years ago, it would have been considered a hopeless task to undertake to show that any railroad could maintain such competition. But the safety, ease, rapidity and economy in the transportation of passengers by railroads, which experience now exhibits, places the proposition in a different light.

The first consideration is the speed at which the railroad may convey passengers. This will depend mainly on the character of the road—its directness of line—its grades—and the smoothness and firmness secured in its construction.

In regard to direction, the proposed route will be from four-fifths to five-sixths straight line; the remainder will be very easy curvature, only four instances as low as two thousand feet radius; the remainder being from three thousand to ten thousand feet radius.

In regard to grade, nearly half the length of the road will be level; the remainder will be ascending or descending at the rate of from seven to seventeen feet per mile.

The line and grade may therefore be regarded as well adapted to a high rate of speed.

Plan of Road.

The following plan of road is proposed:

Width of excavations, generally 34 feet, for a double track; embankments, 26 to 30 feet; the latter width being for more exposed places on the river shore.

Foundations for superstructure, to be of clean gravel or sand, 2½ feet deep, where such material can be had; where this cannot be obtained of sufficient purity, broken stone to be substituted so far as may be necessary. With a road well drained, such a foundation will be safe from heaving by frost, which is so obviously an indispensable requisite for a good road, that I do not consider a discussion on its propriety necessary.

On the foundation prepared as above, chestnut cross sleepers, hewed flat on two sides, to give not less than 6 inches thickness of timber, to be laid down to receive the rails. This is the only timber I propose to use in the superstructure, except for special purposes. On these sleepers, laid down at the rate of seven sleepers to eighteen feet, or nearly 2 feet 7 inches from centre to centre, I propose to lay an iron rail, that shall weigh seventy pounds to the yard. The road to be well fenced against cattle, etc.

Well constructed on the plan described, the road would be superior to any hitherto constructed in the United States, and would be well adapted to a high speed, especially on a line, having its curves and grades as favorable as may be had on the route of the proposed railroad. In the winter, snow could be readily cleared from the track of such a road, and consequently it would be well adapted to a winter business. The advantages of a substantial work, would not only render it

more useful as a means of transit, but would reduce the expense of repairs.

A speed of 30 miles per hour has been successfully maintained on the Long Island railroad, on the Norwich and Worcester, and to some extent, on other roads in this country. The first of these is very direct in line, with grades to some extent of 40 feet per mile: the second, with grades of 30 feet to the mile, and not peculiarly favorable in its curves. A greater speed is regularly maintained on the Great Western railroad in England. On each of the above roads a much higher speed has been run, on special occasions. In view of the character of the proposed road, a speed of 35 miles per hour can in no respect be regarded as a matter resting on speculation. Experience has fully shown, that this speed may be regularly accomplished, and that the motion is pleasant and highly satisfactory to travellers in general. It is believed that no road, having established a high rate of speed, has been required by the public to adopt a lower rate. It is proverbial in this country, that travellers, either for business or amusement, generally prefer the most expeditious mode of conveyance. Adopting this speed, 35 miles an hour, the time required to make the passage between this city and Albany may be taken at four hours and a half. This would only allow such stops as are necessary to replenish wood and water. Trains for way passengers would require about one hour more, or 5½ hours between the two cities.

It is confidently believed that such a railroad would maintain a successful competition with steamboats, during the season of navigation, provided the railroad fare should not exceed \$1 50 to \$2 for a "through" passage. In order to ascertain at what rate of fare the proposed railroad can afford to run, an estimate of the cost will be presented, and then the cost of running it will be examined.

The estimate for grading provides for a double track from New York to Poughkeepsie; and thence to Greenbush, the masonry of culverts and bridges for a double track and the cutting and filling for a single track.—Between New York and Poughkeepsie the grading should be at first prepared for a double track. One prominent reason for this is, that a large portion of this section lies along the river, requiring defences against its action, consequently the full width must be made, or about twice the expense of such defences will be incurred by first making a single and then enlarging for a double track. On this part of the route, a double track will be wanted as early as it can be laid down. Above Poughkeepsie, a single track will do a large business, and the second track may be left out of view for the present, though a double track throughout must be looked to as necessary to meet the ultimate demands of business, and render the enterprise complete. The district through the Highlands, (from Peekskill to Fishkill,) should have a double track laid down before the road is put in operation to Greenbush. The trains may easily be arranged to meet on this district, but more latitude in time of starting will be se-

cured by completing the double track from New York to Poughkeepsie. It may however be very well managed with a double track through the Highlands, which can be extended while the road is in operation.

In the estimate the price of iron rails delivered in New York is taken at \$75 per ton (of 2,240 pounds.) This is not sufficient at the present market price, but some reduction may be looked for, before much will be wanted for the proposed road. In using a rail weighing 70 pounds per yard, its price makes a heavy item in the cost of the road; but there can be no doubt, such a rail will be the best economy, if not indispensable to successful operation under high speed. I therefore do not hesitate to recommend this weight of rail as best adapted to the wants of the road.

The estimate for land and damages, must be regarded in a great degree as conjectural, though it is believed to be a reasonable approximation. The inhabitants along the line have generally manifested a very friendly, and many of them an ardent interest in the enterprise. The opening of a cheap and easy winter (as well as a rapid summer) communication through this district, now very much secluded during the suspension of navigation, may well be regarded as highly important to their interest. This, if it does not lead to cessions of land, may be regarded as a protection against excessive damages. The line from this city to Fishkill landing, a distance of 60½ miles, occupies very little ground that is of much real value; if the ground under high water line be excluded, this section will not require over 300 acres of land; and but a small amount of buildings, or building lots, will be in the way. The line will, however, cut off some small strips of ground in front of country seats, whose owners claim that they would be damaged by the road.—With the exception of a few trees, that in some cases will be cut off, it is difficult to see what serious damage will be done; while on the other hand the road will be an effectual defence against the action of the river, which now requires at many earthy points, considerable expense to maintain the banks, and will therefore in such places be more real benefit than injury. With a proper regard to the situation of the grounds, in locating the line, a well constructed railroad along these situations should not be regarded as a material injury, but an ornament and convenience. A railroad well fenced and operated by steam power, will interfere with the retirement of these situations, little if any more than a steambot passing down the river; the occasional passing of a train will give a lively variety to such situations, and make them more rather than less interesting to most persons. It is therefore believed very few of the owners, on full consideration of the subject, will be willing, by claims of excessive damage, for what is only valuable at most as a matter of taste, to put themselves in the way of an important enterprise, which the great mass of their fellow citizens regard as highly useful, and indeed necessary to their welfare.*

After leaving Fishkill landing, the line

* Extract from Westminster Review, Dec., 1845: Art. 7; railway investment.—“So also it is with

for the most part passes through an excellent farming country to Albany. The average price of farms for this section is probably not far from \$60 per acre; ranging from \$40 to \$100, for farming purposes. The line must sometimes cut farms unfavorably, causing greater damage than the value of the land.—It is an important consideration, to this section in particular, that the road is to be well fenced. Building lots and buildings must be interfered with or occupied to some extent; though this will be very small for the extent of the line. This section of the route will require about 800 acres of land; and with the section below Fishkill landing, a total of eleven hundred acres. A small amount of this will be wanted for stations and depots.

I have estimated this item at \$250,000, exclusive of depot grounds in the city of New York, which is quite as much as it ought to cost; and probably it will be sufficient.

Summary of Estimate.

Grading 141.69 miles, viz.		
From 14th street to Harlem creek.....	10.61	\$243,080
From Harlem creek to Peekskill.....	30.30	622,300
From Peekskill to Fishkill.....	17.40	688,200
From Fishkill to Poughkeepsie.....	15.12	194,920
From Poughkeepsie to Greenbush.....	68.26	856,480
For extending wharves at several places.....	Est'd 30,000	\$2,634,980
Fencing, estimated.....		110,000
Land and damages, estimated.....		250,000
Superstructure.		
For one single track, with 20 miles double track, and extra for sidings at stations, depots, etc., together equal to 168 miles single track, at \$11,200.....		1,881,600
Amount.....		\$4,876,580
Add ten per cent. for contingencies and superintendence.....		487,658
		5,364,238
Engines, cars, depots, etc.....		630,000
Total.....		\$5,994,238
Say.....		6,000,000
Length of road from Chambers street to intersection of 14th street and 11th avenue..... 2.20		
Do. 14th street to Greenbush.....	141.69	
Total.....	143.89	
Say.....	144	

The following extract from the Mining Journal of 20th December, gives an interesting and useful, yet very concise account of the fluctuations in the iron trade of Great Britain since 1830:

landed property. Observe in the London advertisements of estates to be sold by auction, the care with which the attention of capitalists is drawn to the fact that this highly 'eligible property,' although 40 miles distant, 'is within an hour of the metropolis, by the Great Western, with a station close at hand.' The auctioneer knows well that his great capitalist would never go near the spot, if he were told 'you must travel by coach or with post horses, and the journey will occupy you half a day.' The landed aristocracy will not cease, for some time longer, to plunder railway companies under the pretence of vested rights; and yet not only do estates in the neighborhood of railways rise in value, but such is the preference for property so situated, that estates without them can with difficulty be sold; a country residence that can only be reached by the old modes of travelling, is deemed practically inaccessible, and as property, is really depreciated in the market to the extent of five, ten, and fifteen per cent."

At a time like the present, when the increased demand for iron for railway purposes is considered as having a considerable influence on its manufacture, whether with reference to its cost or otherwise; and, while various estimates have been made as to the capacity of our several works to supply the increasing demand at home and abroad, it may be well to refer to the prices of bar iron for the past fifteen years. In the year 1830, we find the price of bar iron in Wales quoted 5l. 10s.; in 1833, it realized 7l. 2s. 6d.; but, again, in 1835 dropped to the former quotation; the next two or three years (remembered, doubtless, by many of our readers) created a demand, in some degree, artificial, and we find a corresponding advance in price. Thus, in 1836, our highest quotation is 10l., while in 1837 we have one as low as 6l.; a rally having, however, taken place in 1839, we again find bar-iron quoted at 9l. 10s., while in less than four years it is reduced below any price already quoted, as in the months of June, July, and August, 1843, bar iron was sold at 4l. per ton. In the past year no higher price than 5l. 15s. was obtained; and at the commencement of the present year the price quoted was 6l. to 6l. 10s. On referring to our present quotations, it will be seen that the price has advanced to 50 per cent., the nearest figure being 9l. 15s. to 10l. per ton.

When it is considered that the make of two works, with thirty furnaces, yield, taken at the rough, 3000 tons per week, or 150,000 tons per annum, it requires little power of imagination to consider the importance to be attached to this branch of our manufactures. If we value the produce of these two works (Guest's and Crawshaw's) at the price quoted in 1843, assuming the entire make to be converted into bar iron, we should find it to amount to 600,000l. per annum, while, at the present prices, it would give a return of 1,350,000l.

The Scotch Iron Trade.—There appears to be no end of new iron works. We have just heard of several works about to be erected, but four certain, viz., one in the parish of Lesmahagow, another near Wilsontown iron works, a third at Dalmellington, and a fourth near Kilmarnock, each of which will probably commence with four blast furnaces. It may be interesting to estimate the production when the projected works are in full operation. There are in blast, at present, ninety-one furnaces, and it is expected that twenty-five additional ones will be in blast in three months. Now, with the several new furnaces abovementioned, there will be in blast next year no fewer than 132 furnaces. These furnaces will produce the enormous quantity of 17,000 tons weekly, or 884,000 tons annually, which, with the English production of 1,200,000, will give a total produce of 2,000,000 tons of pig iron annually. So large and increasing a production accounts for the great accumulation of the stock of pig iron, the stock in Glasgow is estimated at upwards of 250,000 tons, notwithstanding the extraordinary demand made for this article for the purposes of railway companies.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.

Saturday, February 14, 1846.

Anthracite Furnaces in Pennsylvania.

We republish the list of anthracite furnaces in Pennsylvania, for the purpose of requesting gentlemen who may receive it to furnish us with a statement in relation to each furnace, forge and rolling mill within their knowledge. We desire to obtain a list of each iron manufactory in the country.

The following list of furnaces in Pennsylvania, using anthracite coal, has been furnished us for publication by an intelligent dealer in iron. The object is to show what is doing in the manufacture of iron now in this country, and what we have to rely upon for our supplies during the next three or four years; we shall be under still greater obligation to him for a similar one of the charcoal furnaces and the rolling mills in the state, as we desire to show those interested in the construction of new railroads, that we shall soon be able to meet the demand for iron for all our own purposes, especially for railroads.

Names of Furnaces.	Proprietors.	Ft. bo-	Yld per
		hes.	wk.
1 Lackawanna	Scranton & co.	10	30
2 Fishing creek	Iron Dale company ..	14	150
1 Roaring creek	S. R. Wood	9	35
1 Danville	Groves	9	35
2 "	Montour iron comp'y ..	7 1/2	30
1 "	"	12	130
1 "	"	15	80
1 Red Pt. 3 m. below ..	Samuel R. Wood	14	75
1 Shamokin	Bryant & Wood	10	45
1 Harrisburg	David R. Porter	11	55
1 Mount Joy	W. Stewart & co.	8	30
3 Columbia	Proprietors unknown ..	8	30
1 York	"	10	40
1 St. Clair	Burd Patterson	14	75
1 Pottsville	G. G. Palmer	9.2	35
1 Valley 6 m. above ..	Pomroy & Harbeson ..	8	30
1 Reading	Eckert & Broth	14	75
1 Phoenixville	Reeves, Buck & co. ...	9	35
2 "	"	12	130
1 Conshehocken	S. Colwell & co.	10	40
1 Spring Mills	Kunzi & Farr	10	40
1 1/2 mile below S.M. ..	Livingston & Lyman ..	13	60
1 South Easton	Goodell & co.	9	35
1 "	"	11	50
1 Glendon 1 1/2 m. ab. ..	C. Jackson, Jr.	10	60
1 "	"	12	75
1 Cranestown	Lehigh Crane iron co. ..	14	85
1 "	"	12	65
1 "	"	18	100

* In blast. † Nearly completed. ‡ Preparing to blow in. § Now erecting.

The Southern and Western Literary Messenger and Review.

Number 1, volume XII, for 1846. B. B. Minor editor, Richmond, Va.

This excellent periodical, the first appearance of which we well recollect in 1834, or 5, has now en-

tered upon its twelfth year. The number for January, which was delayed by the absence of the editor, reached us late in the month, and we have only had an opportunity to glance at its contents; but from the hasty examination that we have been able to give it we are led to believe that it fully sustains its early reputation, and entitled to a position among the periodicals of the day, second to none, and superior to most, of them. Its prominent and valuable features are that it addresses itself more directly to the reason and judgment than to the passions, whims and caprices of the reader; and it may therefore be with safety and propriety placed in the hands of the young, as well as of those of mature age, as no one can read it without deriving useful lessons from its pages; we hope, therefore, that it has acquired an extensive circulation, and that its editor has derived ample returns for his labors. It should certainly receive a liberal support from the south and west, whose able advocate it is, without being sectional.

Its motto is not altogether to our liking, though we go the whole for the first part of it, viz. "In the union and for the union;" but the remainder, "In the south and for the south and west," might, we think, be improved somewhat by slight modifications. We will not, however, suggest any at present, as we might not improve it. We give the prospectus in this number, and shall be glad to receive and forward subscriptions for any of our readers who desire to obtain the work: or they can enclose the amount direct to the editor.

It is published monthly, 64 large octavo pages, on beautiful paper, at five dollars a year in advance.

The Southern and Western Literary Messenger and Review.—Having purchased, from the proprietors, Simms' Southern and Western Monthly Magazine and Review," it will, from this time be blended with "The Southern Literary Messenger."

The Messenger has been established more than eleven years—much longer than any other southern work ever existed—during which it has maintained the highest rank among American periodicals. It has always been eminently southern; and for several years has been addressing itself to the west, both editorially, and by its ablest contributors. It will continue to address itself to the south and west. To indicate this, and its union with Simms' Magazine, the titles of the separate works will be blended in "The Southern and Western Literary Messenger and Review;" retaining the features of each, but improving them as far as practicable. While it will be distinctively the advocate of the south and west, its motto will be, "In the union and for the union! In the south, and for the south and west!"

It will be published simultaneously in Charleston and in Richmond. The subscribers to Simms' Magazine especially, and the friends of southern and western literature, and the public generally, are invited to enlist in its behalf.

The aid of Mr. Simms has been secured, not only as a contributor, but in the critical and editorial department; and other southern and western contributors will be added to those already engaged for the Messenger. Communications for the "Messenger and Review" may be sent to the office in Richmond.

Each number of the "Messenger and Review" will contain 64 super-royal octavo pages, filled with the choicest matter, of great variety—embracing novels, tales, poems, travels, critiques, reviews, histories, biography, papers on the army, navy, and other national affairs, and discussions of all questions affecting the rights, interests and institutions of the south and west.

The subscription price will be \$5, but the work will contain very nearly twice as much matter as Simms' Magazine, and be published in an elegant style, like the present Messenger.

Those indebted to the Magazine, will please make immediate payment. \$7 50 will be taken in full for subscription due to Simms' Magazine, and for the "Messenger and Review," for 1846.

B. B. MINOR, Editor and Proprietor. Richmond, Va., January, 1846.

Hudson River or N. York and Albany R. R.

In our last number but one, we referred to the report of Mr. J. B. Jervis, in relation to the river route for a railroad to Albany. We then promised to give the report, and we now proceed to redeem that promise, at least in part.

We have also now before us the recent annual report of the New York and Harlem railroad company, to the secretary of state, accompanied by the report of the chief engineer, Mr. Allan Campbell, in relation to that work beyond White Plains; from which we learn that they are progressing very fairly—more than one-half of the excavation between White Plains and the north line of the county, 25-82 miles, is already done, and the balance of the grading is to be done by the 1st of May; they have also located, and got nearly ready for contract, 28 miles further to Dover, in Dutchess co., which is 54 1/2 from White Plains, and 82 from New York; and their engineers are still in the field—thus showing that they intend, at all events, to make a railroad to, or to connect with some other road near, Albany; let others do what they may.

These reports bring to mind what has passed in former years; and we have referred back to the report of Mr. J. D. Allen, published in the Railroad Journal in January, 1837, and to Mr. E. F. Johnson's report, published also in the Railroad Journal, in January, 1839. From a reference to these reports we find that though not precisely, yet they mainly follow the same route, viz: the valleys of the Bronx, Davis' brook, Sawmill river, and the Croton, which may be considered the most favorable for an interior line; its grades being within what are considered favorable for locomotive power and high speed.

From the remarks of gentlemen, interested in the river route, at the meeting for the receipt of Mr. Jervis' report, we are led to presume that that road is to be constructed, and that, too, without delay, and in the very best manner, so as to insure the highest rates of speed, [35 miles an hour,] and the lowest rates of fare, [\$1.50, through, or about one cent a mile,] that have been adopted in this country—if they obtain a charter. We are also assured by those who now have the management of the interior line, and who are giving substantial evidence of their determination to carry their road through to Albany—or, at least, to a connection with the Albany and West Stockbridge road—thus opening a railroad communication between this city and Albany, though not such an one as is proposed by those who advocate the river route; nor, indeed, such an one as we should and must have between the two capitals of the state, to compete successfully with the Hudson river on the one hand, and the Albany and Boston, and the Housatonic railroad on the other.

There is no other route in the country where the success of the enterprize depends so entirely upon the superior character of the structure, as between New York and Albany, because there is no other line of equal extent, where the competition will be so great and so constantly increasing. The railroad, therefore, must rely mainly for most of its passenger traffic, both through and way, upon its ability for high speed and low fares. It is idle to think that a railroad will secure the travel, unless it has greatly the advantage in speed. Neither twenty, nor twenty-five miles an hour will answer. Nothing short of thirty, or thirty-five and even fifty miles will be sometimes required; and the company that intends to secure the travel, and to do a fair freighting business, must construct their road in the very best manner: and therefore it is that we place these two reports before the readers of the Journal side

by side, and shall endeavor also to lay them before, and bring them to the notice of, a large number of the people of *this city*, who have a deep interest in the matter—*much deeper*, indeed, than they *seem* to apprehend—that they might better judge of the merits and *probable* success of the two lines—or of either; but as *they* do not deem it important, we certainly need not.

Not only every *property* holder, and *business* man, but also every person who eats *bread* and *meat* at his own expense, has an interest in the proper construction of this line of road, and not only of its construction but of its *proper* location, as well, that it may draw to this city, at all seasons of the year, and *especially* in *winter*, the surplus produce, the *small notions*, and the *bulky* articles of agriculture manufactures and mines, to the *greatest possible* extent. *Vegetables*, *milk*, *eggs*, *meat* of all kinds, *poultry* and *flour* should be coming into this city every week, and *week* day of the year, not only from the counties along the line, between here and Albany, and from the *west*, even to *Buffalo* and *beyond*, but also from the entire valley of *western Vermont*, one of the most productive regions in all New England through which there will be a good railroad from Canada line, via Burlington, Rutland and Bennington to Pittsfield, Massachusetts, there to connect with the Boston and Albany road, and from whence *we may*, if *we will*, take a large share—but to do so we must be awake, and open a *direct* road, of a superior character, or it will go to Boston, for their benefit as they deserve, and we shall lose it as we *richly* deserve, if we do not adopt all *proper* measures to draw it here.

Now that the people of this city *begin* to be aroused to the importance of a road northwardly, the question naturally arises *how* shall it be *constructed*, and *where* shall it be located, that it may accomplish the greatest good to the greatest number of people.

The first question is answered *satisfactorily* in Mr. Jervis' report. It must be constructed in the *very best* manner, and it will cost from *thirty* to *thirty-five* thousand dollars per mile; but the second question is not so easily disposed of. There are many things to be considered: rival routes and local interests are to be considered and reconciled. *Other* things being equal, we should strenuously urge the interior route—because, 1st, it would develop new and important resources—afford facilities to those who are now in a measure isolated, and open a new avenue for the people of this city to enjoy country air, country residences and country pleasures; and at the same time enable us to *intercept*—by a branch from the main line, somewhere in Columbia county, or, indeed, by a road already built to the Massachusetts line—the rich products of western Vermont, and northern New York, as they come down to *Pittsfield* on a road soon to be constructed, on their way to *Boston*; as well as a part of what now goes to Boston over the *Western* road, from the interior of this state, and from the west. Such would be *some* of the results of a railroad properly constructed through the interior of the river counties, to Albany. We say *to Albany*, because the line between New York and Albany *must* be *independent* of all other, or rival management—with a branch to the Western railroad where it crosses the Massachusetts line. But, to enjoy all the advantages within our reach, by such a medium of communication, our capitalists and business men should become *interested* in, and contribute largely to the construction of the *western Vermont* road from *Rutland* to Bennington and the Massachusetts line, that *they* may have a voice in its management, as well as the business men of

Boston, who are now moving for that trade, and *will have it too*—unless we open a way as good as their's, for it to roll down to us.

This, then, is our choice of routes, *other things being equal*—but they are *not* equal. The grades on the interior line are nearly twice as great as the grades are reported to be on the river line—yet with a *properly* constructed road, they may be overcome with ease, even at high velocities. Then, again that portion of the road between Harlem and White Plains is not suitable for the business between New York and Albany. It must be entirely rebuilt. Nor is that section now under contract, and that prepared for contract—though much superior to that in use—what it should be, yet we believe the engineer will make the most of the means placed at his disposal; but it has been abundantly proved that a *first rate* railroad is not often built for even \$25,000 per mile.

We deem the *present* an important period in the history of American railroads; and *doubtly* important to this city, where *so little*, comparatively, has been done. We are therefore the more desirous that every step *now* taken should be in the right direction, and in the most *thorough* manner. We should be well pleased to feel assured that the system is to be relieved from at least a *part* of the odium heaped upon it by New York railroad *mismanagemt*; and therefore it is that we say to the gentlemen who control the New York and Harlem railroad company—*consider well* what you do, if you intend to make your road *the* route for business between New York and Albany—the *north* and *west*—as nothing short of a road of the *very best* character will command the confidence of the community, and the business of the country; and *nothing short* of a road of *this* character will prevent a *rival* line along the river—if even *that* will, now that the people on that line have become aroused to the importance of *preventing* the construction of a road through the *interior*—as they see clearly that such a road will operate seriously to their disadvantage, by taking a part of the business of that portion of the country lying between the river and the railroad, and the *whole* lying east of the road, which now goes, and would hereafter go, if no railroad were built, to the landings on the river. It is indeed the business from the *back country* which has made the river villages prosperous and wealthy; and they will not, and *should* not, willingly yield it up to a rival—as a first rate railroad through the eastern part of the counties will be—hence it is that they have recently employed an eminent engineer to re-survey, and verify a previous examination of the route, for a railroad, along the river, and to make an estimate for *precisely* such a road as should, and *must*, be built to compete successfully with the Hudson river, and the Western and Housatonic railroads. They and their engineer have evinced true wisdom—exceedingly good judgment—in making their estimates for the *only* description of road that will answer the purpose, and make the best returns to the stockholders when built. We admire the sagacity and enterprize of the people in the villages along the Hudson. They richly merit all the advantages which they possess in so eminent a degree, in the Hudson river—unsurpassed by any other of equal extent in the world—and as many *additional* ones as they can command. We very much doubt, however, if they can, at present, command the capital necessary to construct such a road as they have proposed to build. Can the people of the river towns furnish it? or do they anticipate the larger portion of it from *this city*? If the *river towns* could command it—could spare it from their own business—it might be furnished; but if they rely

upon the capitalists and property holders of this city, they will find few precedents laid down "in the books" to justify the anticipation!! We are aware that there are quite a large number of retired merchants, and men of wealth, residing along the fashionable bank of the Hudson, but not enough, we apprehend, who duly appreciate the importance of a railroad to Albany, to fill up the *gap* remaining in the six millions required, after the river villages, and our patriotic citizens shall have done all they will—not all they *can*—do.

There is only one principle, that we know of, upon which there is any reason to anticipate, or even to hope, that the citizens of *New York* will furnish, at the present time, the amount of capital necessary for this enterprize; and that is, that a man in business can lay by the second thousand, easier than the first five hundred dollars—therefore, as a *few* of the citizens have recently subscribed three millions to the New York and Erie, they will now subscribe *five* or *six* millions of dollars to the New York and Albany. We are inclined to believe, however, that the gentlemen, who did the city such signal service, by obtaining that subscription, will not attempt to wrest the laurels from the brow of others who may desire the honor of securing a subscription, in this city, of even five millions of dollars, for any enterprize now projected.—They must have learned to their entire satisfaction, that there is no task so thankless as that of an effort to induce a man, or a people, to appreciate the importance of availing themselves of the aid of *art*, and *science*, when they have come to the conclusion that "nature" has done so much for them, that it is quite unnecessary for them to do anything for themselves—except to *collect rents* or *sell goods*. True, nature has done much for this city; more, perhaps, than for any other city in the union, except *one*; yet if she relies upon what *nature* has done, without availing herself of what *art* and *science* can do, she will eventually find herself equaled, if not distanced, in the race, the contest, for the business of the *mighty west*. Boston has already crossed the Allegheny ridge, as *Napoleon* did the Alps. In *self-defence*, therefore, must New York gird on her armor, supply the munitions of war, and take the field, and keep it too, until she has done as much for herself as "nature" has done for her—then, and *only* then, may she rest from her labors.

Memorial to the Legislature.

Canal Tolls on Railroad Freights.—The following memorial to the legislature should be signed by every citizen of New York, who *manufactures* any article, sells goods, or *eats bread*; as well as by every inhabitant along the *line* of, and beyond the railroads from *Albany* westward to lake Erie; or who raises produce of any kind, or a dozen chickens for market.

Every person in the state, who used *salt* in his porridge, or on his potatoes; or a pocket handkerchief sold at auction, from 1817, until within a few years, was *taxed* to aid in constructing the *canals*; and now, for years past, every one who has travelled on the railroads, from Albany westward, has been taxed, by the prohibition from carrying freight on the railroads—thus causing them to charge *high fares*—to *sustain* the canals. To the *first*, the taxing of our *salt*, we all submitted with a good grace; and are quite content: but is it *right*—now that the canals have been completed by a tax upon the whole people, and will, if properly managed, keep themselves in repair, and refund their cost—we say, is it *right* that the tax should be continued, or that it should be *prohibited* from sending or receiving freight by the railroads, between Albany and Buffalo, without paying double tolls, that it may all be driven upon the canals, however *inconvenient* and *injurious* it may

be to the producer, as well as the consumer? In our view it is both unjust and ungenerous. The amount received for canal tolls is constantly increasing, though the rates are often reduced: and they will continue to increase, even if the railroads are allowed to carry freight; as the natural and regular increase of business will, in a year or two, supply any temporary deficiency on the canal which may occur in consequence of the competition created by the superior accommodations, in many respects of the railroads. Allow the railroads to carry freight, without reference to the canals, and in a little time many articles will find their way to market which are not now sent from that region, on account of the length of time required to reach there. It is a common and very true remark that, "railroads create their own business"—but it is of course *not* true, where railroads are not allowed to carry freight; consequently the country through which these roads pass is not benefited as in other states, where railroads are unrestricted.

The great object in view in the construction of canals and railroads is unquestionably for the benefit and convenience of the people. The canals in this state were undertaken and built by the state, with a tax upon, and with the credit of the people; and they are managed by the state, for the accommodation of the people; and those who use them pay to the state for the privilege of using them; but railroads are built by companies of individuals, with their own capital—and they are managed for the mutual benefit of those who *build* and those who *use* them. It has become a well established fact that those roads which afford the best and greatest amount of accommodation, to the largest number of people, for the lowest rates, pay the *best dividends* to the stockholders. It does not matter, therefore, whether the people—the *farmer*, the *manufacturer* and the *merchant* pays to the state, or the company for the transportation of his produce, his manufactured articles, or his goods, if he be allowed to choose that mode of transportation which suits his purpose, his interest or his convenience; but it is a matter of very great importance to him, if he is prohibited *entirely* from using that mode of transportation most suitable to his business; or even if he is permitted to avail himself of the most suitable mode, by paying *double* price for it; as in the former case he may not be able, with some articles and at certain periods, to go to market *at all*; and in the latter case, though he may take his articles to market, it may be at a loss upon them, because others, who have had to pay but *one price* for freight can afford to *undersell* him.—Thus we see that the restrictions upon the railroads along the canals operate upon the *people*, the business of the country, more injuriously than upon the companies—as it not only affects those who desire to send *freight*, but also every *traveller*, as the companies are compelled to derive all their income from *travel*, and of course are obliged to charge higher rates of *fare* than if they were allowed to derive a part of their income from freight. The companies are, however, injured by this system, as the people in turn censure them for charging high rates, instead of requiring their members of the legislature to go for a repeal of the *restrictions*, and thus enable the companies to reduce their rates both of *fare* and *freight*, which we believe they would do if they were allowed to be governed by the same principles which govern other companies.

Let every merchant, then—every business man, and, indeed, *every citizen*, say to his own representative, and to the legislature, *relieve us* from this unequal, and therefore unjust tax.

Memorials to the legislature should be presented to the citizens of New York for their signatures, and should be numerous, signed, and speedily sent to Albany.

To the Honorable the Legislature of the State of New York, in Senate and Assembly convened:

The memorial of the subscribers, inhabitants of the county of _____ respectfully sheweth, that they ask the passage of a law which shall give to the central line of railroad companies between Buffalo and the Hudson river the privilege of transporting freight the whole year, without requiring any tolls thereon to the state, and they ask leave to present the following reasons therefor:

This line of railway has been constructed entirely by private capital except that the credit of the state to a limited extent has been furnished to three of the companies.

We suppose that it is not the policy of the state to require anything that may be considered as a bonus or compensation, for the granting of a charter, or for the exercise of the proper business of the association under its act of incorporation.

The day when such a practice, alike, inconsistent with the honor of the state, and the proper business of legislation, would have been tolerated, has long since gone by.

Individuals have undoubtedly the same right to engage in the business of constructing a railroad that they have to build and establish a line of steamboats, to erect factories, mills, or to buy and improve farms.—They derive little from the legislature, except a convenient form of holding the property so as to give them perpetuity. And even a charter in this respect might not be necessary if our laws had not restricted the right of holding property in trust.

We do not therefore, consider that the toll required for the transportation of property upon the railroad can be justified, because of anything granted by the legislature to the persons who make the railroad.

It is unusual, we think, to require such tolls. The states of New Jersey and Maryland have reserved a portion of the amount received for the transportation of passengers upon the railroads across them, but the public judgement is so clearly against this policy that the latter state has already felt the force of it and is in some measure yielding the question.

Tolls are not imposed upon any railroad in this state except upon that part of this line which is west of Schenectady, and here there is a practical prohibition to carry freight except in the winter. This is the most difficult season of the year in which to operate the railroad. It is far more expensive than any other part of the year. It is not reasonable to suppose that the several railroad companies can provide the ample means to transport property that may be required when the use of such means is prohibited except in the winter. Hence when the winter arrives, and it is found that there is a good market for the productions of the country, then the means of the companies are not equal to the exigency of the demand. Who then suffers?—

Clearly those who have grain, pork and manufactured articles, etc., which they wish to send to market but which they cannot by reason of the policy which the legislature has acted under as to this line of railway.

We beg leave to ask whether it is not a singular course, to authorize the construction of a great public improvement, and then to restrict its use? Can there, with the experience of this day, be anything more paradoxical than the fact that a sagacious and just people have encouraged the making of a railroad, and at the same time have curbed and restrained its power of usefulness?

The New York and Erie railroad company have been most amply furnished with all the powers which it is possible for the legislature to confer, and yet no toll is required upon their freight. It will, to some extent, compete with this line for the same business. Other railroads have been authorized, upon which there is no prohibition as to the power of carrying property, nor are tolls reserved.—Why should there be a distinction against this line? Have the legislature the right to thus monopolize the business of transportation, by the imposition of such tolls on the railroad as either to prevent the growth and production of property by cutting it off from market, or by forcing it on to the canal?—May it not be questioned whether it is not such an interference in the right of property, and in the benefits which we are entitled to from our position, as to render the prohibition void? While thus restricted, the fact that we are brought so near to market by the railroad is rather tantalizing than consolatory.

We submit that this is not consistent with the enlarged and liberal spirit that should distinguish the legislature of a great state.—These tolls are practically a tax upon the farms, etc., along the line of the railway through the central and western part of the state, for they add to the price of the transportation of the productions of these farms to market, and thus lessen the value of the property to the owner. The policy is in this respect even more unfair than it would be to tax the transportation of property upon the Hudson river, because that would be more general, and because it has not required the expenditure of money and the great exertion that was required to make this line of railroad. Will it be said that it is necessary to protect the canal revenues? We would ask, protect them *for whom*, and *against whom*? If other means of transportation are better, cheaper, or more available than the canal, shall we not use them? Should not the owners of property be as free to send it to market by any avenue that they please as they are to enter into any business or production? Why should property be any more taxed which is carried upon the railroad, than if carried in sleighs? The cost of the transportation of an article to market forms a portion of its value at the place of sale. Why should the means of transportation be any more taxed than the means of production? We respectfully insist that the canal can be supported without limiting or crippling western production, that it is not necessary to tax us for

the property which we wish to send by railroad.

We say *tax* us, because these tolls must be paid by the property transported. The companies will not, and ought not, to pay them. There is no analogy between the railroad and the canal. Individual capital and exertion has made, supports, and operates the railroad, and it is liberally taxed for all purposes. On the other hand, the credit of the whole people has made, supports, and keeps the canals in repair, and the capital or cost invested in the canal pays no tax. While greatly benefitting the country through which it passes, it brings with it an immense expense in many particulars. The great business of transportation will continue upon the canal, but there are many kinds of property, and periods frequently occur, where it is better to transport upon the railroad.

A release from tolls upon the railroad would reduce the charges in a corresponding amount, and would thus exclusively benefit us, or rather free us from an unfair and unequal exaction.

We submit that this local and limited taxation upon us is unfair in another respect.—The railroad offers the best possible facilities for the transportation of some kinds of property, such as live stock, poultry, and pork in the hog, which, in the first of the winter, usually bears a good price at Albany, New York and Boston. If we can then get it to market, we save the expense of packing, etc., of interest; and most of all, we get it to market before the pork which is so cheaply produced in the western states, can arrive and reduce the price, as almost uniformly ensues.

This is a question of local and specific taxation upon the farming country along the line, of this railroad, and having felt the burthen of these tolls, we claim the right to earnestly ask to be exempted from them.

Whatever is paid for tolls upon property going to market is taken directly from the producer, for it so far lessens the price he receives for his property.

We are assured that a reduction of the price of transportation on the railroad fully corresponding with the amount of tolls will immediately ensue upon these tolls being waved by the state.

We therefore respectfully urge that this is not a question of benefitting the railroad corporations except only as they benefit us.—We can perceive that if unrestricted in the use of the railroad, a successful business shall be done in the carrying of property, that it will here, as in New England, the better enable companies to reduce the general charges for the fare of passengers.

With much confidence that the more this is examined the more clear will be the propriety of the request, we submit this matter to the wisdom and justice of the legislature.

Dated January, 1846.

New York and Harlem Railroad Report.
Hon. N. S. Benton, secretary of state,

Sir:—In compliance with the resolution of the assembly, passed Feb. 2d, 1843, the New York and Harlem railroad company makes the following report:

The entire length of the New York and Harlem railroad, completed and in operation, is about 27 miles, extending from the city hall of the city of New York to White Plains. About 8 miles is a double track of heavy H rail, and the whole road run by steam is laid with heavy H rail, from 32d street to White Plains.

In addition to which the company is constructing 25 82 miles of road from White Plains to the southerly line of the county of Putnam, a large proportion of which is already graded, and the residue is to be completed by the first day of May next; and surveys are completed, ready to commence work at the opening of the spring for the further extension of the road to Dover, in the county of Dutchess, as will appear by the engineer's report to be submitted herewith.

The expense of this extension beyond White Plains, which are estimated to exceed for the current year the sum of \$500,000, are not included in this report, but will be reported in May next to the comptroller, pursuant to the act of the 13th May, 1845.

Number of miles of road in operation, about 27
Cost of construction of road from the city hall to south side of Harlem river bridge, 8 miles, \$104,375 per mile.

South side of Harlem river bridge to Williams' bridge, 6 miles, \$38,475 per mile.

Williams' bridge to White Plains, 13 miles, \$11,277 per mile.

For a portion of the road graded under a former contract, and not used for the present line of the road, per mile..... 1,384 61

Total expenses of construction of the road in operation.....1,213,456 00

Expenses of running and repairing the road for 1845..... 81,958 16

Number of passengers through. 63,340

Do. way passengers, no acct.

kept, but estimated at.1,350,000

Receipts for through passengers..... 31,670 00

“ way “.....135,884 57

Total income from passengers.....167,554 57

“ “ freight..... 9,882 78

Dividends, none.

Number of engines..... 8

“ train cars..... 20

“ city line cars..... 26

“ freight cars..... 16

“ baggage cars..... 2

“ machine shops..... 1

“ horses.....140

“ men daily employed.....150

“ miles run by passenger and freight trains, no account kept.

Engineer's Report.

To the executive committee,

Gentlemen:—I have the honor to submit, through your committee, to the board of directors, a brief statement of our operations in furtherance of the extension of the Harlem railroad above White Plains, and of the condition of the work at the close of the year 1845.

The charter, authorizing the extension of this railroad to Albany was obtained on the 14th of May last; the engineer department organized on the 1st of June, and surveys commenced on the 10th of that month.—Since that time various reports in detail, exhibiting the results obtained by our examinations of the country, have been submitted, on which has been predicated the decision of the board in regard to the final and definite location of the road through Westchester, Putnam and a part of Dutchess counties. I

therefore deem it necessary at this time merely to recapitulate some of the statements of former reports so far as regards the survey and final location of the road.

Although the country embraced in our examinations has heretofore been explored with reference to a railroad communication between New York and Albany, this circumstance did not lessen the amount of duty devolving on the engineer department, in deciding the important question of the proper route to be selected. On the contrary the fact that engineers of ability had held adverse opinions, seemed to require from him on whom would rest the responsibility of the selection, the strictest scrutiny and care.—Some other lines hitherto totally untried being also strongly advocated by intelligent residents of the country, a wide field was opened on this question at the commencement of the surveys.

Our attention was first devoted to the location through Westchester county with the view of putting this important division of the road under contract at the earliest possible day, the opening of this portion in advance of that through the more northern counties being justly deemed a matter of great importance, as the depot at the northern line of the county is accessible by good roads for a wide and extensive district of country. The distance from White Plains to the north line of the county is 25 82 miles. This extent of country was thoroughly explored and surveyed on the various lines, and a route selected by the first of September, when it was advertised for contract.

The principal obstacle to be overcome is a ridge of high broken ground running from east to west about 8 or 10 miles above White Plains. In this ridge, the Saw Mill, Bronx and other streams which discharge their waters southerly into the Hudson river and Long Island sound take their rise, as well as various small streams which fall down its northern slope into the Croton. Here occurs the first main summit between New York and Albany, which is elevated 310 feet above tide water. The immediate ascent to this summit on either side is quite gradual, not exceeding 26 feet per mile.

The route on departing from White Plains pursues the valley of the Bronx for three miles, when it passes to the valley of the Saw Mill by Davis' brook and Fly brook, tributaries of these two streams. The Saw Mill is then followed to its head waters, where the ridge before alluded to is passed, with a cutting of only 9 feet. The line now descends by the Kisco (a branch of the Croton) and Muddy brook to Cross river; thence over broken ground between this stream and the Croton to the valley of the latter, which is occupied through the remainder of Westchester, Putnam and a part of Dutchess counties. The course of these streams is such that a very direct line has been obtained at an expense which must be regarded as quite moderate.

On the 20th of September, contracts were closed for the grading, masonry and bridging of 26 miles, on terms most advantageous to

the company, and generally with experienced and able men. During the months of October and November the work was generally commenced by the contractors and at this time, ground has been broken on every section. The contracts require the completion of the work on or before the first day of May next, and except in a few cases where detention has arisen by reason of our inability to enter upon lands, requiring the process of law for their procurement, there is every prospect of the fulfilment of this obligation. Some short delay beyond that time may also take place in the construction of masonry laid in cement, which cannot be carried on through the winter months.

The favorable character of the route selected may be inferred from the small amount of bridging required; only four structures of any considerable magnitude being requisite within the 26 miles now in course of construction. One of 60 feet over the Bronx—one of 80 feet over the Titicus, one of 120 feet over Cross river and one of 160 feet over the Croton at the county line.

The following is an estimate of this division of the road:

Grading and masonry	\$175,000
Superstructure, at \$10,000 per mile	270,000
Right of way and fencing	60,000

Cost exclusive of depot buildings

Having definitely located and placed under contract the road through Westchester county our attention was next directed to a continuation of the route northerly. I have the pleasure to state that a complete and final location has been made through Putnam county and into Dutchess as far as the north line of the town of Dover, 54.79 miles from White Plains, and 82 miles from the city of New York.

A contract is about being entered with a large and able company of contractors for the whole of the work exclusive of iron. It will probably be closed within a few days, and work commenced forthwith. The obligation is to complete it by the 1st April, 1847.

The map and profile herewith presented, will exhibit the nature of the country traversed. It will be seen that after passing the first five miles of Putnam county, where the line is confined to the rough and broken ground forming the western slope of the Croton, that the alignment and gradients are exceedingly favorable.

The following is an approximate estimate of this division of the road. Length, 28.96 miles.

Grading, masonry and bridging	\$300,000
Superstructure, [including turn-outs, etc.] ..	300,000
Land and fencing	45,000

\$645,000

The following statement will show the character of the line as far as located, in regard to curves and gradients. The minimum radius of curvature is 1900 feet, while nearly three-fourths of the curves have radii ranging from 2,000 to 12,000 feet.

The gradients except in one instance, do exceed 30 feet per mile. It was my intention, originally, not to have exceeded this li-

mit and the road through Westchester county was located accordingly; but in pursuing our examinations through Putnam county, it was found that by resorting to an inclination of 35 feet per mile a much straighter road might be made and the line shortened 2 1/3 miles in a distance of 14. The short line was accordingly recommended and adopted. There may possibly be one or two more points in the northern part of Dutchess and Columbia counties, where the application of this gradient will be required to straighten the line, shorten the distance and decrease the cost; but generally the inclination will not exceed 30 feet per mile.

Gradients.	Miles.
Level	13.384
Level to ten feet	10.360
10 to 20 feet	5.834
20 to 30 feet	19.489
35 feet	5.720

54.787

Alignment.	Miles.
Straight line	36.218
Curve radius 1,910 feet	4.726
" " 2,000 " to 5,000	6.651
" " 5,000 " to 12,000	7.192

54.787

Length of curved line

18.569

or 34 per cent. of the whole; but nearly one-half of this has radii exceeding 5,000 feet and practically is almost equivalent to a straight line.

The location having been decided on to the point before indicated, an important and interesting question arises in regard to the route to be pursued for the remaining distance. Two parties are now, and for sometime past have been in the field, making experimental surveys with a view to the elucidation of this matter, but as yet I am unable to present any accurate data on which to base a decision. The examinations already made have convinced me that there are only two passes for a railroad through the Highland ridge, viz: at Hillsdale in Columbia county, or by the "Deep Hollow," in Dutchess county. By the pass first mentioned all former surveys have been made, and we know that in that direction a favorable route may be obtained. After leaving the town of Dover it will pass through or near Ameniaville into the valley of the Oblong, which it follows to the summit, and thence descends by the waters of the Ancram creek and Kline Kill to Kinderhook creek, near which a junction may be made with the Albany and West Stockbridge railroad, or an independent line may be carried through to Albany.

The route by Deep Hollow diverges from the other six miles above Dover plains, and passing through Pine plains pursues the valley of Claverack creek to a point about three miles from the city of Hudson, whence northerly it would be located near the margin of the river. No survey of this line has yet been made, except through Deep Hollow, where some levels, to ascertain the height of the summit, have been taken, and therefore I can express no opinion as to its merits at this time. The main difficulty seems to lie in the expensive character of the grading for a few miles through Deep Hol-

low; but it is contended by the friends of the route that this would be more than compensated by the saving of distance which will be effected.

I shall make such examinations and investigations in regard to this question as will enable me at an early day to lay the facts before the board. I am clearly of the opinion that if a line equal to the other can be had upon this route, it ought to be adopted, because it will pass through a richer and more populous district—afford to the public a greater degree of accommodation and increase the profits of the road.

Surveys have been made to ascertain the practicability of a junction with the Albany and West Stockbridge railroad. This road for a distance of more than 20 miles from Albany, pursues a southerly course before taking its easterly direction. For 17 miles its highest gradient is 35 feet per mile. A junction at this point will give the most direct line, while it will have the advantage of preserving a maximum gradient throughout of 35 feet.

The Albany and West Stockbridge road is well built, and graded for a double track, though only one line of rails is laid. Should it be decided to effect a junction with this road, and a satisfactory arrangement be made between the two companies, an additional track may be laid down in a short time, on a road already well consolidated.

The plan of the road now in process of construction through Westchester county, is as follows: To be graded for a single track with 25 feet width, in excavations, and 16 feet at top of embankments. The superstructure is to be laid on a foundation of gravel, and to consist of longitudinal sills, with cross sleepers six inches thick, and having bearing surfaces of six inches laid 2 1/2 feet apart from centre to centre, to be surmounted by an iron rail weighing 60 lbs. per yard. This will insure a substantial and permanent track over which passenger trains may be transported at high speed.

The present liabilities of the company, on account of the extension, are as follows:

Grading, masonry, and bridging	\$175,000
Timber for superstructure	29,000
2500 tons iron rails ordered, estimated to cost, delivered in New York	220,000
Right of way and fencing	58,000

\$482,000

The whole amount of excavation on the 26 miles now under contract is 665,000 cubic yards. Of this, 255,341 cubic yards were completed on the first of January; and at this date more than one-half of the grading is finished.

The masonry of the Bronx bridge is also ready for the superstructure, and several small culverts have been built; but the bulk of the masonry must remain until the spring, for the reasons before stated.

The force employed through the winter has been from 500 to 600 men: this will be considerably augmented on the opening of spring. The contractors having been promptly paid by the company every month, according to the terms of the contracts, have manifested equal promptitude in settling with la-

borers and others employed, so that good order and quiet has been maintained upon the line.

It is cause for congratulation to the company that the right of way through Westchester county has all been obtained, so that we are now able to prosecute the work without hindrance or delay. Out of 97 farms passed through, but 11 cases were submitted to a jury—the remaining number having been amicably settled between the land-holders and commissioner of the road, to which officer the company is indebted for a result in every way so desirable.

We have now passed through a country which, from its proximity to the city of New York and the Hudson river, has rendered this item of right of way a very expensive one. We have reached a point where the road is welcomed as a blessing; and through the remaining distance liberal concessions may be anticipated from the inhabitants.

In the absence, as yet, of accurate information on which to predicate an estimate of the whole road, I would state that the cost of the road, as far as located, including right of way and fencing, will be \$21,000 per mile; and making allowance for the more expensive character of the line on the upper part of the road, and including the necessary depot building at the way stations, I feel assured that the sum of \$25,000 per mile will cover the cost of the whole road. The extensive buildings which will be required at the termini of the road will form an additional charge.

The work yet remaining between the north line of Westchester county and the city of Albany, or some point of junction on the Western railroad, is comparatively so light and easy, being free from tunnels, deep cuttings in rock, high embankments and bridges, that I feel the fullest confidence in stating that with an active prosecution of the work, a continuous line may be opened between New York and Albany in the fall of 1847.

The favorable character of this line in regard to curves and gradients, leaves no room to doubt that, with a well constructed road a high rate of speed may be accomplished.—The daily experience on the Norwich and Worcester railroad, which is inferior as regards curves and on the Long Island railroad, which has a maximum grade of 40 feet per mile, fully warrant the assertion that passenger trains which shall only stop to take in wood and water may be transported from New York to Albany in five hours, or at the rate of 30 miles per hour.

It is unnecessary at this day to urge the importance of prosecuting this road to completion. The whole field has been travelled over so often that it would be but a reiteration of former arguments. A communication from the city of New York to the capital of the state at all seasons is imperatively demanded by the travelling public throughout the Union; its completion on this route is called for by a large and populous district of the state, which without this avenue will remain secluded and shut out from market, while its productiveness on capital invested may be regarded at this time as a matter beyond ques-

tion. I have the honor to be, very respectfully, your obedient servant.

ALLAN CAMPBELL, *Engineer.*

Jan. 26, 1845.

Pennsylvania Legislature—New York and Erie Railroad.—In the lower house, on Saturday 7th, the bill granting the right of way to the New York and Erie railroad through Pike county, in this state, was taken up by yeas 54, to nays 31—and passed through committee.

We trust it will find equal favor in all its stages—and we should like to see equal liberality in relation to another great work, asking permission to pass over Pennsylvania soil—*Pennsylvanians*, more than any other people will be benefited by every work of the kind that touches her territory. Let other people spend their money in developing Pennsylvania resources if they will—the money once invested cannot be carried away again except in the way of dividends, while the improvements made by its expenditure, are *permanent*, and should be sought rather than repelled.

Navigation at Pittsburg.—All our rivers, says the Pittsburgh Gazette of the 6th, are in fine navigable order.

The Monongahela improvement is in an excellent condition also, and boats arrive and depart daily.

Virginia Wisdom.—The bill to incorporate the Potomac and Ohio railroad company, or in other words, to grant the right of way to the Baltimore and Ohio railroad company, has been indefinitely postponed by a vote of 77 to 48.

And for this act many a man will yet sit upon the stool of repentance, unless the application shall be granted in some other way.

In the senate, on the same day, the bill to incorporate the Richmond and Ohio railroad company was passed, as it came from the house, and is a law.

Railroad Accident.—The Augusta Chronicle says that, "The Georgia railroad has been the theatre of another serious accident—the second within a few days. As the downward train was on its way on Wednesday night, when within a few miles of Crawfordsville, the passenger and baggage cars were suddenly thrown from the track, down an embankment of some 3 or 4 feet, by which the former was very much broken, injuring, more or less, almost every passenger on board, one of whom, Mrs. Duncan, the wife of the Rev. Mr. Duncan, was said to be very seriously if not fatally. The other passengers escaped with some pretty severe bruises and cuts, though none were very serious. What caused this accident we have not been able to ascertain, though we learn that it was probably caused by the breaking of the "body bolt" of the baggage car."

We do not copy the accidents on railroads because we desire to give them greater publicity, but for the purpose of reminding the managers of railroads generally, that the *safety* of their passengers demands their untiring vigilance, and to say that every car should undergo a thorough examination *daily*, and constantly. The amount of travel, and consequently the income of a railroad will be materially affected by the confidence of the community in the vigilant care of those in charge.

Every man interested in, or connected with railroads should bring *mind* to bear upon the adoption of measures to promote the safety of travellers.

Making Railroad Iron in Trenton.—The State Gazette mentions that Mr. Cooper is fitting up his extensive iron works at Trenton for the purpose of rolling rails. Iron founders and machinists are all busily employed in getting the requisite machinery ready, and the mill will be in operation by the first of May. A contract has already been made with the Camden and Amboy company for 2,000 tons, and propositions have been made from other companies. It is expected that the works will produce thirty tons

daily—which will require daily 40 tons of pig-iron and 45 of coal, which added to the 10 or 15 tons of merchant iron which the works now produce, will make more than 100 tons per day, which must be brought to the place. About 100 additional hands will be employed.

We are well pleased to find the above notice in the papers. We are sure that the quantity specified will be exceeded rather than diminished, in the hands of the gentleman named, we never knew him to fall short of his promises.

Central, Vt. Railroad.—We understand that at the recent meeting of the directors in Boston, the engineer reported in favor of the Northfield route, which report was sustained by the directors. The board was equally divided—the president, governor Paine, deciding the question by the casting vote.

The work on the road in this town goes ahead briskly. A steam shovel will soon be in operation which according to all accounts will walk right through a sand bank.—*Windsor Journal.*

Products of Berkshire.—The Pittsfield Sun states that during the year 1845, there were sent from the depot of the Western railroad, in that town 25,704 bushels, equal to 1,235 tons of lime; 477 tons of marble; and 618 of cheese. Of the cheese 328 tons were sent to New York, and 290 tons to Boston.

New York and Boston Direct Railroad.—A New Haven paper of Saturday last, 7th inst., says that—"Some gentleman from Middletown, with an engineer, were in this city a day or two since, making investigations and consulting on the subject of a new and very feasible railroad route from New Haven through to Boston via Middletown. The route would be direct from this city to Connecticut river, from thence through Windham county near Pomfret to Rhode Island, and then onward across an extensive section of country now out of reach of railroads in almost an air line to Boston.

"In connection with the road now contemplated between New York and this city, this route would be almost in a straight line, and furnish an inland route at least 30 miles shorter than any other now in operation between these two great cities. The people of Middletown are earnestly engaged in their section of the enterprise, and that the Bostonians will attend to their portion of the route, no one will question."

We have been aware for some time past that an engineer has been making examinations of the country between Middletown and Boston with a view to ascertain the general features of the line, and we have understood from a source not apt to be far out of the way, in such matters, that a railroad may be constructed on that route which will be of the most favorable character in its grades and curves; and at the same time shorter, by more than twenty miles, than any other route between the two cities. Of course it should be denominated the "New York and Boston Direct railroad"—when completed, after the modern fashion in England, when getting up what are deemed by some as *rival* lines.

The writer says truly when he says "the Bostonians will attend to their portion of the route;" and we should not be surprised if the citizens of Middletown were to bring this matter before the people on the line east of Connecticut river, and in Boston, in a light so forcible that they will make an effort to carry it through. It will be seen by laying a rule on the map that a road from Boston, through Uxbridge, Mass., a corner of Rhode Island, Pomfret and Middletown, to Wallingford in Connecticut, on the New Haven and Hartford railroad, will be very nearly straight—then a little deviation to New Haven, and thence to New York will not exceed probably 226 miles. The route from Middletown to Boston will be intermediate, between the Stonington and Providence roads on the one hand, and the New Haven and Springfield, and the Western and Worcester roads on the other.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

••• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

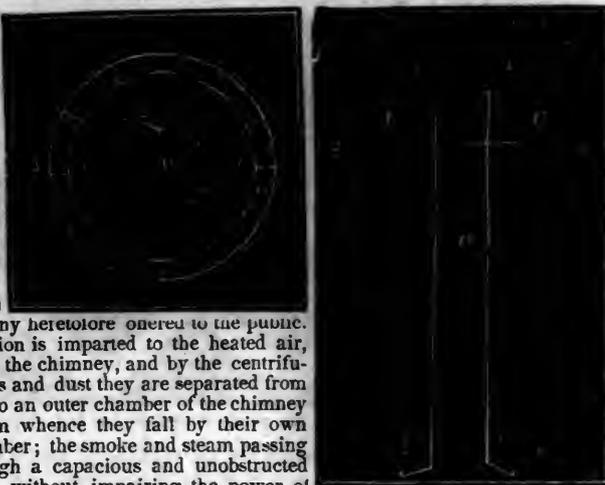
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, or to Messrs. Baldwin & Whitney, of this city, will be promptly executed.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

••• The letters in the figures refer to the article given in the Journal of June, 1844. ja45

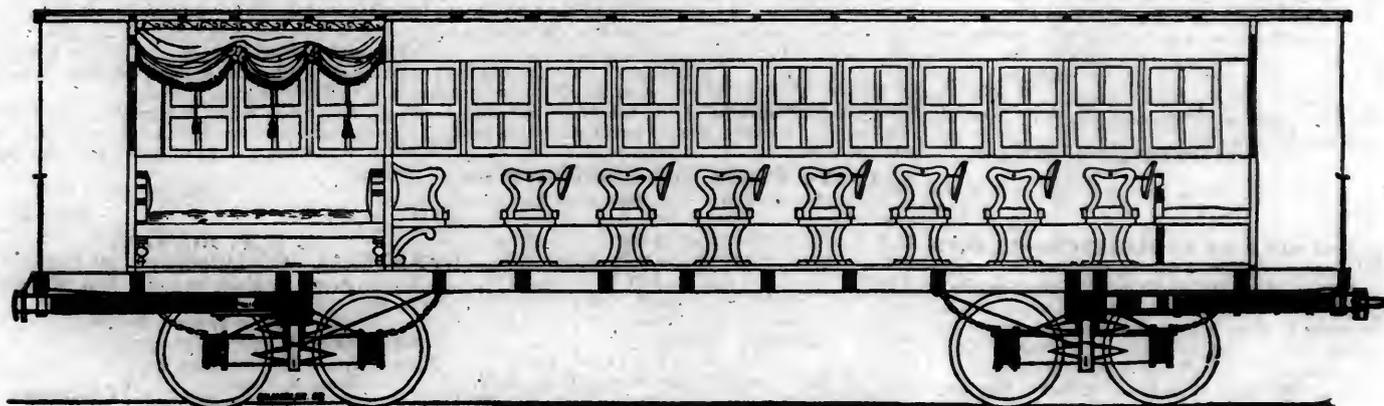


BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

The article is complete in itself, occupies but little space, is perfectly portable, and requires no brick work, not even to stand upon. It is valuable not only in the saving of time and labor, but in the economy of fuel, as it has been ascertained by accurate measurement, that the saving in that article is fully two-thirds over other methods heretofore in use. They are now for the first time introduced into New York and Boston by the subscriber, who has the exclusive right for the New England states, New York and New Jersey, and are manufactured by

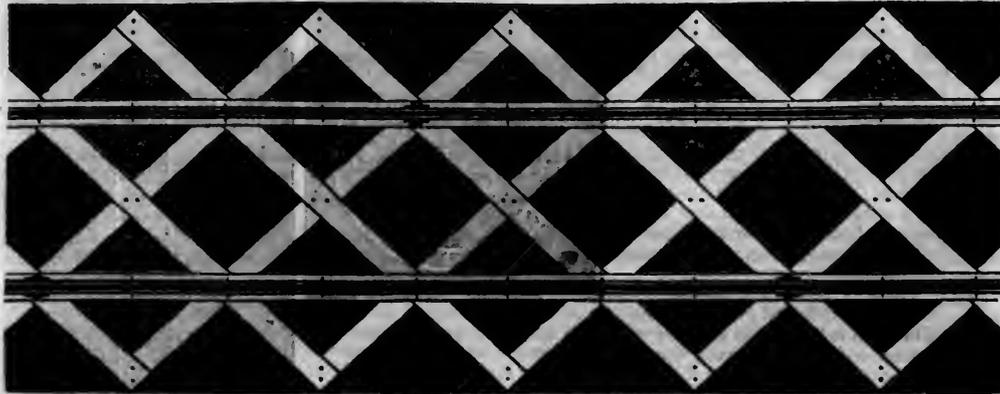
CURTIS & RANDALL, Boston; and by FORCE, GREEN & CO. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern, and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All order punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for *Two hundred dollars per mile per annum.** To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

W. R. CASEY, CIVIL ENGINEER, NO. 23 Chambers street, New York, will make surveys estimates of cost and reports for railways, canals, roads, docks, wharves, dams and bridges of every description. He will also act as agent for the sale of machinery, and of patent rights for improvements to public works.

TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia

FOR SALE AT A SACRIFICE—A LOCOMOTIVE ENGINE, 4 wheels and Tender. Cylinders 10 in. dia. Stroke 16 in., Cylinders inside of square box. Weight of engine, with wood and water, about 9 tons. This engine and tender are new, and of the best materials and workmanship. If required, would be altered to a 6 wheeled engine.

Also, 1 20-horse High Pressure Steam Engine.
2 8-horse
1 Upright Hydraulic Press.

All of which will be sold low, on application to
T. W. & R. C. SMITH.

Founders and Machinists,
Alexandria D. C.

May 12th

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/4 x 1/2 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/4 x 1/2 " Flange Iron Rails.

75 " 1 x 1/2 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures.

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address
JOAN F. WINSLOW, Agent,
j5a3 Albany Iron and Nail Works, Troy, N. Y.

RAILROAD IRON AND FIXTURES. The Subscribers are ready to execute orders for the above, or to contract therefor, at a fixed price, delivered in the United States.
DAVIS, BROOKS & CO.,
30 Wall st., N. York.

js

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING!

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
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ENGINEERS and MACHINISTS.

- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- H. R. DUNHAM & Co., N. Y.
- WEST POINT FOUNDRY, N. Y.
- PHENIX FOUNDRY, N. Y.
- R. HOE & Co., N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.
- BALDWIN & WHITNEY, Philadelphia, Pa.
- THOMAS & EDMUND GEORGE, Philadelphia. (See Adv.)

PROVIDENCE AND WORCESTER Railroad.—Notice to Contractors.

The Route of this Road will be prepared for Examination by Contractors on the 16th of February, and Proposals for the Graduation, Masonry, Bridges, Timber, Spikes, Chains, etc., will be received after that date, until the 25th of February.

Blank Proposals, with Specifications attached, may be obtained, and the Profiles examined, at the offices in Worcester and Providence, after the 16th of February.

T. WILLIS PRATT, Engineer.

5 4t

C. J. F. BINNEY, GENERAL COMMISSION MERCHANT and Agent for Coal, and also Iron Manufacturers, etc.

No. 1 CITY WHARF, Boston. Advances made on Consignments. Refer to Amos Binney, Boston. Grant & Stone, Brown, Earl & Erringer, } Philadelphia. Weld & Seaver, Baltimore.

December 8, 1845. 1m 50

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

BALTIMORE AND SUSQUEHANNA Railroad. The Passenger train runs daily except Sunday, as follows:
 Leaves Baltimore at 9 a.m., and  arrives at 6 1/2 p.m. Arrives at York at 12 1/2 p.m., and leaves for Columbia at 1 1/2 p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62 1/2. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3 1/2 p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc. Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day any passenger train.

D. C. H. BORDLEY, *Supt.*
 Ticket Office, 63 North st.

31 ly

CENTRAL RAILROAD-FROM SAVANNAH TO MACON. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—
 On weight goods generally... 50 cts. per hundred.
 On measurement goods..... 13 cts. per cubic ft.
 On brls. wet (except molasses and oil).....\$1 50 per barrel.
 On brls. dry (except lime)... 80 cts. per barrel.
 On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
 On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.
 On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, 40 Gen'l. Supt. Transportation.

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

This Road in connection with the South Carolina Railroad and the Western and Atlantic Road now forms a continuous line of Railroad of 360 miles from Charleston to Cartersville, two miles west of the Etowa River in Cass County.

Rates of Freight, and Passage from Augusta to Cartersville.

On Boxes of Hats, Bonnets, and Furniture per foot.....15 cts.
 " Dry goods, shoes, saddlery etc., per 100 lbs. 85 "
 " Sugar, coffee, iron, hardware, etc. " 70 "
 " Flour, bacon, mill machinery etc. " 33 "
 " Molasses, per hogshead \$9; salt per bus...22 "
 Passengers \$9 50; children under 12 years of age and servants, half price.

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at Augusta. J. EDGAR THOMPSON, *Ch. Eng. and Gen. Agent.*

Augusta, Oct. 21 1845. *44 ly

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m. Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 23 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort. The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above.

35 ly

WESTERN AND ATLANTIC RAILROAD. The Western and Atlantic Railroad is now in operation to Marietta, and will be opened to Cartersville, in Cass county, on the 20th of October—and to Coosa Depot, (formerly known as Borough's,) on the 20th of November.

The passenger train will continue, as at present to connect daily (Sundays excepted) with the train from Augusta, and the stage from Griffin.

CHAS. F. M. GARNETT, *Chief Engineer.*

43

LITTLE MIAMI RAILROAD.— Distance 65 1/2 Miles. Fare, \$1 50. From 1st November to 1st March Passenger Trains leave Cincinnati for Xenia at 11 o'clock, A.M.

Returning, leaves Xenia at 8 1/2 o'clock, A.M. Freight Trains run daily, Sundays excepted.

At Xenia, Passenger Trains connect with daily lines of stages to Columbus, Wheeling, Cleveland and Sandusky city.

W. H. CLEMENT, *Supt. and Engineer.*

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. G. A. NICOLLS, 44 Reading, Pa.

KEARNEY FIRE BRICK, F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to James P. Allaire, Peter Cooper, Murdock, Leavitt & Co. } New York.

J. Triplett & Son, Richmond, Va.
 J. R. Anderson, Tredegar Iron Works, Richmond, Va.
 J. Patton, Jr. } Philadelphia, Pa.
 Colwell & Co. }

J. M. L. & W. H. Scovill, Waterbury, Con.
 N. E. Screw Co. } Providence, R. I.
 Eagle Screw Co. }

William Parker, Supt. Bost. and Worc. R. R.
 New Jersey Malleable Iron Co., Newark, N. J.
 Gardiner, Harrison & Co. Newark, N. J.
 25,000 to 30,000 made weekly. 35 ly

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles; for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. ja45ly

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 ly

THE SUBSCRIBERS, SOLE AGENTS for the sale of Codorus, Glendon, Spring Mill, and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L KIMBER, & CO., 59 North Wharves, Jan. 14, 1846. [1y4] Philadelphia, Pa.

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, *Civil Engineer,* Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 ly

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents. Corner of Cedar and Greenwich Sts. 43 ly

RAILROAD IRON AND LOCOMOTIVE
 Tyres imported to order and constantly on hand
 by **A. & G. RALSTON**
 Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
 Company continue to furnish at the Works,
 situated in the town of Newcastle, Del., Locomotive
 and other steam engines, Jack screws, Wrought iron
 work and Brass and Iron castings, of all kinds con-
 nected with Steamboats, Railroads, etc.; Mill Gear-
 ing of every description; Cast wheels (chilled) of
 any pattern and size, with Axles fitted, also with
 wrought tires, Springs, Boxes and bolts for Cars;
 Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders
 will be executed with promptness and despatch.
 Communications addressed to Mr. William H.
 Dobbs, Superintendent, will meet with immediate
 attention. **ANDREW C. GRAY,**
 President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS.
 etc. The Subscriber having made important
 improvements in the construction of rails, mode of
 guarding against accidents from insecure joints, etc.
 —respectfully offers to dispose of Company, State
 Rights, etc., under the privileges of letters patent to
 Railroad Companies, Iron Founders, and others in-
 terested in the works to which the same relate. Com-
 panies reconstructing their tracks now have an op-
 portunity of improving their roads on terms ver-
 y advantageous to the varied interests connected
 with their construction and operation; roads having in
 use flat bar rails are particularly interested, as such
 are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
 Albany, N. Y.

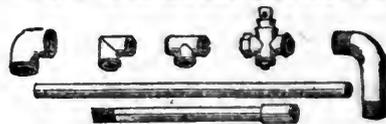
Mr. C. also announces that Railroads, and other
 works pertaining to the profession, may be construct-
 ed under his advice or personal supervision. Ap-
 plications must be post paid.

**TO RAILROAD COMPANIES AND BUILD-
 ERS OF MARINE AND LOCOMOTIVE
 ENGINES AND BOILERS.**

PASCAL IRON WORKS.

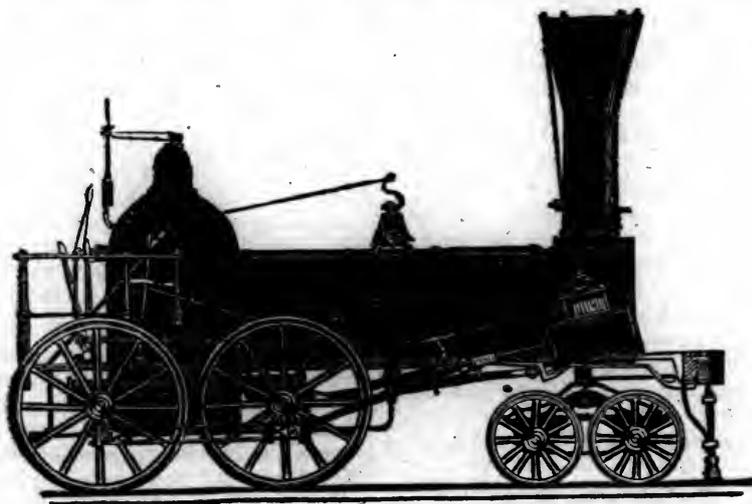
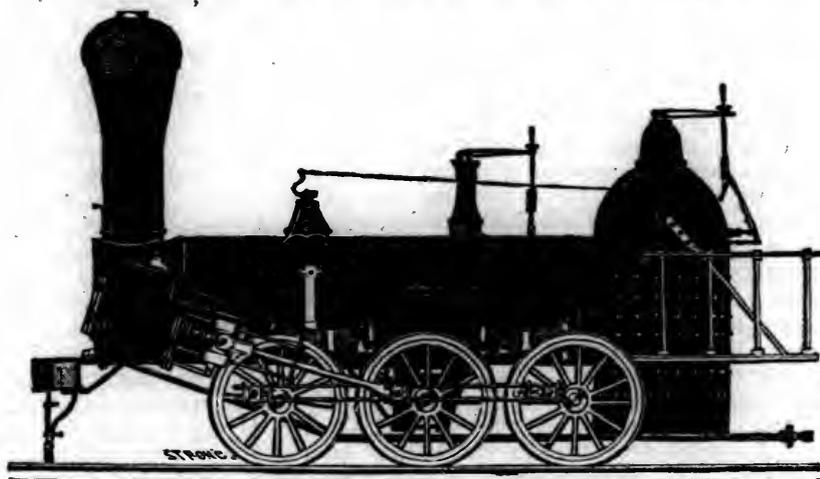
WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long,
 capable of sustaining pressure from 400 to 2500 lbs.
 per square inch, with Stop Cocks, T, L, and
 other fixtures to suit, fitting together, with screw
 joints, suitable for STEAM, WATER, GAS, and for
 LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
 Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

NORRIS' LOCOMOTIVE WORKS.
 BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descrip-
 tions, viz:

Class	1,	15 inches	Diameter of	Cylinder,	×	20 inches	Stroke.
"	2,	14	"	"	×	24	"
"	3,	14 1/2	"	"	×	20	"
"	4,	12 1/2	"	"	×	20	"
"	5,	11 1/2	"	"	×	20	"
"	6,	10 1/2	"	"	×	18	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.
 Castings of all kinds made to order: and they call attention to their Chilled Wheels
 for the Tracks of Locomotives, Tenders and Cars

NORRIS, BROTHERS.

**RAILROAD IRON.—THE MARY-
 LAND AND NEW YORK IRON AND
 Coal Company** are now prepared to make contracts
 for Rails of all kinds. Address the Subscriber, at
 Jennon's Run, Alleghany County, Maryland.
WILLIAM YOUNG,
 President.

**TO IRON MASTERS.—FOR SALE.—MILL
 SITES** in the immediate neighborhood of *Bi-
 luminous Coal and Iron Ore*, of the first quality, at
 Ralston, Lyoming Co., Pa. This is the nearest
 point to tide water where such coal and ore are
 found together, and the communication is complete
 with Philadelphia and Baltimore by canals and
 railways. The interest on the cost of water power
 and lot is all that will be required for many years
 the coal will not cost more than \$1 to \$1 25 at the
 mill sites, without any trouble on the part of the
 manufacturer; rich iron ore may be laid down still
 more cheaply at the works; and, taken together
 these sites offer remarkable advantages to practical
 manufacturers with small capital. For pamphlets,
 descriptive of the property, and further information,
 apply to Archibald McIntyre, Albany, to Archibald
 Robertson, Philadelphia, or to the undersigned, at
 No. 23 Chambers street, New York, where may be
 seen specimens of the coal and ore.

W. R. CASEY, Civil Engineer,

**VALUABLE PROPERTY ON THE MILL
 Dam For Sale.** A lot of land on Gravelly
 Point, so called, on the Mill Dam, in Roxbury,
 fronting on and east of Parker street, containing
 68,497 square feet, with the following buildings
 thereon standing.

Main brick building, 120 feet long, by 46 ft wide,
 two stories high. A machine shop, 47x43 feet, with
 large engine, face, screw, and other lathes, suitable
 to do any kind of work.

Pattern shop, 35x32 feet, with lathes, work bench-
 es, &c.

Work shop, 86x35 feet, on the same floor with the
 pattern shop.

Forge shop, 118 feet long by 44 feet wide on the
 ground floor, with two large water wheels, each 16
 feet long, 9 ft diameter, with all the gearing, shafts,
 drums, pulleys, &c., large and small trip hammers,
 turnaces, forges, rolling mill, with large balance
 wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 1/2
 feet two stories high, with a shed part 45 1/2 x 20 feet,
 containing a large air furnace, cupola, crane and
 corn oven.

Store house—a range of buildings for storage, etc.,
 200 feet long by 20 wide.

Locomotive shop, adjoining main building, front-
 ing on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side o
 Parker st., containing 6900 feet, with the following
 buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two sto-
 ries.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS,** 48
 State st., or to **CURTIS, LEAVENS & CO.,** 106
 State st., Boston, or to **A. & G. RALSTON & Co.,**
 Philadelphia. ja45

CYRUS ALGER & CO., South Boston Ice
 Company.

We gave in our last, Mr. Jervis' description of the route, together with the summary [omitting the details,] of the estimate for grading and superstructure including land damages, fencing, machinery and depots. The estimated cost of grading, including land damages and fencing, is \$23,200, and the superstructure including depots and machinery, with a rail of 70 lbs. per yard is 19,012 dollars or 42,212 dollars per mile, for 142 miles, from 14th street to Greenbush—the two miles from Chambers street to 4th street is not estimated for.

In our remarks accompanying the description of the route, we approved of the plan of the road recommended by the engineer, and we are still of the same opinion, viz: that such a road only, as is here estimated for should be built, or can compete successfully with the steamboats. We also expressed our doubts as to their ability to get the stock taken,—inasmuch as our citizens have not heretofore evinced very strong predilections for railroad investments, but we have since been informed that the requisite amount of stock will be taken without delay if the charter is obtained.

We now give the remainder of the report, in which will be found much useful and interesting information not readily obtained in so convenient a form elsewhere.

Report on the project of a railroad on the east bank of the Hudson river, from New York to Albany.—New York, January 20, 1846.

(Continued from page 104.)

Cost of Transportation.

In relation to the expenses of running the road, I have examined all the official statements, made in sufficient detail, that I have been able to obtain. This expense should embrace the repairs and maintenance of the road with its appurtenances—the engines and cars—and all current expenses required in conducting its business. In the following statements all these expenses are included, and charged on the aggregate distance run; and reduced to the rate of cost per mile run.

	Per mile run.
Utica and Schenectady, passengers train, average of 1839, 1840 and 1841.....	\$1 15
Boston and Worcester do. for 1844.....	82
" " freight train, for 1844.....	1 65
Western railroad, Mass., freight and passengers for.....	1840 75
do. do. do. 1841	70
do. do. do. 1842	71
do. do. do. 1843	67
do. do. do. 1844	67
Baltimore and Ohio do. 1844	52
Baltimore and Washington do. 1843	71
do. do. do. 1844	65
	11) 9 00
Average per mile, say.....	\$0 82

If the freight train of the Boston and Worcester be excluded, the average cost per mile run for each train would be 73½ cents. In an article in No. 79 Hunt's Magazine, on Massachusetts railroads, by E. H. Derby, Esq., it is stated that the average cost of running a train in that state does not vary much from 65 cents per mile; and that with a large traffic some have been run for 40 cents per mile. To take an estimate of 70 cents would probably be liberal for a general average of existing roads.

It is contemplated to run the proposed road at higher speed than is practised on the above roads, which is an element that will in-

crease the expense. This will, however, be modified by the character of the road, in its grades and curvatures. Of the above roads no one is superior in the direction of its lines, and they are all inferior in the inclination of their grades to the enterprise under consideration. Further, it is believed (and of this there can be no doubt) that no one of them, in its original construction, has had the same degree of firmness and permanence that is proposed for the contemplated road. It is believed, in view of all the circumstances, that the Hudson river railroad can be run, at the proposed speed, at about the same cost, as the average above presented. This conclusion is very much sustained by an examination and estimate in detail of the items of expense. But in forming an estimate of so much importance as this, it is best to adopt the prudent view, while at the same time exaggeration should be avoided. It may be remarked, that many items of expenditure would not be affected by the speed or rate of running.

If twenty-five per cent. be added to the first of the preceding averages, it will make the cost one dollar and three cents per mile run; it to the latter, ninety-two cents per mile run. If it is therefore believed that one dollar per mile run is a prudent and proper estimate for the passenger trains on the proposed road.

Without going into detail, it may be stated that the weight of one hundred passengers, and the cars necessary for their transportation, is about twenty-seven tons (of two thousand two hundred and forty pounds;) or sixty-seven tons for two hundred and fifty passengers. An engine of twelve tons weight, with eight tons on the driving wheels, will be sufficient to convey such a load at the proposed speed: but if an engine of fifteen tons be taken, having ten tons on its driving wheels, it will be very ample, and if occasion shall require, can take an extra car, or three hundred passengers. Though the train may be sufficient for the accommodation of three hundred passengers, it cannot be expected that they will always have that number to carry. If the estimate is based on an average of two hundred passengers per train, during the season of navigation, it is believed that it will be well sustained. With a charge of \$1 50 per passenger, the earnings will be \$300. The expenses on which, according to the preceding estimate, for the distance of one hundred and forty-four miles at one dollar per mile, will be \$144. The net earnings therefore may be taken at half the total receipts.

Business of the Road.

In 1843, a report was made to congress by G. W. Hughes, captain topographical engineers, at that time engaged on the improvement of the Hudson river. It appears from that report, that the number of passengers arriving and departing at Albany and Troy by the regular lines of passage boats, was five hundred and forty-two thousand per annum. Col. J. J. Abert, in a recent report to congress, gives a statement, from evidence taken by a committee of the New York senate, appointed to investigate the cause of the loss of

the steamboat Swallow; from which it appears the number of passengers on the Hudson, in 1844, amounted to one million; and he estimates the number for 1845 at one million two hundred thousand.

I am not aware of any systematic attempt to obtain the number of "way" separate from "through" passengers. It is very generally supposed there are about the same, in number, of "way" as "through" passengers. On the Western railroad in Massachusetts, there were, in 1844, twenty-four thousand three hundred through passengers, and one hundred and ninety-five thousand way passengers. On the Boston and Worcester railroad, (forty-four miles in length) the local travel, excluding all to and from the Norwich and Western roads, was in the year 1844, equivalent to one hundred thousand four hundred and eighty-eight passengers over the whole length of the road. The same year there were to and from the Norwich road, forty-one thousand one hundred and one passengers, and from the Western, fifty-seven thousand six hundred and thirty-one, making a total of one hundred and ninety-nine thousand two hundred and twenty passengers carried over the whole of this road, in 1844. Considering that the Boston and Worcester was, at that time, one of six railroads radiating from Boston, the amount of way travel, (for the local travel can only be regarded in this light,) was very large, for a road of 44 miles in length. These facts strengthen the belief that the number of passengers at other places on the Hudson is equal to those at Troy and Albany. If this hypothesis be correct, there must have been more than one million of persons passing over some portion of the steamboat navigation of the Hudson in 1844; and probably the number that passed in 1845, has not been less than the estimate given by Col. Abert, viz: 1,200,000; between 5 and 600,000 of them probably were "through" passengers.

Of the through passengers, it is considered a safe estimate to take half the total number, as the share that may be secured to the railroad, at the rate of charge (\$1 50.) and the rate of speed (35 miles per hour,) before stated: this would afford 250 or 300,000 for the season of navigation; but if 250,000 be assumed, it is believed to be quite safe.

Of the way passengers it is considered that of those on the east side of the river, three-fourths will take the railroad; some places on the west side will afford it very few passengers; while others, particularly Caldwell's, West Point and Newburgh may be expected to furnish a large proportion. It is estimated that the passengers on the east side of the Hudson, between Peekskill and New York, by boats that do not pass above Peekskill, amount to eighty thousand annually. Other way boats to Newburgh and Poughkeepsie, probably carry double this number. These boats did not all enter into the statement of Capt. Hughes.

If the way passengers that will take the railroad be estimated at two hundred and fifty thousand per annum, at an average charge of seventy cents each, it is believed to be quite

safe, as data for business and revenue. A greater amount will probably be realized.

As before stated it is not expected the freight during the season of navigation will be an important item of business. On this point it may be observed, that the road will pass directly through or near several villages and manufacturing establishments which will no doubt find it for their interest to send a portion of their freight by the railroad. In addition to this, there will be produce required for the daily supply of the city markets, that to some extent will prefer the railroad.—The item for the navigable season, it is believed, may be made to produce, at remunerating rates \$50,000.

It is rather difficult to make an estimate for the winter trade, and it must be to some extent conjectural.

From Hunt's Merchants' Magazine, No. 70, it appears the average time between the opening and closing of the Hudson, from 1831 to 1845, was ninety-five days: the date of closing ranging from November 25th to December 21st, and the date of opening from February 4th to April 13th. It is well known that the river is often much obstructed before it closes for the season; and the uncertainty attending the closing and opening operates for a considerable time to restrict calculations of business that depend on navigation. It may therefore be taken as a fair average, for reliable business, that the navigation opens 1st of April and closes 1st December. The main business is done between these dates, and for the purpose of general estimates the season of navigation may be taken at eight months.

The receipts for freight carried on the Western railroad (Massachusetts) in the four months of January, February, March and December 1844, (taking the miles travelled by freight trains, the best means I have to ascertain the proportion,) amounted to \$97,978; and the receipts for passengers (computed on the proportion of the number carried) was \$85,667; together, \$183,645. This amount of business was done when the railroads west of Albany did not carry freight, except for the last month, December, and for that year the Hudson was navigable until the 17th of that month; little benefit, therefore, was derived from freight brought from the roads west of Albany. It is supposed the freight on that railroad (Western) for the same months in 1845, has been considerably greater than above given for 1844. The official annual report for 1845 has not yet been published; but it is very well ascertained that the total annual receipts have been near \$60,000 more in 1845 than in 1844, and that a large proportion if not the principal increase has occurred during the winter months. If the total receipts for freight and passengers amounted in the four winter months of 1844, to \$183,000, without material aid from the railroads west of Albany, and in view of the facts above stated, we may expect, with great confidence, that for the same months in 1845, the total receipts for the winter months have not been less than \$200,000, and probably \$220,000. This road is about 12 miles lon-

ger than the projected Hudson river railroad. From weekly reports made this season it appears, the freight business on the roads west of Albany and on the Western road in Massachusetts, has increased largely over that of last winter, and it may be assumed with great safety that the winter receipts of 1846 will be more than \$220,000.

It is considered to be a safe estimate, that the receipts on the projected Hudson river road, for freight and passengers, will be at least 50 per cent. greater than on the Western road during the four winter months.—It is not deemed necessary to go into any comparison to show the propriety of assuming this ratio of receipts. The great importance of the projected road, in forming a connection between the political and commercial capitals of the state, as well as the highly commercial character of the avenue occupied, are believed to fully warrant the ratio above stated.

Collecting the data, which have been discussed in the preceding pages in considerable detail, we have as the annual gross revenue of the projected railroad, the following:

Estimated receipts for the eight summer months:—

250,000 through passengers at \$1 50.....	\$375,000
250,000 way " " " 70.....	175,000
Freights, estimated.....	50,000
<i>Estimated receipts for the four winter months:</i>	
On freight and passengers, assuming receipts at fifty per cent. greater than the probable amount of those for the same months of the current year, on the Western road, viz.	
\$220,000.....	330,000
United States mail.....	40,000
Total receipts per annum.....	970,000
Deduct one-half for expenses.....	485,000
Net revenue per annum.....	\$485,000

Considering that the receipts on the Western (Massachusetts) road were over \$900,000 for 1845, it cannot be regarded that the above estimate exceeds the bounds of caution. It is true, the rates of transportation for summer cannot be as high; but the large amount of business furnished by this great thoroughfare, and the superior economy at which it can be done, more than balances this consideration.

It is clear, if the above income can be realized, there will be a fair return for the capital invested. After much reflection I do not see reason to reduce it. It is not probable this amount will be realized the first year the road is opened, but I think there is good ground to expect it the second, or at farthest, the third year of its operation. In order to guard against an excess in the estimate of income, I have taken as data the present amount of business. This will increase with the general commercial extension and prosperity of the country; and also, by the new and more ample accommodation which the railroad itself will furnish.

I have endeavored to discuss this enterprize in all its bearings, with the detail that appeared necessary to give a fair, and as I trust, an impartial view of its merits. The conclusions at which I have arrived, (though to others they may not appear warranted,) are the result of much examination, and I believe have been reached with due caution against

inducing expectations in relation to cost and income that would eventually be disappointed. As I have advanced from step to step, the feasibility and the productiveness of the projected enterprize have appeared more and more favorable; and the conclusion is that this route is the best one for a road, to meet the wants of this great thoroughfare—that the commercial interest of this city and of the interior of the state, will be greatly benefitted by its construction—and that, though a single track is proposed to be laid down, (with 20 miles double track through the Highlands,) to be first put in operation, a double track road will soon be required to accommodate the trade in the most satisfactory manner, and should be looked to as the ultimate completion of the enterprize.

As soon as the road is put in operation by a single track the work of extending the second track should be carried northwards from Fishkill to Poughkeepsie, and southwards from Peekskill to New York, as early as practicable. With a double track from New York to Poughkeepsie, twenty-five per cent. more business than stated in the estimate can be conveniently done, and its increase will be provided for by extending the double track through to Albany.

General Remarks.

Having now completed the duty of examining the projected enterprize, it affords me pleasure to be able to present it as a measure that, beyond all question, will confer a great benefit on the commercial interests of this city, and of the interior of the state; and also, that offers a good prospect of fair remuneration for the capital required.

I am fully aware of the impression which prevails to a large extent, that the cheapness of conveyance by steamboats on the Hudson river will render it impracticable for a railroad to compete with them. It would certainly be great folly to go into the expenditure of so much money as would be necessary for such an enterprize, without such prospects of usefulness and remuneration as would warrant the expense; and so far as my judgment has enabled me, I have taken what I deem a cautious view of the whole subject. It is not expected, nor does the estimate contemplate, that all the passengers will prefer the railroad, or that the steamboats will abandon the passenger business; but it is confidently believed, there are considerations that will induce a large portion of them to give the railroad a preference to the boats. The fare proposed for the railroad is about the same as paid on the steamboats, when the charge for passage in the night boats is fifty cents: that is—

Passage.....	\$0 50
Supper.....	0 50
Berth.....	0 50
Care of baggage, from 12½ to 25 cents, say..	0 12½
Total.....	\$1 62½

The item for baggage is not a charge by the boat owners, but a perquisite, which goes to compensation of hands; and though not obliged to pay it, travellers find their comfort in submitting to the charge.

By the railroad a passenger in the after-

noon train would reach Albany or New York in time for regular lodging at his residence or hotel. But it will be said, he must pay for his supper and lodging if he goes to a hotel. This is true, and if he chooses to consult his comfort, it will cost him about eighty-seven and a half cents more by the railroad than by the boat, or if he chooses, he may reduce the difference to fifty cents. To large numbers of travellers, a night on a steamboat is more or less uncomfortable, and the difference in expense would not be regarded as a consideration; compared with the comfort and superior condition a man feels for business after a night of regular rest, over that which follows a steamboat lodging. Business men travel in the night to save time, and there can be no doubt many of them would pay a small sum extra if they could gain the time, and also enjoy their regular rest. Notwithstanding the superior comfort of a railroad passage there is no doubt that large numbers, for the saving of a few shillings, would sacrifice it, and take the boats; but the class who would prefer the railroad, is believed to be large, holding a respectable ratio as to numbers.

It will be in the power of the railroad to run their trains more frequently, and thus take up the passengers more in detail.

Let a train of cars start at 7 o'clock, a.m., from Albany, at the hour of the morning boat, with all reasonable assurance that it will reach New York before or at noon: can there be a doubt that the mass of business men would take the cars, at the price proposed rather than a boat at any terms that could be offered? The traveller for pleasure would find more commanding and varied scenery, combining a beautiful rural district with all that is bold and grand on the river, without a toilsome day on a boat; and though time might not be so important, the comfort, interest, and expedition of the passage would be sufficient to lead a large majority to the railroad.

A passenger leaving Albany at 7 o'clock a.m., could devote four hours to business in New York, and return in good season to his own lodgings in Albany the evening of the same day; and the same from New York to Albany.

A passenger leaving Utica, Syracuse or Auburn in the morning, could reach New York by nine or ten o'clock, p.m., and leaving New York in the morning at 7 o'clock, could reach Utica, Syracuse and Auburn by 6, 7 and 8 o'clock, respectively, the evening of the same day; and Rochester by 12 at night of the same day. It may be replied, that the roads west of Albany do not travel fast enough for this. Though they may not do it now, they will find it their interest at no distant day to accomplish this, and more; their duty, their interest, and their inclination will prompt them to keep pace with the improvements in railroad speed, that is sure to take place on all important thoroughfares.

In regard to way passengers, the frequency with which they will have the opportunity of taking the cars, as well as the expedition with which they will be conveyed, leaves no reasonable doubt that of those on the east

side of the Hudson, with Newburgh, West Point and Caldwell's on the west side, a large majority will take the railroad.

In addition to what has already been said in relation to the winter business, it may be remarked that an easy communication with New York would be highly beneficial to the agricultural and manufacturing interests of the districts through which the road must pass, and this would extend to both sides of the river above the Highlands, embracing an extensive and fertile district, producing largely those articles that are in daily demand for consumption in New York, and containing numerous manufacturing establishments, whose prosperity will be greatly benefited by having at all times an easy access to and from market. There can be no doubt these sources of local trade will greatly add to the winter business of the road. The winter travel on the road, with present facilities both for way and through passengers, is no criterion to judge of its extent, when it shall have a cheap and easy means of communication that may at all times be depended on.

The high commercial character hitherto enjoyed by the city and state of New York, is owing mainly to the fact that the Hudson river, passing through the great chain of Highlands, opens an easy navigation to the great inland communications north and west: but this navigation is so obstructed by ice that it cannot be relied on for more than about eight months in a year. An improvement, therefore, that will make this communication easy, convenient and reliable at all seasons of the year, is obviously of great importance to all interested in this avenue of commerce. The projected road will afford this communication and is demanded by the present state of science and commercial improvement; it occupies the most direct and level and therefore the best route that can be had to effect the object proposed.

In view of all the circumstances of the I have come to the conclusion before expressed, that such a road as proposed will confer great commercial facilities, and be able to command a business, that will afford a fair income for the capital required. The reasons have been given in plain and sober statements, that others may judge of their sufficiency to sustain the conclusions at which I have arrived. The project is a noble one; the accomplishment of which will be an honor to the city and the state; and it is fully believed, that, before time will permit its completion, the community will be impatient of the delay. At the same time it is not proper to allow the magnificence of an enterprise to interfere with that sober, cautious and thorough investigation, that can alone reach reliable conclusions on its prospects of usefulness to the public, and remuneration to the capital required for its construction. It is believed a careful examination has been made of the successful results at which well constructed and well managed railroads have arrived, in the celerity, ease and safety of transporting passengers, particularly on long lines, and that such results fully warrant the estimate for the summer business that has

been presented; that for the winter will hardly be questioned.

An extract from the report of the British board of trade, in Huut's Merchants' Magazine, vol. 12, page 154, states that "of 18,453,000 passengers on all the English railroads in 1842, one man only was killed while riding in the train, and observing the proper degree of caution." This is about equal to one man in 18 years, estimated on the business of the Hudson river.

The December number of the Westminster Review, article 7, on railway investment, holds the following language:—"Let us clearly understand our position. We have arrived at a new epoch in the history of the world. A new element of civilization has been developed. As was the invention of letters, as was the printing press, as was the steam engine, so is the railway in the affairs of mankind. It is a revolution among nations. A moral revolution as affecting the diffusion of knowledge, the interchange of social relations, the perpetuation of peace, the extension of commerce; and a revolution in all the relations of property.

"We refer by the latter observation to the cheapening in all kinds of commodities by the facilities of carriage and the saving of time on the part of the producers, afforded by railways, and especially to the influence of railways upon the value of houses and land. Time was when the inhabitants of towns rose almost in arms to repel railway companies as an hostile invasion; now what has been discovered? The towns without railways find themselves distanced in the race of competition by their neighbors; manufacturers with no other than the old means of transport, cannot execute their orders either as expeditiously or as cheaply as the manufacturers of towns situated upon a line.

"Those who travel slow exclaim 'we are ruined by those who travel fast; we also must therefore travel fast;' and hence the demand for railways to connect every town of the united kingdom is not, to a very great extent, a mere mania for speculation in scrip; it is a real *bona fide* want of society, which sooner or later must be supplied."

Similar testimony might be presented, as to the influence of railways on continental Europe, and to some extent, in our own country, more particularly in the eastern states, where they have greatly advanced the facilities of social intercourse and commercial improvement. This influence has not been so much to supersede good water communications, as to increase the trade and travel of the communities where they exist, by enlarging the facilities of commercial intercourse.

The enterprise is now submitted to the consideration of the public, as entirely feasible, as highly important to the social and commercial interests of both city and country, and as one that it is fully believed, will afford a fair return for the capital required for its construction.

JOHN B. JERVIS.

NOTE.—I have been assisted in the surveys and calculations presented in the above report, by Messrs. Henry Tracy, John C. Campbell and Benjamin F. Crane, civil engineers. J. B. J.

AMERICAN RAILROADS.														
NAMES OF RAILROADS.	Length in miles.	Cost.	Loans and debts.	Number of shares.	Paid on share.	1843.		Div. per cent.	1844.		Div. per cent.	1845.		Div. per cent.
						Gross.	Nett.		Gross.	Nett.		Gross.	Nett.	
Maine. 1	Portland, Saco and Portsmouth.	50	1,200,000				89,997	47,166	7	131,404	62,172	6		
N. Ham.	2 Concord.	35	750,000									12		
Mass.	3 Boston and Maine.	56	1,485,461				178,745	68,499	6	233,101	86,401	6½		
	4 Boston and Maine extension.	17½	455,793	unfin.										
	5 Boston and Lowell.	26	1,863,746				277,315	144,000	8	316,909	147,615	8		
	6 Boston and Providence.	41	1,886,135	none.	18,600	100	233,388	110,823	6	282,701	156,109	6		
	7 Boston and Worcester.	44	2,914,078				404,141	162,000	6	428,437	195,163	7½		
	8 Berkshire.	21	250,000	not stated				17,500	7	17,737				
	9 Charlestown branch.		280,260						13	34,654	13,971	5½		
	10 Eastern.	54	2,388,631				279,563	140,595	6	337,238	227,920	8		
	11 Fitchburg.	50	1,150,000	just op'n'd						42,759	26,835			
	12 Nashua and Lowell.	14½	380,000				84,079		8	94,588	34,944	10		
	13 New Bedford and Taunton.	20	430,962				50,671	24,000	6	64,998	24,000	6		
	14 Northampton and Springfield.		172,883	unfin.										
	15 Norwich and Worcester.	66	2,290,000	900,000	16,535	190	162,336	24,871		230,674	99,464	3		
	16 Old Colony.		67,520	unfin.										
	17 Stoughton branch.	4	63,075	unfin.										
	18 Taunton branch.	11	250,000					20,000	8	96,687	20,000	8		
	19 Vermont and Massachusetts.													
	20 West Stockbridge.	3	41,516	200		100						4		
	21 Western, (117 miles in Mass.,)	156	7,686,202	4,686,202	30,000		573,882	284,432		753,753	439,679	3		
	22 Worcester branch to Milbury.	3½	42,000											
	23 Housatonic, (10 months,)	74	1,244,123							150,000				
Conn.	24 Hartford and New Haven.	38	1,100,000	100,000	10,000	100						6		
	25 Hartford and Springfield.	25½	600,000	400,000	2,000	100								
	26 Stonington, (year ending 1st Sept.,)	48	2,600,000	650,000	13,000	100	113,889			154,724	79,845			
N. York.	27 Attica and Buffalo.	31	336,211				45,896	7,522		73,248	48,033			
	28 Auburn and Rochester.	78	1,796,342	200,000	14,000	100	189,693	112,000		237,667	152,007	6		
	29 Auburn and Syracuse.	26	766,657				86,291	27,334		96,738	52,544	6		
	30 Buffalo and Niagara.	22	200,000		1,500									
	31 Erie, (446 miles,)		5,000,000											
	32 Erie, opened.	53						48,000		126,020	59,075			
	33 Harlem.	26	2,250,000	750,000	30,000					140,685	62,399			
	34 Hudson and Berkshire.	31	575,613			50				35,029	1,789			
	35 Long Island.	96	1,619,221	392,340	29,816					153,456	58,996			
	36 Mohawk and Hudson.	17	1,317,893	400,000	10,000	100	69,948	58,780		79,804	45,763			
	37 Saratoga and Schenectady.	22	303,658				42,242	3,000	1	34,666	8,455			
	38 Schenectady and Troy.	20½	640,800				28,043			32,616	6,365			
	39 Syracuse and Utica.	53	1,115,897	none.	16,000	62½	163,701	72,000		192,061	120,992	8		
	40 Tonawanda.	43	727,332				76,227			114,177	75,865	5		
	41 Troy and Greenbush.	6	180,000											
	42 Troy and Saratoga.	25	475,801				44,325	21,000		38,502	9,971	2½		
	43 Utica and Schenectady.	78	2,168,165	none.	20,000	100	277,164	180,000	9	331,932	199,094	8		
N. Jersey	44 Camden and Amboy.	61	3,200,000				682,832	383,880		784,191	404,956			
	45 Elizabethtown and Somerville.	26	500,000											
	46 New Jersey.	34	2,000,000											
	47 Paterson.	16	500,000									6		
Penn.	48 Beaver Meadow.	26	1,000,000											
	49 Cumberland Valley.	46	1,250,000											
	50 Harrisburg and Lancaster.	36	860,000	645,929								77,536	9,968	
	51 Hazleton branch.	10	120,000											
	52 Little Schuylkill.	29	900,000											
	53 Blossburg and Corning.	40	600,000											
	54 Mauch Chunk.	9	100,000											
	55 Buck Mountain.	4	72,000											
	56 Minehill and Schuylkill Haven.	19½	396,117	25,000	7,019	50			12			12		
	57 Norristown.	20	800,000											
	58 Philadelphia and Trenton.	30	400,000											
	59 Pottsville and Danville.	29½	1,500,000											
	60 Reading.	94	9,457,570	7,447,570	40,200	50				597,613	343,511			
	61 Schuylkill valley.	10	1,000,000											
	62 Williamsport and Elmira.	25	400,000				20,000							
	63 Philadelphia and Baltimore.	93	1,400,000				43,043	200,000			210,000			
Delaware	64 Frenchtown.	16	600,000											
Maryl'd	65 Baltimore and Ohio, (1st Oct.)	188	7,742,410	1,153,709			575,235	279,402		658,620	346,946		738,603	374,762
	66 Baltimore and Washington.	38	1,800,000				177,227	71,691		212,129	104,529		208,813	95,094
	67 Baltimore and Susquehanna.	58	3,000,000											
	68 Wrightsville, York and Gettysburg.	12½	500,000											
Virginia	69 Greenville and Roanoke.	18	284,433	37,544	2,000	100				25,368	6,074	3		
	70 Petersburg.	63	969,880	63,000	7,690	100				122,871	72,698	6		
	71 Portsmouth and Roanoke.	78½	1,454,171											
	72 Richmond, Fredericks'g and Potomac.	76	800,000							185,243	85,688			
	73 Richmond and Petersburg.	22½	700,000											
	74 Winchester and Potomac.	32	500,000											
N. Car.	75 Raleigh and Gaston.	84½	1,360,000											
	76 Wilmington and Raleigh.	161	1,800,000											
S. Car.	77 South Carolina.	136	5,671,452		34,410	75	201,464	77,456		532,871	140,196			
Georgia	78 Columbia.	66												
	79 Central.	190½	2,581,723	400,000	20,510	100½	227,532	93,190		328,425	180,704			
	80 Georgia.	147½	2,650,000				248,026	158,207		248,096	147,523			
	81 Montgomery and West Point.	89	500,000	170,000		100				36,000	15,000			
Kent'ky	82 Lexington and Ohio.	40	450,000											
Ohio.	83 Little Miami.	40	400,000											
	84 Mad river.	40	152,000											
Indiana.	85 Madison and Indianapolis.	56	212,000	50,000			22,110	8,639	8	39,031	10,065	9½	24,984	3,280
Canada	85 Champlain and St. Lawrence.	15						12,000		58,000	24,000			

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

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 Saturday, February 31, 1846.

WESTERN RAILROAD.—Receipts for week ending January 31st.

	1846.	1845.
Passengers.....	\$5,957	\$5,348
Freight, etc.....	8,542	7,401
Total.....	\$14,490	\$12,749
Net gain this week.....		1,741
Previously gain.....		9,758

Total gain this year.....\$11,499
 Comparative statement of the business on the Philadelphia and Reading railway during the month of January, for three years, viz:

	1844.	1845.	1846.
Travel.....	\$4,642 91	\$6,021 94	\$6,976 54
Freight on goods.....	4,951 09	5,323 98	9,273 92
Do. do. coal.....	11,374 16	28,546 18	52,720 82
Trans. U. S. mail.....	500 00	783 33	783 34
	21,468 16	40,675 43	69,754 62

Central Railroad, Michigan.—The receipts of this road for the month of December, were as follows:

	1845.	1844.
Freight.....	\$12,802 56	\$4,469 66
Passengers.....	4,325 08	3,454 08
U. S. mail.....		697 69
	17,127 64	8,721 43
Increase.....	8,506 21	

Thus we see the effects of a poor and a good crop upon a railroad through an agricultural community.

Dividends.—The Syracuse and Utica railroad company have declared a semi-annual dividend of two dollars and a half on each share, payable to N. York stockholders at the American Exchange bank, on the 16th instant.

The Auburn and Syracuse railroad have declared a dividend of four per cent.

ADVERTISEMENTS flow in upon us, and indicate strongly the growing interest taken in the extension of the system. It is gratifying to us in more than one way, to receive and insert them; not more so however, than to feel assured that we render a full equivalent to those who advertise in the Journal, for what we receive in return. We shall hereafter, give every advertisement one insertion in the editorial columns as below.

Bridgeport Railroad.

Notice to Contractors.—We give place to the following notice to contractors, with great pleasure; and we congratulate the people of Bridgeport upon the prospect of having a good road. May they derive

ample returns, and all the advantages they ever anticipated from it. With one-tenth of the enterprize and energy of Bridgeport, in proportion to her resources, this city would have had a thousand miles of railroad, terminating in its streets, and tributary to its business, and under the control of its business men—instead of 52 miles on the Erie, 94 on Long Island, and 26 to White Plains!

NOTICE TO CONTRACTORS. PROPOSALS will be received at Bridgeport, until the 20th of March next, for re-laying the Housatonic railroad with an H rail. Specifications will be furnished at the office of the undersigned, in Bridgeport, on and after the 20th February. R. B. MASON, Engineer. Bridgeport, February 14, 1846. 8 5t

CONTRACTORS will do well to attend to the following notice. It allows them a little more time, than the previous notice, to examine the line, and put in their bids.

PROVIDENCE & WORCESTER R. R. Notice to Contractors. The time for receiving proposals has been extended to the 11th March. The route is ready for examination, and blank proposals and specifications may be had at Worcester and Providence. All proposals must be sealed, accompanied by names of references and sureties, and directed to the engineer, at Providence, prior to the above date. T. WILLIS PRATT, Engineer. 8 4t

The attention of our readers is called to the following advertisement for second-hand railroad iron.

RAILROAD IRON WANTED. WANTED, 50 tons of Light Flat Bar Railroad Iron. The advertisers would prefer second-hand iron, if not too much worn. Address Box 384 Philadelphia P. O.—Post paid. 8 4t

Steam Pile Driver, Passenger Cars, etc. If the engineer, at the south, who inquired of us last year in relation to "steam pile drivers" to make a railroad across that swamp is not supplied, we would recommend him to Messrs. Davis and Brooks, of this city, who have one ready made, by a first rate shop, which may be had a bargain.

DAVIS, BROOKS & CO., 30 WALL ST., have on hand for sale, Railway Iron of different sizes—heavy and flat bars. A Steam Pile Driver—built by "Dunham & Co."—in complete order; has never been used, and for sale a bargain. Cost originally \$5,000. Also 12 Railway Passenger Cars, that have never been used, which will be sold a bargain. 8 4t

WHARF BOLTS. THE SUBSCRIBERS are now ready to Contract to deliver Wharf Bolts, at a reduction of 10 per cent. on last year's prices. SAM'L KIMBER & CO. 59 North Wharves, Philadelphia. 8 4t

MAPS, REPORTS AND PAMPHLETS.—We acknowledge the receipt of, and tender our thanks for, the following maps, reports and pamphlets, viz:

A map of the projected railroad from Harrisburg to Pittsburg, etc.

A map showing the several routes examined with a view to the extension of the Baltimore and Ohio railroad to the Ohio, etc.

The annual report of the Pennsylvania canal commissioners.

A copy of the proceedings of the great meeting at Philadelphia on 10th December last in relation to a direct railroad to Pittsburg.

The 14th annual report of the Boston and Worcester railroad company.

A copy of the proceedings of the stockholders of the Boston and Worcester railroad at an adjourned meeting on the 12th January, with the communication from the president in relation to the proposed union with the Western railroad.

Reading Railroad.

We received some time since a single number of the Philadelphia American Sentinel, containing an abstract of the annual report of the Reading railroad company, but as we desired to give the report entire, or so much of it as would enable our readers to see the whole operation of the past year, in detail, and as we expected an early copy of the report, the abstract was not published. More than a month has passed since the annual meeting, but no copy of the report has reached us and therefore we have not had an opportunity to refer to this very important work as we desired. It is probable that a copy has been forwarded and not come to hand. Will some friend furnish us with a copy.

Rolling Mills Making Railroad Iron in the United States.

New York and Maryland iron and coal company, "Mount Savage," near Cumberland, Maryland.—William Young, President, Jennon's Run, Allegheny Co., Maryland.

Montour iron company, Danville, Pennsylvania—Leavitt, Murdock & Co., New York, agents.

New Jersey iron company, Trenton, New Jersey—Peter Cooper, New York, proprietor.

New England iron company, Providence, R. I.

There are several other mills, but we have not sufficient information to insert them, and therefore request each of our readers, who can give us the details—name, proprietors and capacity of work or quantity of iron made, to oblige us with the facts—together with any other information in the line, relative to the progress of the system, which may be interesting or useful.

Monongahela Suspension Aqueduct.

It affords us pleasure to publish the following extract from a letter, dated Pittsburg, 12th inst. We have been waiting for this announcement with some interest, and we hope to have a drawing soon for the Journal.

"The Monongahela bridge is now open for all kinds of travel, and in full blast. But to see the aquaduct to the best advantage, you must be here when the water is in, and the boats are running.—This will not be before the middle, or end, of next month. The bridge surpasses the expectations even of its friends, and has silenced the opposition for ever; It shakes less than the old wooden arch bridge did, and this pleases the public very much. The appearance of the whole structure is very pleasing now, and will be more so when painted and finished. The greater part of the coal consumed in Pittsburg passes over it, in four and six-horse teams, besides a great deal of iron, and other heavy freight; from this you may judge that it is fairly tested.

"The Fairmount bridge is well known here, and is in disrepute, on account of the vibrations to which it is liable. The stiffness promised for the Monongahela has been fully attained, and pleases the public much—as many prophesied differently. The principal features in which this structure differs from other suspension bridges, is the process of making the cables, one cable in place of a number, a continuous solid wrapping laid on perfect by machinery, in place of mere bands put on by hand, at intervals. The difference in the wooden structure, and the general arrangement of cables, suspenders and stays, which in this are all so arranged as to produce the greatest stiffness with the least weight of material."

Right of Way.

We find in the Pittsburg Gazette, of 6th inst., a series of resolutions, passed by a large meeting of the citizens of Pittsburg, held on Wednesday, eve-

ning, 4th inst.; together with a preamble and resolution, passed by the councils, in favor of granting the right of way to the Baltimore and Ohio railroad company, to the Ohio, at Pittsburg. These resolutions embody, of course, the views, and wishes of the people of Pittsburg.

We also find, in the U. S. Gazette, of the 9th inst., a long, and very able letter, signed by *eighteen* of the most prominent and eminent merchants of Philadelphia, headed by *Thomas P. Cope*, addressed to the members of the legislature from Philadelphia city and county, strongly opposing the measure.

Here are the leading, intelligent, and influential business men of the *two cities* of Pennsylvania, situated on the two extreme borders of the state, arrayed against each other, on a matter of great importance to the state, and especially so to the two cities; the *wonder*, to a disinterested party, at a distance, is, how can such men differ on such a question? To us, it would appear—with all due deference to the eminent gentlemen with whom we so widely differ on this point only, we trust—that every dollar spent in the proper construction of this work, would be invested at *compound interest* for Pennsylvania; and to resist its construction, is suicidal to the best interests of a large number of her most enterprising citizens. We have learned, however, that people are very liable, indeed *apt*, to arrive at different conclusions, as they view an object from the *east*, or from the *west*—from the *north*, or from the *south*—or, indeed, “from the *centre* all round to the sea”—and should not, therefore, be surprised that people who look through green glasses, see things in a different light from those who use clear glass.

The great apprehension in Philadelphia appears to be, that if the Baltimore and Ohio road is allowed to reach Pittsburg, the *city* of Baltimore will operate upon the business and prosperity of that city, as the ordinary dam across a stream, to stop the water and prevent its natural flow, or to arrest the western trade, and prevent Philadelphia from receiving, as heretofore, her proper share. Whereas, to us, it appears that, if it operates as an obstruction at all, it will only be while the pond created is filling, and that then, like the stream flowing, over, or past, the dam, it will be far more useful than before the dam was erected. But then, say others, it will interfere with, and be injurious to, our people through the interior of the state, and to our state works. Would the state works be more injured by the railroad, if it terminated at Pittsburg, than at Wheeling or Parkersburg? Then, again, we believe that the construction of the Baltimore and Ohio road to Pittsburg would hasten the construction of a railroad through the interior of Pennsylvania; and thus benefit, in various ways, instead of injure, the people of the city and state.

We shall give the letter and proceedings above referred to, in our next, that the views of both parties may be seen together; and may, perhaps, have a word further to say on the subject, as we deem it one in which the whole *east* and *west* have an interest.

The breaking of ground on the Montreal railroad, last Thursday, says the N. H. Courier, of February 11th, was attended by a large and enthusiastic assemblage of the friends of the road. This road will now progress steadily until it is completed to Haverhill, and it will then, *if not before*, be commenced and continued up to the valley of the Passumpsic and the Connecticut rivers to Canada line. The productions and capabilities of that region of country are very great, yet it has been

more isolated from good markets than almost any other in our country. The population is rapidly increasing, though they have had to struggle against “every adverse circumstance that can be imagined. Freight averages twenty dollars per ton to Portland, and thirty to Boston; of course almost every thing that is produced in Coos county is rendered nearly valueless, except for home consumption.”

We can ourselves recollect when a journey to *Portland*, from the “upper Coos,” Stewartstown, the place where we first learned to eat and grow fat upon “rye and Indian” bread—was an event to be talked of for months previous—but construct a railroad up the valley of the Connecticut, or from Portland, or indeed from both to Canada line where it touches the Connecticut river and from thence to Montreal and the population and wealth of that region will double in less than fifteen, if not in *ten* years.

The following statement from the Belknap Gazette says “the county of Coos, was incorporated in 1803, thirty-two years after the original counties. At that time it contained only about 3 thousand inhabitants—now it has about ten thousand. In horses, cattle, sheep, etc., Coos possesses full an average number of the whole State, according to her population, while in all the substantial products of the soil, except corn, it far exceeds the average. The wheat produced in the state, in 1840 was about half a bushel to each person—in Coos county, two and six-tenths bushels—barley in the state, half a bushel, in Coos six bushels—oats in the State, five bushels, in Coos forty-three, to each person.”

In lumber, Coos exceeds any one or all the other parts of the State—in fact it is the lumber region of New Hampshire. There is not a more hardy, enterprising and deserving people on the earth, than are to be found in Coos.

In a national point of view in case of war, a railroad to Canada line in that region is of immense importance, and it should be pushed on with all possible despatch. Boston and New York both have an interest in it.

To the Managers of the Different Railroads in the United States.

We desire to obtain for publication in the *Railroad Journal*, and for the convenience of travellers, a list of the *stopping places* and *principal hotels*, on each railroad, from whence *branch railroads* diverge or lines of *stage coaches* leave, similar to the following, which has been furnished at our special solicitation, and would have been published before, but that we expected others from still *further south*, to accompany it. Yet we are none the less obliged to the friend who furnished it, for his prompt attention to our request.

It seems to us that it will be quite as useful to the companies, as to the Journal, and that they will therefore afford the time necessary to furnish the statement, if we publish it from time to time as useful information. We shall be greatly obliged to those who respond promptly to this request; as it will materially aid us in a plan we have to serve travellers on railroads.

For the American Railroad Journal.

“Principal stopping places on the line of the Baltimore and Ohio railroad, in miles from Baltimore, with information to travellers concerning hotels thereat, and stages starting therefrom.

“Relay House, 7 miles from Baltimore, Mrs. Lowe’s hotel—junction of Washington Branch.

“Ellicott’s Mills, 13 miles from Baltimore.

“Sykeville, 30 do., Garrett’s hotel.

“Frederick, 60 do., City Hotel—26 miles to Hagerstown, daily coach, [at 1 P.M.] at \$3 fare; 22 miles to Emmitsburg, try-weekly coach, [7 A.M.] fare \$1 75.

“Point of Rock, 68 do., John Hann’s hotel—ferry and conveyance to Leesburg, 12 miles.

“Harper’s Ferry, 82 do., U. States hotel—junction of railroad to Winchester, 32 miles, daily, on the arrival of Baltimore train. Fare, \$2.

“Kerneysville, 94 do.—4 miles to Shepherdstown, daily coach, at 50 cents fare.

“Martinsburg, 100 do., Oden’s hotel—22 miles to Winchester, coach semi-weekly, Monday and Thur; 13 miles to Williamsport; 19 miles to Hagerstown, coach semi-weekly in summer, Sunday and Wednesday. No stages in winter.

“Hancock, 124 do., Bean’s hotel—coach daily to Clearspring, 15, and Hagerstown, 26 miles, connecting with cars from Cumberland; stage daily from Hagerstown to Clearspring and Hancock, connecting with cars from Baltimore. \$2 fare from Hancock to Hagerstown.

“Green Spring Run, 165 do., Bryan’s hotel—coach Monday, Wednesday and Friday, to Rumney, Clarksburg, Parkersburg, etc., connecting with cars from Baltimore, at 5 o’clock, P.M.; returning, connect, on Tuesday, Thursday and Saturday, with cars from Cumberland, at about 8½ A.M. Fare from Baltimore to Parkersburg, \$14; from Green Spring Run to Parkersburg, \$9.

“Cumberland, 179 do., Barnum’s Hotel—Cotton’s U. S. Hotel.

“During the season of the Bedford Springs *only*, there are two or three lines of coaches running daily to the Springs, 28 miles. Fare \$2.

“Private conveyances to be had at all the depots along the line.”

Washington Branch Railroad.

“There are no stopping places on the Washington Branch from which stages run. The point of divergence of the railroad to Annapolis, [20 miles long] is 18 miles from Baltimore, and 22 from Washington. The fare to Annapolis from Baltimore is \$1 50, viz: 72 cents to the junction, and 78 cents thence to Annapolis. From Washington to Annapolis \$1 75—of which the Washington road receives 85 cents, and the Annapolis road 90 cents. There is a public house at the junction. The Annapolis cars run in connection with all the trains on the Washington railroad. There is a public house at Beltsville, 12 miles from Washington. The only village on the route, is that of Bladensburg, 5 miles from Washington.

“The Savage factory, 19 miles, and the Laurel factory, 21 miles from Baltimore, are flourishing cotton manufactories, where machinery is also made upon a considerable scale. These establishments are each about a mile from the railroad, in a north-westerly direction. There is a lateral railroad to the Savage, and a turnpike to the Laurel, but no regular conveyance by either for passengers.

“In the city of Washington, the principal hotels are those of Coleman, Gadsby, Brown, Fuller, etc.

Annapolis and Ekridge Railroad.

This road diverges from the Baltimore and Washington road, 18 miles from Baltimore, and is 20 miles in length. Trains leave the point of divergence on the arrival of the trains from Baltimore, and the fare is \$1 50 from Baltimore, and 78 cents from the junction.

☞ We have had no report, or account of this road for several years. Who will furnish us with a statement of its condition and doings?

Winchester, Va., and Potomac Railroad.

This road diverges from the Baltimore and Ohio road, at Harper's ferry—and we were led formerly to anticipate its extension through the entire length of that beautiful valley of Virginia, and ultimately to Tennessee—nor do we yet relinquish the idea, though we are less sanguine than formerly—as we find less liberality in Virginia legislation than we anticipated. The time will come, however, when the Winchester road will extend the entire width of the state.

We have not receive any account, or report of its proceedings, or condition for many years. The last report published in the Journal, is dated August 2d, 1836, and may be found at pages 564 and 582 of vol. 5th. Who will furnish us with a statement of its present condition, business and prospects?

Its length is 32 miles, and its cost up to August, 1836, was \$486,926, or a little over \$15,000 per mile. We shall be obliged to any gentleman who will furnish us with accurate information in relation to its present condition.

New York and its "Natural Advantages."

When the friends of railroads in this city—or more properly speaking, the true friends of New York—converse with the large property holders, the men of wealth, and the business men of all sizes, in relation to their importance, and, indeed, the necessity of their construction between here and lake Erie, and between here and Albany, they readily assent to what you say; but when they are requested to subscribe to the stock in either—and thus to show the strength of their belief in what they say—you are most sure to be met, in a large majority of cases, and, indeed, comparatively speaking, with only a few noble exceptions, with the stereotyped reply, that "the natural advantages of New York will enable her to defy all rivalry"—or, "New York has nothing to fear from Boston," etc. And, but for the resolute and determined perseverance of a few gentlemen, the directors of the New York and Erie railroad, who neglected their own immediate business, and devoted themselves, for a time, to the task of securing the construction of that great work, and to whom the citizens of New York owe a debt of gratitude, we should still have remained under the reproach of neglecting our own immediate and important interest; but, fortunately for the city, they armed themselves with a determination to succeed, and we are mortified to say that they sometimes needed double armour, not to be disheartened, however much they might be disappointed, by the want of intelligence on this subject in some: the want of confidence in its success, in others: the want of public spirit, and homogeneity of feeling in the people of this city generally; or, disgusted by the illiberality of others most largely interested in, and most abundantly able to aid in the construction of, the work—and the result was a triumphant accomplishment of the object in view, and the certain commencement and completion, at an early day, of the greatest work—for this city—yet undertaken in the state; and, for their devotion to the public good, to the best interests of this city, to the comfort of us, "common people," to the necessities of us who labor hard, and live plain, poor, or are scarcely "able to make the two ends meet," we tender them our gratitude,—our warmest gratitude—for their labors. May they derive as much satisfaction and benefit, individually, as their labors will confer constant and lasting benefit upon the industrious and worthy thousands, who will be better fed, better clad, and better lodged, in consequence of the early construction of the New York

and Erie railroad, and the numerous other roads and branches, sure to follow speedily in its track.

The advantages of railroads to a city, and to a country, may be more clearly seen, by referring to what they have already accomplished for other cities and countries. Let us commence with Belgium and Brussels. In 1830, Belgium, with a territory of 11,500 square miles, and 4,200,000 population, had not a mile of railroad; but all her large cities were connected by magnificent and well kept canals; and some of them by ship canals, by which the cost of transportation was reduced to a cost varying from 7 to 16 of a cent, per ton a mile.

She had also over three thousand five hundred miles of paved roads; yet her enlightened rulers saw the advantages, to the people, of railroads, and they planned, and carried out, a system by which all the principal cities, and most of the large towns, are connected; thus giving the people the means of easy and cheap communication, as the fares are exceedingly low—the average rate of fare being only 16 cent per mile per passenger, and 24 cents per ton for goods; while in France it is 24 for passengers, and 34 to 5 cents per ton for freight; and in England, 38 cents per passenger, and 64 cents per ton per mile.

What have been the effects of this system upon Belgium? The effects are not to be measured by the return, 4 per cent., upon the capital, 150,000,000 of francs invested—because the government constructed the roads, and only charges rates which will cover the expenses of working, repairs and contingencies, together with four per cent. upon their cost, but by the influences in every direction on the country. Before the construction of railroads, about 600,000 passengers travelled annually upon the ordinary roads, which, it will be perceived were paved, in 1843, three millions four hundred thousand pass over the railroads! thus enabling people to travel and transact business, who could not before afford it, as the average cost of travel, 28 cents per mile, and the time required would not allow it; whereas, now, the average cost of travel is only 16 cent per mile, and the time required is not more than one-half what would be, if they travelled in the ordinary way.

If such have been the results in Brussels and Belgium, where the people are less free, will they not be much more generally realized here, where we have five times the population, at perfect liberty to go where they please, without passports, with the greatest facilities in the world for travel, and near two hundred times the territory to furnish them business.

France has also felt the influences of railroads, and she has also planned a general system, which has been conceded to different companies to construct, in part, and to manage—the government retaining the right of way, and paying for the grading in most cases—and thus securing the construction of roads where the government desires them; which is, of course, on all the great lines in every direction from Paris.

So, also, is it in Prussia, and in Austria, and in Russia. Each of those governments are constructing railways in various directions; and we shall see, in a few years, a greater extent of railroads in Russia, than in any other, unless, perhaps, in this country—as railroads will tend here to extend the area of republican, or free government, while in Russia they will serve to rivet more firmly the fetters of that vast empire.

But it is in England, where the system is now progressing most rapidly, and most effectually, and most profitably; and it is to England, as well as to Belgium, and our own country, that we, of New

York, may look for lessons of wisdom in relation to this subject. And let us look at them a moment.

The Liverpool and Manchester railway project dates its office rent and clerk hire back to Oct. 1824. The surveys were commenced and carried on in 1825-6, and the applications to parliament were made in each of those years. In April, 1829, the company offered a premium of £500 for a locomotive which would haul twenty tons on a level road at the rate of ten miles an hour—but the engine must not weigh over five tons—and six months were allowed for the construction. Several engines were brought out for the trial, viz: the Novelty, by Braithwait & Erickson; the Rocket, by Stephenson; and the Sans Parin, by Mr. Booth, if we recollect—and the trial was made in October, and it was entirely successful; the _____ proved the victor.

It was at that trial of locomotives that Mr. Huskisson was killed. Up to 31st May, 1830, the expenditures upon this work were stated at £820,000, or £25,625 per mile. And for the six months ending Dec. 31st, 1831, the net earnings were full five per cent—of which they divided 4 per cent.*

The amount of freight carried on it the six months from Dec. 31, 1830, to June 30, 1831, was 45,581; and for the next six months, to Dec. 31, 1831, was 71,428—showing an increase of 25,847 tons, or more than 50 per cent.

The passengers for the same periods respectively, was to June 30, 188,726; and to December 31, 1831, 256,321—showing an increase of 67,595, or upwards of 33 per cent.: and the total receipts were, for the first period, £65,093 13s. 6d., and for the latter six months, to Dec. 31, 1831, £90,007 13s. 11d.—showing a gain of £24,314 0s. 5d., or nearly 40 per cent.

These were the figures of the first English railroad in 1831, as reported in the American Railroad Journal, pages 149, 164 and 467, for 1832, or four years ago. Now let us see what the entire expenditure, up to the last report, Jan. 1, 1845, is put down at. We find it stated in the London Railway Times, and in the Economist at..... £1,785,090 or per mile..... 55,628

The total earnings for the year are stated at, from Jan. 1, to

July 1, 1841.....	£117,559
and from July 1, to December	
31, 1844.....	141,252—£258,811

The cost of working for the same period was from Jan.

1, to July 1, 1841.....	57,239
and from July 1, to December	
1, 1844.....	64,885—£122,124

Showing, according to these statements, net receipts of..... £136,687 or nearly 8 per cent. on the entire cost—but as £497,750 is borrowed at a low rate of interest, probably not exceeding 3½ or 4 per cent., they have been able to divide from 9 to 10 per cent. on the shares.

It must be borne in mind that this road has been the pioneer of all the railroads, both in Europe and America; therefore they must have purchased their early experience at a dear rate, and hence the enormous cost, as above stated, at over fifty-five thousand pounds sterling per mile. It is very probable that another road, equally as good, could be constructed along side of it now for less than half the money. Indeed the average estimate for the 3,841 miles chartered at the last session of parliament, was under £15,000 per mile; and this has cost near four times that; and yet there has been paid already to the

* See Mr. Booth, the treasurer's, statement, in the Railroad Journal, vol. 1, page 467, or July 21, 1832.

shareholders, in the shape of dividends, since the opening of the road, nearly £1,600,000. This, however, is the *smallest* part of the incalculable benefits it has conferred upon the business community of Liverpool and Manchester—and upon the whole kingdom—and, indeed, upon *all christendom*!!

There were 22 regular, and 7 occasional extra coaches, capable of carrying 688 passengers only, daily between Liverpool and Manchester, and the charge was 10 shillings for an inside, and 5 shillings for an outside passage; and the time required by coach, was 4 hours upon the average. But the railroad reduced the *time* to 1½ hour, and the *fare* to 5 shillings for an inside, and 3s. 6d. for an outside passage, which caused an immediate increase, to an *average* of 1,070 per day, or 700,000 in 18 months!! and these are in reality but a very small portion of the influences of the eminent success of the Liverpool and Manchester railway. Its influences in this country—to say nothing of Europe—are *only* second, if, indeed, the *are* second, to those of the Erie canal, nor will they cease to operate until *every city and town* of any considerable magnitude and business, either in this country, or in Europe, has its railway facilities. They will not cease to operate until there is *more than one* line of railway extending from the waters of the *Atlantic to those of the Pacific*!

It may be asked why we go so far from home, and so many years back, in the history of railroads, to show their importance to this city? the *only* reply is to remind *some people where and when* railroads were commenced for commercial purposes, and to show by comparison how they have progressed, that we may be able to form a tolerably correct estimate of their value and importance to this city in future, and the necessity of immediate action, to insure the construction of a road direct to Albany, as well as to urge on the *New York and Erie*.

Railroad Management and Railroad Fares.

The following is the resolution recently offered in the senate of the New York legislature, by Mr. Lester, and adopted, in reference to the reduction of fare, and the regulation of the cars, on the railroads between Albany and Buffalo:

"Resolved, That the committee on railroads be instructed to inquire whether the rights and interests of the people do not require,

1st, That the fare on all the railroads composing the line of railroads between Albany and Buffalo, should be reduced.

2d, That at least one train of passenger cars should be run daily over the railroads, east and west, without stopping over night.

3d, That the cars on the said railroads should be run, so far as the accommodation of the public is concerned, in the same manner as though all the said railroads belonged to one company.

4th, That an officer should be appointed, or that some existing officer or board should be required to make regulations for running the cars on the said railroads.

And that the said committee report by bill or otherwise."

This was in the senate. The following is the pith of a bill introduced by the railroad committee, in the assembly, to reduce the fares on the different railroads, forming the line westward from the Hudson as follows:

	Miles.	Present price.	Proposed price.
Albany to Schenectady,	17	\$0-50	\$0-50
Troy " "	20½	50	50
Schenectady to Utica,	78	3-00	1-50
Utica to Syracuse	53	2-00	1-25
Syracuse to Auburn,	26	1-00	75
Auburn to Rochester,	78	3-00	2-00
Rochester to Attica,	43	1-50	88
Attica to Buffalo,	31	1-25	75
	326	\$12-25	\$7-63

The whole distance from the Hudson to Buffalo, by the railroads, is 326 miles, and the *present* charges from one place to another, as near as we can come at it, *estimating* the rates from Rochester to Attica and Buffalo, is \$12 25, or 3 cents 7 mills per mile. The *through* ticket is, we believe, \$10 50. The fares proposed by the committee is \$7 63, or 2 cents and 1 mill per mile.

The present charges, or rates, we consider too high for the interest of the *stockholders*, as well as for the business community; and, if there had been no restrictions upon carrying freight, we should have referred more frequently to the subject, and borne more severely upon the managers; yet, we do not, by any means, approve of this large reduction, by compulsion, nor, indeed, of *any* reduction by legislation.

We would certainly recommend to the managers a reduction of fares on this line, both way and through, and an increase in the speed and number of trains daily; and to the *people* a strenuous effort, as there now appears to be a determination, as will have been seen by the memorial in our last number, to induce the legislature to remove the restriction on carrying freight, and thus give a new impulse to business.

Some of the members of the legislature appear disposed to exercise their power over these companies, without much reserve. In the first place, some of them were restricted by the legislature from carrying freight. This it had the power to do, however doubtful or injudicious the policy of exercising it because it was optional with the applicants to accept or reject the charter upon these terms. Now it is proposed to reduce their charges, or fares, by legislative enactment, and then to appoint an overseer, or supervisor, to control, or *direct* the *directors* chosen by the proprietors; thus virtually taking from the companies the management of their own affairs and at the same time requiring them to "pay for heating the poker," by creating another salaried officer to be supported by them, of course by the people. To these constant interferences with a system, not yet fairly established in the opinions of all, we *solemnly protest*.

We contend that railroad proprietors, and their property, have the same rights and privileges as landed proprietors, and merchants, and manufacturers; and that they should not be any more liable after having invested their capital in railroads, upon certain terms, to have it made less valuable, or valueless, by legislation, than their neighbor to have the price of his *grain*, his *lands*, his *goods*, or his *labor* fixed, or the price he may see fit to fix, reduced by law.

* There is only one way, it seems to us, to regulate this matter, and that is, to take special care in granting charters, not to give exclusive privileges—and to prevent extortionate charges, after driving off competition, by authorizing parallel lines at a suitable distance to accommodate another part of the country, and a portion of the through travel, and thus create a fair competition, as in the case of the Cherry Valley and other turnpikes, built after the Mohawk.

We are, and have been, the strenuous advocates of *low fares, high speed and frequent trains* upon the railroads westward from Albany; as upon all other roads where the nature of the traffic will warrant it—and for giving them unrestricted privileges, and not only so, but to require them to carry freight at reasonable rates. And we have not hesitated to speak freely of what we have considered bad management, in charging so high rates, and running at

a speed so much below what has become the average rates of the day. Yet we would convince by argument, and by precedent, not by *force*—not by legal enactments. We entertain no doubts as to the correctness of our theory, viz: that "high speed and low fares for passengers," will, in most cases, and especially on the western line, give the best returns to the shareholders. Yet we are not disposed to *compel* railroad companies to adopt it—even though we could prove beyond a question, that such a course would benefit both parties—the owners and the users of railroads—as that would be like saying to a *farmer*, or a *merchant*, or *other person*—sir, we think you do not manage *your* business, properly, therefore we will get the legislature to *compel* you to adopt *our* views of the best way for *you* to manage, that *we* may be accommodated better! Would this be submitted to by the *farmers*, or *merchants*, or the *people*? We think not—then why apply it to railroad companies?

If a railroad company, having a charter, were to provide less accommodations, and charge higher fares, than the old stage coach, and the ordinary mode of transportation, no person would feel bound to use them, even though the legislature had chartered and the stockholders had built them; but *stage coaches*, and *five and six horse teams*, would still be in use, and make money as when they charged \$5 a cwt. to Buffalo; and the managers of railroads might, with the same propriety complain, and go to the legislature to compel people to ride, and transport their freight, upon their railroads. Would the legislature *listen* to such complaints? The railroads in this state are built by companies, or individuals, with their own capital, and at their own risk, and should therefore be under the management of their owners, as much as a farm, a mill, or a factory, or a line of stages; and it is to be presumed that they will manage them in such way as *they* believe will give the *best* returns, as does the farmer, the mechanic and the merchant; and no one can say that, even the poorest railroad in the country does not afford accommodations very far superior to those modes of travel and transportation in use before railroads were introduced; and there are very few, as much as they find fault with, and grumble at, the present management of railroads, who would be willing to have them abolished, and return to former modes of locomotion. Yet there are many intelligent; but selfish or thoughtless people, who would cripple, by legislation, those very companies which add weeks, and months, and even *years*, to the lives, and dollars to the purses, of many of us, who assume to know, without experience, better how to manage *other* peoples' business, than *they* do even *with* experience. We are getting *spoiled* by indulgence, and might become wiser, more reasonable, and less dictatorial, if we were to reside for a time beyond the reach of the conveniences and influences of railroads—which, by the bye, would be exceedingly difficult at this time.

Let us say a word to the legislature on this subject. Give all the companies the privilege of carrying freight, and say to them that unless you regulate your charges, and management, and speed, and times of running, to correspond, and keep pace with that of our best northern railroads, another line will be chartered from the Hudson westward.

Scribner's Engineers' and Mechanics' Companion.

We have delayed quite too long to announce the appearance of this work, a copy of which has lain on our desk some weeks. Of one thing we are quite sure, and that is the fault is, not in the book. If we had had occasion, in the way of business, to refer to

any portion of its varied contents, as specified in the following extract from its title page, we could not so long have neglected to speak of its usefulness and importance to every man of business—but especially to the engineer.

The work is well got up, containing 240 pages and we cannot, in any other way, describe the work as well as in the author's own language, therefore we give the title page, as follows, viz:

"Scribner's Engineers' and Mechanics' Companion: comprising United States' weights and measures; mensuration of superficies and solids; tables of squares and cubes, square and cube roots, circumference and areas of circles. The mechanical powers: centres of gravity, gravitation of bodies, pendulums, specific gravity of bodies, strength, weight and crush of materials, water wheels, hydrostatics, hydraulics, statics, centres of percussion and gyration, friction, heat, tables of the weight of metals, pipes, scantling, and interest. Steam and the steam engine. Second edition—revised, enlarged and improved. By J. M. Scribner, A. M.

New York: published by Huntington and Savage—216 Pearl street, and for sale by the principal booksellers.

Right of Way.—In the Virginia house of delegates on Saturday, says the Ledger, Mr. Edgington, from the select committee on the subject, reported a bill, "supplementary to, and amendatory of, the act, entitled 'An act to authorize the Baltimore and Ohio railroad company to complete their road to the Ohio river, and for other purposes,' passed February 19th, 1845." It is said to be the intention of the friends of this measure, while retaining the feature which makes Wheeling the western terminus, to amend the bill in other respects so as to obviate the objections heretofore urged against other portions of it. In the Virginia house of delegates, on Saturday, the bill for the extension of the James river and Kanawha canal to Buchanan, and its connection with tidewater, was indefinitely postponed by a majority of two votes.

We can hardly believe that Virginia will persist in her refusal to allow this road to reach the Ohio. The legislature has done nobly in granting a liberal charter for a railroad from Richmond to the *Ohio* river, for the benefit of Richmond, Norfolk, and, indeed, *all south*, and many of her citizens north of the James river—now let them deal equally liberally with those in the northwestern part of the state, who are, in a measure, shut out from an Atlantic market; and let them also concede to the *millions*, who will ascend the rivers of the west, on their way to the cities on the Atlantic, the privilege of crossing the mountains where they choose, if others will provide the means without any cost to her citizens, but to the great benefit of a large portion of them.

"**The Right of Way.**"—A bill to incorporate the Richmond and Ohio railroad company has passed the house of delegates of the Virginia legislature, by the very strong vote of 71 to 39. The provisions are understood to be very liberal, and our neighbors of the Old Dominion look forward with confidence to the construction of this important connection with the "Far West." This is another evidence, too, says the editor of the Philadelphia North American, that Virginia is awake to her own interest, and will never permit the Baltimore and Ohio railroad to be constructed on the route, which has so excited the apprehensions of the "right of way" party in our state.

☞ We do not see much evidence of *wisdom* in opposing the measure, either in the people of Virginia, or Pennsylvania; and we will again hazard the opinion, notwithstanding present appearances, that the people of Virginia will not only assent to, but *solicit* its extension. Ignorance and prejudice yield to experience; and in nothing has this saying proved more true, than in the success and progress of railroads. So will it in Virginia.

Concord Railroad.—By the advertisement of this company it will be seen that the hours of departure from Concord, Boston and the intermediate places, have been altered. Instead of running up into the centre of Nashua village as heretofore, the cars now stop at a new depot on the line of the road, one mile below, thus avoiding the delay to which they have formerly been subjected.

This, we can well imagine, without knowing the precise facts, never having passed over the road, to be a decided improvement. Why should the thousands of through passengers be taken a mile out of their way, and back again, without any good to any one? *Through* passengers should never be detained on the way, longer than is absolutely necessary. Their speed should rather be accelerated than retarded; and we are gratified to see this movement, as it indicates clearly that railroad companies are seeing their interest in keeping pace with the improvements of the day, in the management of railroads. This is as it should be, and those who keep nearest to the mark will be most successful.

Portsmouth and Concord Railroad.—The friends of the enterprize at Concord, in the interior of the state and along the line of the road, are assured, says the Portsmouth Journal, that the prospects of the enterprize do not diminish—the feelings of the citizens in its favor in this town are unanimous. The directors are hard at work, and are daily adding to the amount subscribed for the stock. No efforts will be wanting to have the road located early in the spring and the grading and superstructure contracted for. It must be borne in mind by those who feel a deep interest in the enterprize, that it is not the work of a moment to collect a sum of money sufficient to carry forward successfully so great a work: but that it will be done, let no one for a moment doubt. The road must and will be built.

Boston and Albany Railway.—Reduction of Fares.—The Massachusetts legislature on Thursday elected two directors on the part of the state, for the Western railway, viz: Robert Campbell and James Russell.

The report of the directors for the past year contains the following important suggestion:

"After weighing maturely all these considerations the undersigned have *unanimously* arrived at the conclusion that a moderate reduction of the passenger fare, both *through* and *way*, is advisable for the present season."

This report is signed by George Bliss, William Jackson, Edmund Dwight, James Russell, Josiah Stickney, George Pratt, Robert Campbell, Abram H. Howland, directors.

We like the suggestion contained in this extract from the report of the directors, because we think it will operate favorably upon the income of the company. We hope soon to receive a copy of the reports of all the Massachusetts railroads.

Railroad from Syracuse to Rochester.—A numerous meeting of delegates was held at Clyde, on Friday, the 23d ult., to adopt measures for promoting the construction of a railroad from this place to Rochester, on the canal route. Resolutions were adopted to memorialize the legislature for a charter.—*Syracuse Jour.*

Let the companies now in operation, prevent this movement, by giving all the accommodation required, and at the *lowest* rates, which will yield fair returns upon their investment, and rely upon an increase of business *induced* by superior accommodations and low fares, for an increase of dividends. You must keep pace with the improvements of the age—a matter requiring no small effort, we allow; yet the *true* interest of the companies will be surely promoted by giving the greatest possible accommodation, frequent trains and high speed for passengers, for the lowest rates.

Baltimore and Susquehanna Railroad.—The receipts of this road for the year ending the 30th of September last, were \$162,024.85, and the expendi-

tures \$130,239.36; showing an excess of receipts over expenditures, amounting to \$32,558.49. Its total receipts, since its commencement up to the 4th of October last, were \$2,467,349.05, and its expenditures for the same time were \$2,279,225.87, leaving a balance of \$188,123.18. The business of the road, we are glad to learn, is steadily increasing. During the past year upwards of fifty new cars, for the transportation of freight, have been placed on the road, and \$20,000 of its net earnings paid into the State Treasury.—*Balt. Clipper.*

Macon and Western Railroad.—The work, says the Macon Messenger of the 5th inst., is now progressing with great spirit and energy for the entire renewal of the superstructure of this road. Large quantities of timber are delivered daily along the line, and the work of relaying has commenced between Griffin and Barnesville. When that is completed, another portion will be commenced, and the freight trains continue to run over the other sections of the road. We have the most encouraging evidence, that in a few months the work will be completed in a most substantial and superior style.

This is cheering to those interested in the completion of this work. Let this road be completed, the state road pushed on to the Tennessee line, and the road constructed from Nashville to Chattanooga, together with branches to West Point, and Columbus, and then the people of Georgia may be proud of their success, as they will be richly rewarded for their efforts.

Sumpterville, S. C. Branch Railroad.—We infer from the following statement that the railroad spirit is again moving in South Carolina. We are gratified to see new evidences of it, as the people of S. Carolina are entitled to much credit for their early efforts in the cause.

"The length of the branch to Sumpterville, from the most accessible point where the Camden branch touches the highlands on the eastern side of the Wateree swamp is from 14½ to 15 miles, the grading of the road will not cost exceeding 1500 dollars per mile, with the exception of about three miles. The average cost will be under 2000 dollars per mile. The cost of timber and laying down the same [with the iron] about 2000 dollars per mile, extra cost for tressel work, 3000 dollars for the whole. The cost of iron varies according to the weight and character of the rail—the flat bar iron rail 2½ x 8, which would serve for the traffic on this branch, would cost, [including fastenings] about 1590 dollars per mile, estimated cost of depots, turnouts, watering stations, etc., from 7000 to 10,000 dollars; motive power, cars, etc., say 14,000 dollars, so that for the 15 miles the whole cost would be 105,000 dollars."

The Southern Railroad.—The charter for this railroad, says the Ala. Advertiser, from West Point, Ga. by Montgomery, across the state in the direction of Jackson Miss., has passed both branches of the legislature, and has been signed by the governor. The charter appears to be a liberal one—the state reserves to itself the right of investing that portion of the two per cent fund now loaned to the West Point railroad in its stock should the next legislature so determine.

Michigan Central Railroad.—We learn, says the Rochester Democrat, of the 10th inst., from a citizen of Detroit, who arrived last evening, that an agent of the Boston capitalists arrived there the day he left, with a proposition to buy of the state the Central railroad, provided the legislature will give the company a liberal charter, to extend the road to St. Joseph's.

The road is now in operation to Kalamazoo; and 60 miles more will finish it across the peninsula.

We heard, some time since, that some New York gentlemen had the same object in view, but the Bostonians will probably purchase, rebuild, and wear it half out, while New York capitalists are making up their minds to prosecute an enterprize of that kind. There are noble exceptions, however, in New York, to this general rule.

The Value of a Single Letter.—A typographical error, of a curious character, occurred in one of the London papers, recently. In the advertisement of

the Swansea, Hull and Birmingham railway, the letter *e* was substituted for *u* in Hull. The prospectus went on to state, that "as the passenger traffic from Swansea, to that locality was so extensive no doubt could be entertained that the line would prove most remunerative."

The Suspension Bridge.—On Saturday morning, (says the Pittsburg Commercial Advertiser of 2d inst.), the Monongahela burst her winter fetters, and poured out a mighty volume of ice, covering the turbid surface of the stream from bank to bank with a growling and roaring crowd of cakes a foot thick, and running from the size of your hat to the sweep of a town lot. Of course there was an active elbowing for the soft places among the river craft. It was sneak here and dodge there, among the flats, keels and even the saucy steam packets. In the general scramble for safety, the ferry boats steam and horse driven, were snugged up under the lee of a rock or a point on t'other side of the river.— Here was a pretty how d'ye do; for it was market day and thousands of country folks caught on this side by the outbreak of the river, could only drive to the wharves and look helplessly and mutely on, thinking how nice it would be were they at home, with a fresh back log on the kitchen fire, toasting their feet.

But, there was a blue prospect of "getting over." No boat could navigate in that tumbling and twisting mass of ice. The crowd thickened, until the upper line of the wharves was packed with wagons and horses from Liberty street to Smithfield.

But lucky thought! the new Monongahela bridge is said to be nearly passable, and Mr. Roebling, the master spirit of that fine structure, is appealed to, after reflecting a moment and passing a hurried order, to cover a gap or two in the planking, he lifts the barrier, and the word is given "pass on"—whoop! hurra! the crowd breaks, on they march, wagon after wagon, fast as captain Hart's nimble fingers can take the change, until at length the bridge is one unbroken line of wagons, horses, men, women and children; and beneath all this mass of horse flesh and humanity, the unfinished bridge stood up without a quiver, moveless and stern as a pathway upon our own rocky hills. A glorious triumph for Mr. Roebling, and a joyous relief for our belated market folk.

Here is another triumph of art. This bridge is nearly 1500 feet in length, divided into seven spans and sustained by two wire cables of about 7 inches in diameter, extending from side to side and passing over towers erected on each pier. The manner of forming these cables is peculiar to Mr. Roebling, having been invented by him and only used by him in this country. The wires, forming the cables are first covered with paint or varnish, and then so laid as that each sustains its full proportion of the weight and then the whole is wound with annealed wire by machinery from end to end, and thus it becomes as compact as possible, yet retaining its pliability.

We shall probably soon have a full description, with drawings of this beautiful structure, when we shall be able to give a better account of it. We congratulate the able engineer and contractor, Mr. John A. Roebling, on the entire success of this his second effort—the first being the suspension aqueduct over the Allegheny.

Toronto and Lake Huron Railroad.—We find in the St. Catharines (C.W) Journal of 5th inst. the following statement in relation to this road: "The president and directors of the city of Toronto and lake Huron railroad company feel that the time has now arrived when they may without prejudice to the interests of the company, state publicly for the information of the shareholders, the present position of this company. Shortly after entering upon their duties, the directors determined upon calling in an instalment of ten per cent. on each share subscribed in this province, amounting in all to £72,147 10s.; and as there remained about £427,854 to be taken they resolved to send Mr. Widder, one of their number to England, for the purpose of getting the same subscribed. Mr. Widder accepted the mission and although he had the able and powerful assistance of the governor of the Canada company in England he has not had it in his power till now, to communicate such information as in the opinion of the directors, warranted them in making any of-

ficial announcement of the progress he had made: all his letters warranted the board in believing that he would succeed in the object of his mission—but the intelligence received from him by the last steamer enables the directors to state that there is no longer any doubt of the complete success of the undertaking. The whole amount of the capital stock, except so much as was allotted to Canada, has been subscribed for in England.—The deed of settlement which a statute of the imperial parliament renders necessary, has been prepared, and though only ten days notice had been given, that it was ready for signature, shareholders representing upwards of £100,000 stock had executed it, and the remainder were expected to do so at once.

At what time the company will be prepared to commence the work is not yet settled, but there is every reason to believe that it will not be deferred beyond the opening of the ensuing spring. By order of the directors.

W. ALLAN, *President.*

KITE'S PATENT SAFETY BEAM.

MESSRS. EDITORS.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheeled passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan he same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.

Wilmington, Del., Sept. 28, 1840.

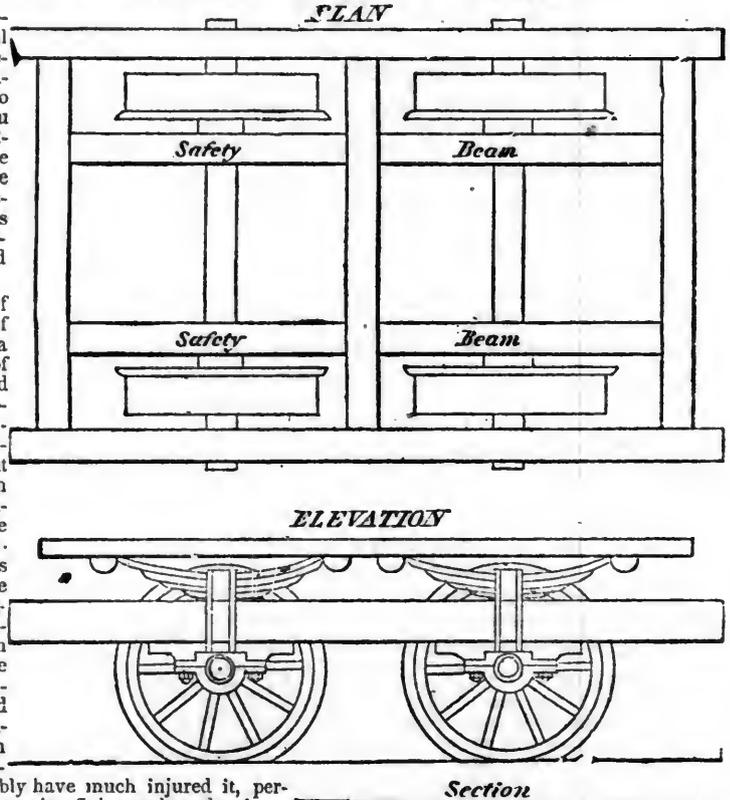
The undersigned takes pleasure in attesting to the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.

In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.

JOHN FRAZER, Agent,
GEORGE CRAIG, Superintendent,

JAMES ELLIOTT, Sup. Motive Power,
W. L. ASHMEAD, Agent.

A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 1 Hanover st., N. York.



FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

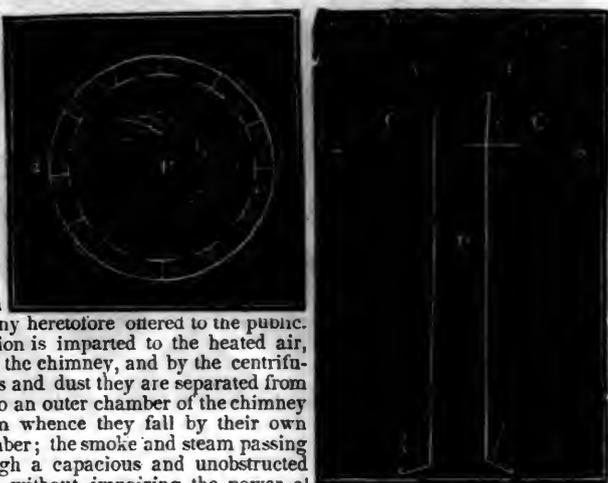
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Supt Hartford and New Haven Railroad; W. R. M'Kee, Supt Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Supt New Jersey Railroad Trans. Co.; J. Elliott, Supt Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Supt Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Supt Macon Railroad, Macon, Ga.; J. H. Cleveland, Supt Southern Railroad, Monroe, Mich.; M. F. Chittenden, Supt M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, or to Messrs. Baldwin & Whitney, of this city, will be promptly executed.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

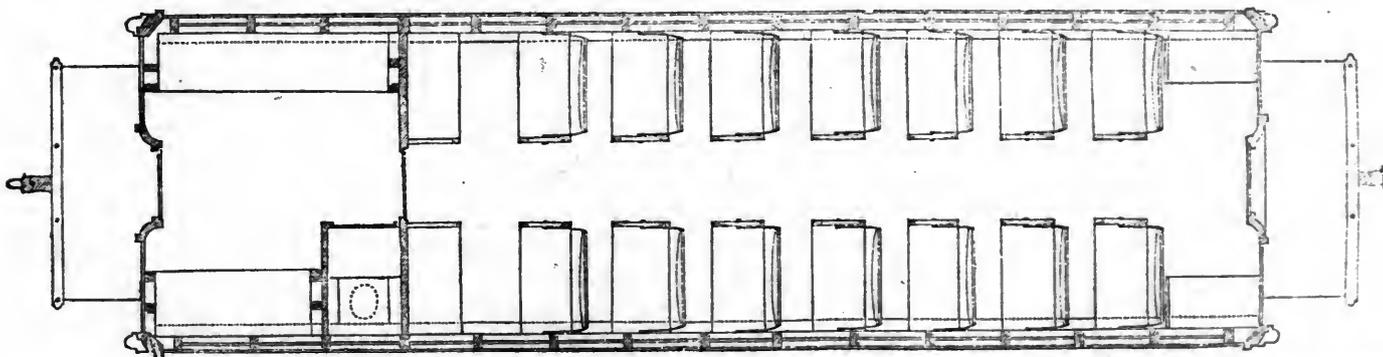
*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45



BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

The article is complete in itself, occupies but little space, is perfectly portable, and requires no brick work, not even to stand upon. It is valuable not only in the saving of time and labor, but in the economy of fuel, as it has been ascertained by accurate measurement, that the saving in that article is fully two-thirds over other methods heretofore in use. They are now for the first time introduced into New York and Boston by the subscriber, who has the exclusive right for the New England states, New York and New Jersey, and are manufactured by CURTIS & RANDALL, Boston; and by FORCE, GREEN & CO. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern, and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All order punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

BALTIMORE AND SUSQUEHANNA
Railroad. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a.m., and arrives at 6 1/2 p.m. Arrives at York at 12 1/2 p.m., and leaves for Columbia at 1 1/2 p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62 1/2. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3 1/2 p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc.

Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day — any passenger train.

D. C. H. BORDLEY, *Sup't.*
Ticket Office, 63 North st.

CENTRAL RAILROAD-FROM SAVANNAH
to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$3 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods... 13 cts. per cubic ft. On brls. wet (except molasses and oil)... \$1 50 per barrel. On brls. dry (except lime)... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery... 40 cts. per hundred. On hhds. and pipes of liquor, not over 120 gallons... \$5 00 per hhd. On molasses and oil... \$6 00 per hhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, 40 Gen'l. Sup't. Transportation.

GEORGIA RAILROAD. FROM AUGUSTA
to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA to OOTHICALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot... 16 cts. " Dry goods, shoes, saddlery, drugs, etc., per 100 lbs... 95 " " Sugar, coffee, iron, hardware, etc... 65 " " Flour, bacon, mill machinery, grindstones, etc... 33 1/2 " " Molasses, per hogshead \$9 50; salt per bus. 20 " " Ploughs and cornshellers, each... 75 " Passengers \$10 50; children under 12 years of age half price.

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
Ch. Eng. and Gen. Agent.
Augusta, Oct. 21 1845.

WHARF BOLTS. THE SUBSCRIBERS are now ready to Contract to deliver Wharf Bolts, at a reduction of 10 per cent. on last year's prices. SAM'L KIMBER & CO. 59 North Wharves, Philadelphia.

WESTERN AND ATLANTIC RAILROAD.
The Western and Atlantic Railroad is now in operation to Marietta, and will be opened to Cartersville, in Cass county, on the 20th of October—and to Coosa Depot, (formerly known as Borough's,) on the 20th of November.

The passenger train will continue, as at present to connect daily (Sundays excepted) with the train from Augusta, and the stage from Griffin.

CHAS. F. M. GARNETT,
Chief Engineer.

LITTLE MIAMI RAILROAD. -- DISTANCE 65 1/2 Miles. Fare, \$1 50. From 1st November to 1st March Passenger Trains leave Cincinnati for Xenia at 11 o'clock, A.M.

Returning, leaves Xenia at 8 1/2 o'clock, A.M. Freight Trains run daily, Sundays excepted.

At Xenia, Passenger Trains connect with daily lines of stages to Columbus, Wheeling, Cleveland and Sandusky city.

W. H. CLEMENT,
Supt. and Engineer.

LEXINGTON AND OHIO RAILROAD.
Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above.

NICOLL'S PATENT SAFETY SWITCH
for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. G. A. NICOLLS, Reading, Pa.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to James P. Allaire, Peter Cooper, Murdock, Leavirt & Co. } New York. J. Triplett & Son, Richmond, Va. J. R. Anderson, Tredegar Iron Works, Richmond, Va. J. Patton, Jr. } Philadelphia, Pa. Colwell & Co. } J. M. L. & W. H. Scovill, Waterbury, Con. N. E. Screw Co. } Providence, R. I. Eagle Screw Co. } William Parker, Supt. Bost. and Worc. R. R. New Jersey Malleable Iron Co., Newark, N. J. Gardiner, Harrison & Co. Newark, N. J. 25,000 to 30,000 made weekly.

DAVIS, BROOKS & CO., 30 WALL ST., have on hand for sale, Railway Iron of different sizes—heavy and flat bars.

A Steam Pile Driver—built by "Dunham & Co."—in complete order; has never been used, and for sale a bargain. Cost originally \$5,000. Also 12 Railway Passenger Cars, that have never been used, which will be sold a bargain.

PROVIDENCE & WORCESTER R. R.
Notice to Contractors. The time for receiving proposals has been extended to the 11th March. The route is ready for examination, and blank proposals and specifications may be had at Worcester and Providence. All proposals must be sealed, accompanied by names of references and sureties, and directed to the engineer, at Providence, prior to the above date.

T. WILLIS PRATT, *Engineer.*

MACHINE WORKS OF ROGERS,
Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.

THE SUBSCRIBERS, SOLE AGENTS
for the sale of Codorus, Glendon, Spring Mill, and Valley, Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L KIMBER, & CO., 59 North Wharves, Philadelphia, Pa.

Jan. 14, 1846. [1y4] *Philadelphia, Pa.*

GEORGE VAIL & CO., SPEEDWELL IRON
Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective iron and Brass Castings of all descriptions.

ja45ly

RAILROAD IRON AND LOCOMOTIVE
 Tyres imported to order and constantly on hand
 by **A. & G. RALSTON**
 Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
 Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
 President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS.
 etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
 Albany, N. Y.

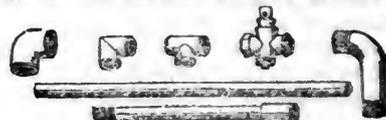
Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

TWO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

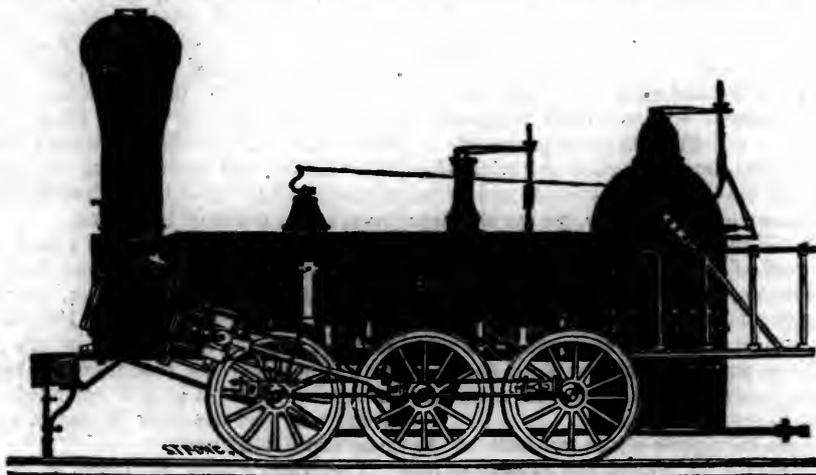
WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
 Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

NORRIS' LOCOMOTIVE WORKS.
 BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of Cylinder,	×	20 inches	Stroke.
" 2,	14	" " "	×	24	" "
" 3,	14 1/2	" " "	×	20	" "
" 4,	12 1/2	" " "	×	20	" "
" 5,	11 1/2	" " "	×	20	" "
" 6,	10 1/2	" " "	×	18	" "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

RAILROAD IRON.—THE MARYLAND AND NEW YORK IRON AND Coal Company are now prepared to make contracts for Rails of all kinds. Address the Subscriber, at Jennon's Run, Allegheny County, Maryland.

WILLIAM YOUNG,
 President.

TWO IRON MASTERS.—FOR SALE.—MILL SITES in the immediate neighborhood of *Baltimore* Coal and Iron Ore, of the first quality, at Ralston, Lyoming Co., Pa. This is the nearest point to tide water where such coal and ore are found together, and the communication is complete with Philadelphia and Baltimore by canals and railways. The interest on the cost of water power and lot is all that will be required for many years' the coal will not cost more than \$1 to \$1 25 at the mill sites, without any trouble on the part of the manufacturer; rich iron ore may be laid down still more cheaply at the works; and, taken together these sites offer remarkable advantages to practical manufacturers with small capital. For pamphlets, descriptive of the property, and further information, apply to Archibald McIntyre, Albany, to Archibald Robertson, Philadelphia, or to the undersigned, at No. 23 Chambers street, New York, where may be seen specimens of the coal and ore.

W. R. CASEY, Civil Engineer,

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 feet, with lathes, work benches, &c.

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 1/2 feet two stories high, with a shed part 45 1/2 x 20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide

For terms, apply to **HENRY ANDREWS, 48 State st.,** or to **CURTIS, LEAVENS & CO., 106 State st., Boston,** or to **A. & G. RALSTON & Co., Philadelphia.**

CYRUS ALGER & CO., South Boston Iron Company.

Rochester, Lockport and Niagara Falls Railroad.

We have had upon our table for some time past, Mr. C. B. Stuart's report of his examinations and estimate for a railroad from Rochester to Lockport direct, and the reconstruction of the present road from thence to the falls. The distance from Rochester to Lockport is 56 miles, and from there, by are-location of a part of the present line—20 or 76 miles—whereas by the way of Buffalo it is put down at 97 miles and by the lake and steamboat 106 miles. It will be seen by the report, which we give entire, except the appendix, which embodies much valuable information in relation to railroads, drawn from reliable sources, of course—as much of it is from the *American Railroad Journal*—that the subject is presented in a very favorable light, holding out strong inducements for investment, certainly for those immediately interested in the road.

Mr. S. does not give the grades and curves, but from the nature of the country, we can readily imagine them to be of the most favorable character.

This is an important link in the great western chain as it will be in almost a direct line to the falls, Hamilton, Detroit and St. Josephs.

It is proposed to cross the Niagara river, a short distance below the falls, on a wire suspension bridge, of 700 feet span and more than 200 feet above the water, and thus connect with the Great Western railroad through Canada West, via Hamilton and London to Windsor opposite Detroit, and there to connect with the Central railroad through Michigan to St. Josephs—and ultimately around the lake to Chicago and the west!

It appears by the movements at Rochester and along the line, that the people are quite in earnest, though it will of course meet with opposition from some who are interested in the present line to Buffalo, yet we feel quite sure that the regular increase of business by the end of three years, when we may presume this road will be completed, will furnish business enough to yield fair returns upon both roads; but whether it does or not, we have not a doubt but that this road will be constructed as "direct lines," between important points are to become in this country, as in England, the order of the day.

We find in the "Rochester American," of the 14th inst., the following account of a meeting of the citizens of Rochester, in furtherance of this road, at which Mr. Stuart, the engineer who has it in charge made statements very satisfactory in relation to the prospect of obtaining the necessary amount of capital for the work. When the people along the line have shown their confidence in the enterprise, we understand Mr. Stuart is to visit Boston and New York, to offer the citizens an opportunity to take the balance, and we hope he may meet with a favorable reception.

Railroad Meeting.—An adjourned meeting of the citizens of Rochester, in furtherance of the Lockport and Rochester railroad was held last evening at the court house, Hon. S. Miller in the chair. C. K. Amsden, Esq., was appointed secretary.

C. B. Stuart, Esq., reported in behalf of himself and others, the progress made in respect to obtaining subscriptions to the stock.

The returns from the wards are partial, there being several papers unreturned which are believed to contain subscriptions. The following shares are reported:

1st ward.....	75 shares.
2d ".....	30 "
5th ".....	118 "
6th ".....	54 "
7th ".....	16 "
	—
	293

Mr. Stuart proceeded to say that on Tuesday last he attended a meeting in the town of Clarkson, at which \$10,700 was subscribed, and pledges given for \$4,400 more the present week. On Wednesday evening, he attended a large meeting of farmers at Ridgeway. Stock was taken to the amount of \$4,000, and \$6,000 more promised. On Thursday evening he attended a crowded meeting at Lockport. The subscriptions in that village previously, amounted to \$132,000, to which \$16,800 was that evening added. The citizens of Lockport promised to make the sum \$150,000 in the course of the present week; and when Rochester shall come to that mark they will then start anew and keep even pace with our citizens. Returning, on Friday night, he attended a meeting at Gaines, where 15,000 dollars was subscribed, and \$10,000 more promised.

Mr. Stuart stated that good maple wood is selling on the route of this road, and at no great distance from this city, for ten shillings a cord. If the road were built, the price of every cord of wood consumed in Rochester would be lessened one dollar—an immense saving to all the citizens.

Mr. Stuart proceeded at length, and with great force and perspicuity to show the inestimable benefits to be conferred upon our city by the proposed road.

We see the agents of the railroads at Albany lobbying to prevent the passage of the bill reducing the fares; thus acting, as Mr. Stuart firmly believed, against their own interest. The profitableness of low fares is not a mere matter of theory; it has been abundantly proved.

He has been laboring for months to get this road started. He had been opposed by the Tonawanda road. But he does not doubt that stockholders in that road residing here would find their interest by the increased value of their real estate.

The meeting then adjourned, *sine die*.

To the President and Directors of the Lockport and Niagara Falls Railroad Company:

GENTLEMEN: In obedience to your instructions, I have carefully examined the route of the proposed extension of your road from Lockport to Rochester, and beg leave to submit to you some considerations in reference to that continuation.

It is now some ten years, since the wants of the public seemed to point to the necessity of this work, but since the revival of the spirit of improvement in this country, new motives for its accomplishment have presented themselves, which now urge its immediate consummation. It is my purpose to present these motives in a brief view, which will serve to show the importance and value of this line, both to the stockholders and to the community—as an investment, and as a public convenience.

There is now a line of railroads extending from Boston to Rochester, a distance of four hundred and sixty-one miles, and another from Lockport to Niagara, a distance of twenty-two miles, (but which will be shortened two miles, the direct distance being but sixteen miles,) leaving only the space of fifty-six miles, between Lockport and Rochester, to be filled up, to open the shortest line from the eastern cities, to one of the greatest natural wonders of the world; as well as the most direct route from Boston to Detroit, and other places in the great west.

It is now known to the public that the capital stock of \$6,000,000 has been secured, to open a line of railroad through Upper Canada, to connect with the works in actual progress across the centre of the state of Michigan—thus joining the fertile lands of Michigan and Canada West, New England and New York, by a common band, extending through a space of nine hundred miles.

The road which you propose to make must form a part of this continuous line and great thoroughfare of travel; since it cannot be avoided, but by deflecting widely from the direct course, and encountering the inconvenience of a difficult and sometimes impassable ferry, at the outlet of lake Erie.

The location of your road is a most happy one. It matters not to what point the western traveller, arriving at Rochester, may be directed—whether it be for the Falls of Niagara, for Buffalo, for Canada, or any part of the upper lakes—the road from Rochester to Lockport, which it is now intended to construct, will offer the most favorable, and the most expeditious route.

The distance from Rochester to Niagara, by this line will be seventy-six miles. The distance from Rochester to the Falls, by the way of Batavia, Attica and Buffalo, is ninety-seven miles, and the distance by the packet boat to Lockport, and thence by railroad, to the Falls, is eighty-two miles. By the steamboats, from Rochester to the Falls, v. a lake Ontario and Lewiston, the distance is one hundred and six miles.

It will readily be seen, that the existing routes to the Falls, are much longer than the proposed road, require much more time, and great additional expense, and are not at all adequate to the travelling community.

In going to the Falls from Rochester, via Lockport, there will be a saving of twenty-one miles, when compared with the Attica and Buffalo route, besides avoiding the high grades and summits, near Batavia and Attica.

If Detroit or Canada West be the destination of the traveller, and the contemplated bridge across the Niagara river be established at the narrowest and most appropriate point, or the steam ferry be used at that place, the saving of distance from Hamilton to Rochester, will be twenty-four miles, by taking the Lockport route. If it should be desirable to have a direct line to Buffalo, a road could be constructed nearly straight from Lockport, with no grades over ten feet to the mile, that would not exceed the route, via Attica, more than two miles in distance, which would be more than compensated for, by the great difference in the grades on the Attica route;

while the distance from the proposed ferry at Fort Erie, is no greater via Lockport, than it is by Attica to Rochester. So that, view the subject in what light we may, *this* is the true line of western trade and travel, and possesses natural and physical advantages which are enjoyed by none other. [See map, annexed.]*

These positions are *facts*, and cannot be controverted. We pass therefore to the important inquiry, WILL THIS LINE PAY?

The traffic upon which its advocates justly count, are:

1. The pleasure travel to the Falls of Niagara, either in going or in returning.
2. A fair diversion of the Buffalo travel.
3. The way traffic of the line.
4. The Canada travel, and that passing through Canada to the western states.
5. The transportation of produce, merchandize, coal and iron, to and from the great west and Canada.
6. The carrying of the United States mail.

To estimate the amount and value of the traffic from all these sources, with any great degree of accuracy, would be impossible, but we may fairly assume that the aggregate travel, exclusive of that which will be brought by the Canada road, (at the low fare charged) will not be less than the number of the through passengers that in 1844 passed over the Auburn and Syracuse railroad, viz: 80,000. The way passengers on this line will be equal to 60,000—which is 10,000 less than the way travel on the Rochester and Auburn railroad in 1844. This large amount of anticipated way travel is here justified by the fact, that there is no part of the present line from Boston to Buffalo, which passes through a more productive, or more highly cultivated country, than that bordering the celebrated Ridge road, or on which are found an equal number of flourishing places, as the villages of Brockport, Clarkson, Albion, Gaines, Medina, Hartland, Lockport, Lewiston, Niagara Falls, and other villages which are strung along the route of your road, embracing within a territory of thirty miles by eighty, a population of over 130,000. And in assuming 80,000 for the number of through passengers, independently of the accession which will be gained from the completion of the Canada railway, I am fully justified by the fact, that 50,000 have visited the Falls the last year, while there are portions of the present line between Albany and Rochester, that carry more than this number.

When to this is added the rapid increase of the yearly pleasure travel to Niagara, being more than ten per cent. a year, and which will be largely augmented by the attraction of the suspension bridge, and the large and elegant hotels that are to be erected the coming season, it cannot be doubted that this increase of summer travel would be more than doubled, and would counterbalance any loss your road might sustain, by competing with rival routes for the Buffalo travel.

To these quantities must still be added the traffic which must pass to and from Canada

* We should like to see the map referred to—there was none in the copy of the report received by us.—Ed. R. R. J.]

—that to which existence will be given by the simultaneous opening of the Gt. Western railway—an enterprize to which it is believed all the companies from the Niagara to the Hudson will be indebted for an increase of not less than 50,000 persons annually.

In this estimate of business, I count nothing on the great and rapid increase of travel which has been experienced on the present line of railways, and which is to be looked for in an augmented ratio, under the advancing prosperity of the region bordering on the western lakes.

During the past season of navigation, there has passed through Rochester nearly *one thousand* travellers per day, of which number, more than one-half were carried on canal boats, at a charge as high as it is proposed to tax on your road. Estimating this travel on the canal at five hundred per day for six months only, and it makes ninety thousand, of which number it would be safe to estimate fifty thousand as emigrants, who would undoubtedly pass over your road at *one and a quarter cents* a mile, as it will be admitted that this route will afford the western emigrant a rapid and cheap transportation; not only saving the expenses often incurred in waiting for a steamer at Buffalo, but it will enable him to arrive at his destination in the west in time to prepare the ground for a summer crop, and thus take the advantage of the first season at his new home.

We may justly, therefore, and with all moderation, base our calculations for this line, on its completion, and the completion of its great extension in Canada, on an aggregate traffic, aequivalent to one hundred and thirty thousand through passengers, of the first class, and fifty thousand of the second class, and sixty thousand way passengers, at the *low* rates named in the estimate. If only *two-thirds* the number estimated should be transported over the road on its completion, a charge of *three cents a mile* for through passengers, (which is nearly twenty-five per cent. less than is now charged,) would make the sum I have estimated. But I have put the fare low to avoid competition, and induce a large amount of business.

As this road is to be built with a heavy iron track, on very light grades, gradually descending to the east, and is allowed by its charter to carry freight at *all* seasons of the year, without paying tribute or tolls to the state, and will, when completed, form an important link in the chain of uninterrupted railways of nine hundred miles in length—it cannot be doubted for a moment, that it must always command a large and profitable freighting business. The completion of this railroad would insure the construction of an iron track from Rochester to Schenectady, which would enable the central line of railways to compete successfully with the present Erie canal for the western transportation.

The completion of the railways already chartered, and in progress, to connect the railways of central and western New York with those of Pennsylvania, will, it is thought, add largely to the amount of freight on the road. Add to this the large amount of western

produce, that would seek this route to an eastern market, and the merchandize for the far west and Canada, that would be transported over it, even during the suspension of canal and lake navigation, and it would seem to be within safe bounds, to estimate the through freight, at not less than an average of one hundred and twenty tons a day each way, (about the load of *four* canal boats,) on in round numbers, at one hundred thousand tons a year, and the way freight at twenty-five tons annually.

FINANCES.

The present capital of the company which represents the amount that has been expended on the part that is now in operation between Lockport and Niagara Falls, is.....	\$175,000
To which add the sum necessary to supply this line with an <i>edge</i> rail, re-grade parts of it, and finish it in the best style, say.....	175,000
Add to this again the estimated cost of the road from Rochester to Lockport—56 miles grading and bridging [per estimates].....	\$230,000
56 miles superstructure, with <i>Edge</i> rail.....	420,000
Add for branches and switches.....	10,000
Land damages and fencing.....	75,000
Damage to buildings, etc.....	25,000
Engineering & contingencies.....	50,000
Total.....	860,000
For 8 locomotives [8 wheel].....	60,000
For 20 first class cars, do.....	30,000
For 30 second do. do.....	30,000
For 8 baggage wagons do.....	6,000
For 50 freight do. do.....	25,000
For depots & water stations.....	165,000
	1,025,000

And we obtain for the total investment for the completion of the whole line, from Niagara to Rochester, and supplied with depots and furniture..... 1,375,000

We may say in round numbers, *fourteen hundred thousand dollars*.

PROBABLE INCOME.

In estimating the *revenue*, I shall assume a much lower rate of charge for transportation of passengers and freight, on the substantial road which it will be for your interest to build, than that which is now adopted on the existing lines. In this country, the results of experience abundantly show, that wherever it is an object to construct a railway, it is to the last degree desirable to obtain a heavy rail. On numerous roads where the strap or light bar was originally laid, it had been replaced by one better adapted safely to permit rapid travelling, to sustain the severe shocks incident to a heavy trade, and to admit of constant and economical use: of such the Columbia, Newcastle and Frenchtown, Baltimore and Ohio, and others might be referred to as instances. It is believed that with a flat bar, your road would be wholly inadequate to the travel and transport which it ought, and if properly constructed, assuredly would command—that it would be unsafe for passengers (at high rates of speed,) would be subject to enormous expense for repairs, and could not be economically used for the conveyance of tonnage—whereas, with a heavy iron rail, it would be competent to all its objects, could be worked with economy,

would require but a moderate expense for repairs, and would be so much more productive and valuable, as to justify the additional expense necessary to purchase an *edge* rail of not less than *eighty* tons per mile.

Two cents a mile for through passengers, or a charge of *one dollar and fifty cents* from Rochester to the Falls, (the present rate by railroads, via Buffalo, is now \$3 25,) and *two and a half cents* a mile for way passengers, is believed to be ample for the liberal support of the company, if we have not over estimated the number.

	ESTIMATE.	
130,000 passengers, [first class cars,]	\$1 50.	\$195,000
50,000 " [second "]	1 09.	50,000
60,000 way " [half way,]	1 00.	60,000
100,000 tons through freight,	1 00.	100,000
25,000 tons way "	0 60.	15,000
75 miles U. States mail contract,	\$150 00.	11,400

Total receipts.....	431,400
Deduct for actual expenses, [exclusive of interest on capital,] <i>one-third</i> the whole receipts, the average of the eastern roads.....	143,800

Net receipts.....\$287,600
or over *twenty per cent.* on the whole capital of *fourteen hundred thousand dollars.*

That the estimate of one-third will be ample for the expenses of your road, it is only necessary to show, that the Utica and Schenectady railroad, seventy-eight miles in length, transported in 1844, nearly the amount of freight and passengers estimated on your road (which were about the average for the last eight years,) at an expense of \$132,838, which is less than the amount estimated.

It will be seen that these roads being nearly equal in length, and the business equal, the expenses ought to be likewise equal, with this difference only, that the Utica and Schenectady railroad is laid with a slight strap, or flat bar, and yours is to be a substantial and durable iron track, which will make a difference of at least *fifty per cent.* in the cost of transportation.

But as it is my intention to avoid every chance of over estimating, the probable results, I shall take the estimate of *one-third* the receipts for the expenses of your road, and in my estimate of the number of passengers I have assumed for your road, on the completion of its connection, with those through Pennsylvania, Canada West and Michigan, no more than is *now* carried on some of the roads west of Albany, and at *half the price* charged on them.

As there may be doubts in the minds of some (although I have none) as to the location of the Canada railroad at Niagara Falls, I will, to satisfy the most skeptical, deduct the 100,000 tons of freight, and 100,000 through passengers, that it was estimated the Canada road would create, and see what would be the probable value of the stock, should it only connect with the Buffalo railroad at Niagara Falls, and the branch road to Lewiston—and we have for receipts as follows:

80,000 through passengers, \$1 50.....	\$140,000
60,000 way " 1 00.....	60,000
25,000 tons way freight, 0 60.....	15,000
76 miles U. States mail, \$150 00.....	11,400
Total receipts.....	226,400
Deduct one-third for expenses.....	75,466
Income.....	\$150,934

or *eleven per cent.* on the capital, at the low price of *two cents* a mile for through passengers, and *two and a half cents* for way travel. Call this two and a half cents and three cents, and on the amount of business estimated, it would net *fifteen per cent.* stock, and this too without any travel from the Canada road, and without building the road from Lockport to Fort Erie, which road would undoubtedly be made, if the Western railroad should, by any possibility, be located there. This route, as has been shown, would be only 77 miles from Fort Erie to Rochester, and on the natural *inclined plane*, to the Hudson, which would always give this line great advantage in competing for western trade and travel with the road via Attica.

In view of all these facts, I think no *impartial or discriminating* reader will doubt, that this road will be (without the Canada connection,) a secure and permanent *ten per cent. stock*, and with that connection a *fifteen or twenty per cent. stock.*

The result in either of these cases, may appear extravagant to those who, without informing themselves of the reasons why some roads pay dividends and others do not, reason and decide from what they happen to know of some unfortunate work, constructed at an expense largely disproportioned to its objects, located where, in the nature of things, it could command but a meagre amount of business, defective in strength, or other qualities requisite to economy and success in using it. But in such a case as is presented by this road, there is no mode of estimate or calculation on such a route, located on the great thoroughfare from east to west, and bordered by a fertile country, and dense population, that will not justify all that need be claimed or presumed for it.

The connection with the Canada railway, at Niagara, will undoubtedly be made. Its practicability is demonstrable, and when completed, it will offer the means of obtaining the most feasible line for the travel of the northwestern states to and from the seaboard, and to the seat of our national government.

The only difficulty that could possibly be urged, that arising from the width and depth of the Niagara, cannot now be entertained. The bridge is practicable; and we have now before us the estimate and report of an experienced engineer, and one entirely familiar with the subject, and an offer to build the work for the sum named in his estimate, (\$220,000) and submit it, on its completion, to a severe and satisfactory *test* of its strength.

The "*right of way*," usually a large item in the cost of railroads, when made through a fertile and populous country, will on this road, be unusually small, probably not exceeding \$500 dollars per mile. Considerable portions of the several lines surveyed, have already been released without charge, and from the interest manifested by the landholders, further gratuitous cessions are anticipated.

I leave for a future examination and report the question of the Batavia terminus, and also the comparative merits of the different lines surveyed for your road, between Lockport

and Rochester. Respectfully submitting these views, I have the honor to be your obedient servant,
CHAS. B. STUART, Chief Eng.

Midland Railway Company--General and Special Meetings.

The half-yearly general meeting of the proprietors of the Midland railway company was held on Monday, at the station, Derby; George Hudson, Esq., M. P., in the chair.

The chairman read the report of the directors as follows:—

"It is a source of much satisfaction to the directors that they are enabled to announce a net balance of 197,888*l.* 7*s.* 3*d.*, which will enable the proprietors to divide—

Upon each 100 <i>l.</i> of the consolidated stock..	£3 13 9
Upon each 100 <i>l.</i> of the preferential stock..	3 13 9
And upon each 100 <i>l.</i> of the Birmingham and Derby consolidated stock.....	3 0 0

And leave a reserve of upwards of 14,000*l.* towards the next half year.

"The increase over the corresponding half of last year has been—

In passengers.....	£47,344 13 11
In goods.....	11,800 0 0
In minerals.....	5,756 0 4
In parcels.....	1,914 17 3
In cattle.....	2,627 9 8

"The total increase in the receipts of the half year has been 69,305*l.* 5*s.* 8*d.*

"The proprietors will perceive an increase in the expenditure of the company, particularly in the locomotive department; this is easily accounted for from the large increase in the traffic, requiring 72 engines daily to work it.

"The holders of the 40*l.* shares will receive half a years interest from the passing of the act, June 30, 1845, to the 31st of December last, after the rate of 4*l.* per cent per annum upon the 2*l.* deposit, and also interest after the same rate upon the second call of 4*l.* from the 6th of October last to the same period:

"The whole of the line between Sheffield and Rotherham the directors have relaid with new rails, chairs and sleepers.

"The directors are also relaying a portion of the line north of Derby, which at present is constructed of rails a lighter description than any other part of the railway.

"The directors have determined upon erecting the electric telegraph along the whole line, and they confidently anticipate from it a great increase of safety, as well as regularity. The small length they have at work through the clay-cross tunnel they find to be most useful.

"Since the last general meeting, the directors have let the works on the Nottingham, Newark and Lincoln railway, to Messrs Craven and sons, and the works on the Syston and Peterborough line, from Syston to Melton, and from Stamford to Peterborough to Mr. William Worswick; both contracts are to be completed during the next summer, and satisfactory progress is making on both these lines. They have also let the works for forming the junction at Sheffield with the Sheffield and Manchester railway to Messrs. Mawson, Waring, and co., who are getting on satisfactorily.

"The following directors retire at this

meeting:—Sir Oswald Moseley, Bart., Mr. Hudson, M. P., and Mr. Ellis, all of whom are eligible for re-election."

The following is an abstract of the accounts laid before the meeting:—

Statement of Capital Account from June 30, to December 31.

Dr. Amount expended to June 30, 1845.....	£6,327,690 16 8	
Further charges in the half year ending Dec. 31, 1845—		
Works of roads and stations.....	£13,983 6 8	
New wagons, etc.	18,513 3 0	
Law charges.....	522 8 2	
		33,018 19 10
Parliamentary expenses for new lines..	53,821 17 7	
Deduct profit on shares..	20,814 7 6--32,977 10 1	
Land and compensation.....	105,615 3 1	
Rails, chairs, sleepers, etc.....	123,883 9 10	
Payments to contractors—		
On account System and Peterboro' line..	3,000 0 0	
Ditto Nottingham and Lincoln	9,618 17 10	
	12,618 17 10	275,395 0 10
		636,104 17 4
Balance.....		60,203 11 11
		6,636,308 9 3

Cr. Amount received on account of shares to June 30, '45	4,528,014 3 3	
Do. debentures..	1,662,767 6 6	
Do. loan notes..	93,850 0 0	
		6,284,631 9 9
Amount received during half year ending Dec. 31, '45—		
On account of shares.....	439,326 7 2	
Do. of interest .	190 12 4	
	439,516 19 6	
Less debentures p'd during half year..	£12,740	
Loan notes, do.	15,100—27,840 0 0	
		411,676 19 6
		£6,696,308 9 3

Statement of Revenue Account from June 30 to December 31, 1845.

Dr. To maintenance of way and works.....	£22,129 6 2	
Locomotive power.....	37,587 5 11	
Coach and wagon repairs and alterations.....	6,562 5 10	
Coaching account.....	13,785 15 5	
Goods department, direction, etc....	14,252 16 7	
Rates and taxes and government duty	15,120 6 3	
Debenture interest, including that of the late Sheffield and Rotherham railway company.....	37,419 7 2	
Half year's dividend, payable on the consolidated Sheffield and Rotherham preferential stock, 6 per cent. per annum.....	4,500 0 0	
	151,357 3 4	
Balance.....	197,888 7 2	
		£349,245 10 6

Cr. Balance of account to 30th of June, 1845..	£151,011 10 3	
Less dividend....	148,027 7 0	
		2,974 3 3
Traffic—		
Passengers.....	204,362 14 0	
Horses carriages and dogs.....	8,925 0 3	
Parcels.....	13,132 17 9	
Cattle.....	4,962 10 11	
Mails.....	6,420 13 0	
Goods.....	79,160 13 3	
Minerals.....	25,281 2 10	
		342,165 12 0
Rents.....	4,105 15 3	
		£349,245 10 6

Audited 10th January, 1846.
John Jackson, and Joseph Cripps, Auditors; J. F. Bell, secretary.

Many passages in this document called forth much applause, which was repeated at its close. It was not deemed necessary to read the accounts, printed copies having been sent to each proprietor several days previously.

The chairman then spoke to the following effect:—Gentlemen it now becomes my duty to move that the report of the directors, which you have just heard read, be received and adopted, and printed for circulation among the proprietors. In doing so I am very happy to think that it will not be necessary for me to detain you by many observation.—

At the same time, perhaps, I may be permitted to offer two or three remarks more in detail on the position of the company than we have thought it necessary to do in the report. You, gentlemen were the first to make the great experiments of amalgamation, by incorporating three companies into one, and after a year's fair trial of that experiment, it will no doubt interest you to learn the result. With this view, gentlemen, I have collated the expenditure of the years 1842 and 1843, when the lines were separate, and compared it with the receipts. You will bear in mind also that these documents are of course, open to inspection, for they are published documents; and I mention this because it may not occur to the proprietors, nor to those who take an interest in these matters, or who feel themselves called upon to lead the public in the direction which it ought to take. Gentlemen, some doubts have been cast on the wisdom of the course which in this amalgamation you adopted; but after the figures and facts which I shall bring forward, I will leave it to any person of sound judgment and ordinary intelligence to say whether it has not been largely beneficial to you as proprietors, as well as to the country generally. I have taken the expenditure of 1842, and the receipts, and have added thereto respectively the same items on the Sheffield and Rotherham line, which at that time was worked separately. I find, gentlemen, that the aggregate expenditures in 1842 of the four companies—the North Midland, Midland Counties', Birmingham and Derby, and Sheffield and Rotherham—amounted to 218,124l. as near as I can ascertain, for I will not trouble you with the shillings and pence. The receipts during the same period were 438,

200l.—in other words, the expenditure was, as nearly as possible, 50 per cent. on the gross receipts. Gentlemen, in 1843 all those four companies had effected a great reduction in their expenditure, particularly the North Midland, which, it will be admitted on all hands, had at that period brought its expenditure to as low a scale as possible; and therefore in giving the expenditure for 1843, I put it in a very favorable position. The expenditure then for 1843 was 180,335l., and the receipts 443,513l., or an expenditure of about 41 per cent. on the receipts. Gentlemen, I pass over the year 1844, because the lines were worked for one-half that period by the companies separately, and for the other half by the amalgamated company. I do not think, and I am sure my colleagues will agree with me, that the receipts and expenditure of that year can be regarded as a fair criterion of their relative amounts. Now, in the year 1845, the first of the amalgamation, the expenditure amounted to 207,736l., and the receipts, gentlemen, to 625,030l., giving a percentage of 33 on the receipts. Moreover, in 1842, the companies were working as nearly as possible 45 engines a day; in 1843, the number was 48; whereas, in 1845, the average number was sixty-nine engines working on the Midland lines. It must be borne in mind also, gentlemen, that in 1845 the price of all materials used in railway repairs had risen very considerably, as compared with 1842, and particularly iron. Then, too, the government duty on passengers, which I have not separated from the aggregate amounts, must have greatly increased by the increase of passengers, a farther item of difference between the two periods. I have to mention, and I am happy in being able to do so—and you, gentlemen, I am sure will be pleased, being prosperous yourselves, to see others prosperous also—I am happy in being able to state that the officers and servants of the company now receive large remuneration.—It is rather curious, gentlemen, to mark the amount of dividend paid during the periods referred to. In 1842, the dividend of the North Midland company was 2l. 12s. 6d. per cent per annum; of the Midland Counties', 3l.; and of the Birmingham and Derby, 1l. 13s. In 1843, the dividends were respectively, 3l. 10s., 3l. 8s., and 1l. 13s. This year, gentlemen, your dividend is 6l. 13s. 9d. on the Midland stock. Gentlemen, I am well aware that on this point I may be met, and that it may be argued that similar results would have taken place if the companies had not been amalgamated. I wish any gentleman would stand forward and show any similar case parallel to ours where, without the opening of a single branch, without one mile of extended line, the receipts have increased at the rate of 200,000l. a year. It is all very well gentlemen, to talk of amalgamation as unwise, but let us look at the results. In 1843 your dividend was 3l. 10s., now it is 6l. 13s. 9d.; and such being the case, the public must have been greatly benefitted, especially from the large reduction which we have made in the carriage of goods—for I should be sorry that you should en-

ertain any doubt as to the policy of carrying out fully the great measure which you have adopted, namely, of diminishing the charges. Gentlemen, having stated these facts, it is not necessary that I should add any remarks of my own. I hope that any gentleman connected with the public journals who may have thrown a doubt on the wisdom of amalgamation will, if he cannot get rid of these facts and figures, feel it his duty, in justice to the interests with which he professes to be mixed up, to advocate those measures which in the case of the Midland railway have led to such splendid results. Gentlemen, I do not think I need detain you farther, nor indeed should I have said so much, but for observations that have been made, and which carry with them a certain degree of weight, which seemed to me to require I should show that the great experiment you had the courage to try has been completely successful in all its results. Gentlemen, before the close of the proceedings, I shall have occasion to bring before you many schemes for the extension of the Midland railway; but perhaps it is better that we should dispose of the formal business of the day, after which resolutions bearing on these extensions will be submitted. Perhaps, before I sit down, I may be allowed to take this public opportunity—though of course I cannot be responsible for what is said by editors of newspapers, who no doubt think that, as I am a public man, I am public property—of stating that it is quite untrue, as alleged, that I have any connection whatever with any public journal. Equally untrue (continued the honorable gentleman, laughing) is it that I have forfeited 40,000*l.* rather than complete the purchase of an estate.—Unworthy indeed should I be of your confidence, or of the management of your property, if I could be guilty of such folly with my own. Gentlemen, I now beg to move the adoption of the report.

The honorable gentlemen resumed his seat and a long continued applause.

Iron Steamships.

The rapid progress that iron steam-ship building is making in this country, not only for the royal navy, but, more particularly, the mercantile marine, is giving a great impetus to the speculative energies of the iron-masters, whose furnaces are in full blast, and all those connected in this extensive and important branch of mining industry of the United Kingdom. Notwithstanding the numerous railway lines which are now in full traffic, and the hundreds more that will be established within a few years, England has sufficient iron ore and carbonic fuel, to meet all the exigencies for centuries and centuries to come. The adoption of iron for shipbuilding, in preference to wood, there is little doubt, will be general before another quarter of a century, not only for its durability, but buoyancy, compared with the latter. The value of iron, as a material for shipbuilding, has been known for upwards of 100 years, and even the ancients looked upon it as the most useful metal to man. The first iron vessels, or boats, for the purpose of navigation, were built for the canals of this country, and

that so far back as the year 1780; but it was only on a very limited scale. The construction of steam-vessels gave the idea, that iron might be substituted with advantage for wood, and, in 1820, Mr. Manby took out a patent in France for iron steam-boats, when he, and the present admiral Sir Charles Napier, formed a society, and built a vessel at Horsley as a model, and, in the early part of 1822, that experienced officer took the command of the *Aaron Manby* (so named after the projector,) and navigated her from London direct to Havre-de-Grace, and so up the river Seine to Paris. This was the first iron steamer that ever crossed the British Channel, or, in fact, put to sea, which excited the greatest public curiosity at the time among the Parisians, being the first vessel that had come direct from London to the French capital, and that in iron. Another iron steamer was built in 1824, for the navigation of the Shannon, and was put together at Liverpool, crossed the channel to her destination, Lough Derg, which gave rise to this extensive and spirited company now navigating that splendid river. The building of iron vessels, after this success, gradually began to increase, and numerous steamers, and even sailing vessels, of large tonnage, for distant sea voyages, were constructed. Since that period, the progress of iron shipbuilding has made a most wonderful and rapid advance in the annals of the naval history of this country. We not only have now some of the most powerful iron frigates and war steamers in the royal navy, the admiration of all foreign countries; but a commercial fleet of iron steamers, the finest in the world, which have excited the jealousy and emulation of France, and the whole of Europe.

The progress making in this new art of shipbuilding is giving an unequalled impetus to iron mining enterprise and naval improvements. The use of this metal is not confined solely to steamers, but several sailing-ships are in course of construction, in which small auxiliary steam-power is to be employed; and there is very little doubt that iron will be generally adopted in the construction of merchant vessels for long voyages, in conjunction with the screw propeller, so as to enable them to be worked in addition to sails. In the building yards of Liverpool, so much activity never prevailed as at present; and it is with much difficulty a sufficient number of workmen can be obtained, to complete the contracts entered into. Besides the former splendid vessels which have been launched from the stocks at Liverpool, two fine iron ships this week, constructed by Messrs. Vernon & Co., from the plans of Mr. Grantham. The first is the *Windsor*, of 800 tons, which is built for the city of Dublin company; and the *Ajax*, of the same dimensions, for the Cork company. The same firm is building a large steamer, of about 1300 tons, for the Peninsular and Oriental Steam Navigation company, who already have the *Beninck* and the *Hindostan*, iron steamers of 1800 tons each, run-

ning from Calcutta to Suez, besides an order for two steamers of 700 tons for the Cork company, and one of 300 tons for Fleetwood. Five iron vessels are now building at Messrs. Hodgson & Co.'s works, at the same port; that nearest completion is 250 tons, to be worked by a screw, and is intended for Buenos Ayres; the *Antelope*, of 600 tons, as a packet between Liverpool and the Brazils; a large vessel for the New York trade, of 1500 tons, to be heavily rigged, and with four masts—the two latter to be propelled by the screw, on Mr. Grantham's patent direct principle; also, one for Bombay, of 300 tons; and the fifth for the Woodside ferry. Four vessels have been ordered of Mr. Cato, from the plans of Mr. Grantham—one of 650 tons for the city of Dublin company, to be worked by paddle-wheels; two for the same company, of 300 tons, rigged as three-masted schooners. Messrs. Laird, who built the *Birkenhead* iron steam-frigate, of 1400 tons, recently launched, has five steamers in the course of construction. Several others are on order, to be completed during the present year. Among the many improvements which have been made in iron shipbuilding, is the iron water-tight bulkheads, by C. W. Williams, Esq., of Liverpool, and which are being generally adopted in the construction of steam-ships, as being one of the safest systems hitherto invented for the preservation of life from shipwreck. Mr. John Barber, registrar for the registration and regulation of the coal whippers of the port of London, has long devoted his attention to the discovery of some means of stopping leakages, which might be caused to iron steam-ships of war, by the cannon-shot of the enemy, has, it appears, succeeded in producing a mastic of India-rubber, cork, and other elastic substances, which he has no doubt, will stop any hole that might be made in a vessel by a ball, until she could be brought back to be docked, and which is now under the consideration of the board of admiralty.

We have entered rather fully on this subject, because the building of iron steamers is attracting the serious attention of the French government, and the minister of marine has repeatedly strongly urged the necessity of admitting English wrought and cast-iron into the different dockyards and ports of France, when for shipbuilding, free of duty, if they wish to compete, in a measure, with the rapid advancement making in naval construction in this country, and, no doubt, it will pass the chambers this session, as the majority are in favor of the repeal of the duty on iron—it being fully established France cannot supply her demands. The autocrat Nicholas, of Russia, is also denoting his ambitious genius, to the revolution that the adoption of iron, for naval purposes, is likely to create all over the globe, by having several fine iron steam-frigates immediately constructed in this country.

The detention of the cars on the Georgia railroad till 4 o'clock p.m. yesterday, says the *Augusta Chronicle* of 22nd January, was caused by the sleet which fell at the head of the road, on Tuesday and Wednesday night. The train was consequently compelled to remain a

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.
 Saturday, February 28, 1846.

Railroad Advertisements.

Spring Arrangements.—Will the different railroad companies oblige us by sending in, without delay, their advertisements, announcing their spring arrangements, similar to that of the Boston and Maine railroad, on our 1st page.

☞ We are much obliged to Mr. Minot, the efficient and gentlemanly superintendent, for thus early furnishing us with his spring arrangements—and shall be equally so to others for similar favors, and more especially so to those who direct us to insert them upon the terms proposed by us last fall. Shall we not hear soon from other companies than those now in the Journal? We were about to say—that if we do not hear from them, they will from us—but will not, as that might look belligerent.

This company's railroad now includes what has heretofore been known as the Boston and Maine, and the Boston and Maine extension, and extends from Boston to South Berwick, a distance of 73 miles, where it intersects with the Portland, Saco, and Portsmouth railroad, thus making a continuous line to Portland. The Boston and Maine railroad company have two branches, one in Wilmington connecting their road with the Boston and Lowell railroad, which is 2½ miles long,* the other in Somersworth, N. H., connecting the main line with the manufacturing village of Great Falls; this branch is 3 miles long; so that the entire length of their road is 78½ miles.

Extension of the Western and Atlantic, Georgia, Railroad.

This road is now in use to Oothcaloga, on the Oostenaula river, a distance of 251 miles from Augusta, and 388 miles from Charleston. The annexed advertisement [see page 130] shows the rates of freight and fare for the distance between Augusta and Oothcaloga 251 miles. The through passage is a fraction over 4 cents per mile, say 4½ cents, which may be considered low under all circumstances, a sparsely populated region and a new country. There remains now, we believe, but about thirty-five miles to be constructed, to complete the road to the Tennessee line; and only about 140 miles to Nashville, when a steam navigation will be opened from Portland in Maine, by the way of Charleston, Augusta and Nashville to St. Louis, and the whole west; and for this last link, a very favorable charter has been granted by the Tennessee legislature, a copy of which is now before us and to which, we shall soon again refer.

* This was a part of the main line while this company used the Lowell road to Wilmington, and until the company opened their road from Wilmington during the past year.

New York and Boston direct Railroad.

We have before referred to this project. To the thousands it will appear as a mere matter of speculation; a scheme for defeating, or interfering with, some other project, or-work in use; but a part of the line, from this city to New Haven, has been a long time under consideration; it has been surveyed, and a charter granted for that portion lying in Connecticut—a short section of it, between New Haven and Wallingford, is now in use—but the remaining part of the line from Wallingford through Middletown, and Windham county, to Boston, is a new line, of which very little has been said until recently; but it is now becoming a matter of considerable interest, and is favored by gentlemen in whose opinions we have much confidence.

There is now very little necessity, most people will say, for another line of railroad into or out of Boston, and more especially in the direction of New York, as there are now two main lines in this direction, each having two terminations on the Sound waters, and connections with some of the finest and best steamboats in the country; yet the people, residing off from those lines, and cultivating the rugged, yet productive soil, and improving the water privileges intermediate, seeing the benefits derived by others from railroads, and the absolute necessity of having equal facilities to compete successfully with those who have now the start of them in the race, are not of that opinion, as this movement shows; and it is a little singular that the shortest, most direct, and equally favorable, route between these two important cities should be left until the others were all made.

Of the details of this line we are not informed, and therefore give the following notice from the Journal of Commerce of 25th inst., for the purpose of eliciting information from those who are in possession of authentic intelligence on the subject.

While writing the foregoing we have received information from Newport, R. I., in relation to the proposed railroad from there to Fall river, upon which the engineers are now engaged—thus opening another route to Boston.

Another Route to Boston.

We understand that surveys are now being made with the view of determining the feasibility and probable cost of constructing a railroad between Newport, R. I., and Fall river, Mass., a distance of 18 miles, from which latter place to Boston, there is now a railroad completed, and in operation; and another by a more direct route in course of construction, to be finished during the coming summer.

The examinations already made, demonstrate that a line of very favorable character is attainable. Several enterprising capitalists are, as we understand, enlisted in the project, and it is altogether probable that, very shortly after the charter is obtained, active operations will be commenced. The surveys are being conducted by Messrs. J. N. Adams and T. E. Sickels, from whom an early and report may be expected, when we shall have more to say on the subject.

Progress of Railway Traffic in Gt. Britain.

We shall give in our next a tabular statement, showing the number of miles of railway in use at the end of each week in the years 1842, 3, 4 and 5, and the average traffic per mile per week, and the total receipts of each quarter and year.

The increase in miles in use is from 1,182 on 1st January, 1842, to 2,043 on 27th December, 1845, and the total receipts for 1842 were 4,341,781*l.*, and in 1845, 5,649,224.

The Right of Way to Pittsburg.

We promised in our last, and give in the present number the proceedings of a meeting, and of the councils of Pittsburg in favor of, and an able letter signed by eighteen of the prominent men in Philadelphia against allowing, the right of way to the Baltimore and Ohio railroad company to Pittsburg. It was our intention to accompany these documents, which embody the views and reasons in favor and against this important, at least to Pittsburg, vastly important measure; but we are compelled by indisposition, to omit them, at least for the present. We cannot avoid saying however, to those who oppose this measure—a measure fraught with the most lasting and important results to that young giant of western Pennsylvania, PITTSBURG, a city of which every true Pennsylvanian should feel proud—pause! beware how you erect a barrier against, instead of opening an avenue to accommodate, its growing and legitimate business! You had better construct three than to prevent one avenue between Pittsburg and the Atlantic. You will do well to devote your efforts and your capital, as far as necessary, to the construction of the three proposed lines, viz. by the Baltimore and Ohio road which will cost you nothing; by the middle route to Harrisburgh, as that will accommodate interior Pennsylvania; and the northern line, up the Allegheny, and to the west branch of Susquehanna, to Sunbury, Pottsville and Philadelphia, thus at the same time making a line almost to lake Erie; a line which will soon be completed when the other is in use, or even under way. Philadelphians! Pennsylvanians! here is a field worthy of your best efforts.—One step ahead will do more to benefit Philadelphia than three astern, even if its course is through Baltimore.

Railroad Fares and Management.

In the last number of the Journal we called attention to the proceedings of the legislature in relation to a compulsory reduction of the fares and management of the railroads west from Albany to Buffalo, —and expressed our views in opposition to the mode of effecting the object. First remove restrictions and enable the companies to adopt lower rates of fare, instead of putting a clog to their heels and then lashing them because they do not run faster.

Since the publication of the last number we have received a copy of the "remonstrance of the Syracuse and Utica company to the legislature against the bill reducing their fare and the appointment of a commissioner," accompanied by a tabular statement showing the receipts both for freight and passengers and the expenses for seven years past.

The charter of this road authorized them to carry freight free of tolls during winter, yet, in consequence of the prohibition to carry freight on the Utica and Schenectady road, the total receipts in seven years for carrying freight on 53 miles of road between Syracuse and Utica was only \$24,122! and upon a portion of that they have been obliged to pay canal tolls, even though allowed by their charter to carry freight free during the close of navigation.

This remonstrance is written in a clear, forcible and dignified style, placing the whole matter in the proper light, and we only wish it could be read by every citizen in the land, as we are confident they would then join heartily in the petition to the legislature, which we published in the last number but one, to remove the restrictions upon carrying freight and thus enable these roads to enjoy privileges equal with other railroads in this country.

It will however speak more forcibly for itself than

we can possibly speak for it, we shall therefore give large extracts from it in our next, together with tabular statements showing the business on the Syracuse and Utica for seven years, and the Utica and Schenectady for ten years, and at the same time show by comparison the advantages which New England roads enjoy over this line, from being allowed to carry freight.

We regret being obliged to defer this remonstrance until next week as it should be speedily and widely circulated, but other matters were partly in type before this came to hand—and a slight indisposition, temporary only, we hope, has placed us under the care of a friend whom we would rather see twice in the street than once when we cannot get there—readers its delay unavoidable. We will endeavor, however, to compensate for the delay by accompanying it with an admirable article from Herapath's London railway journal of 24th January showing the operation of that "great railway monopoly," the London and Birmingham railway company.

Mr. Herapath says very truly, that "the public are very prone to forget *benefits*, though it is to be remarked that they have an extremely retentive memory of grievances!" The people who travel rarely take much pains to show that they have been benefited by a reduction of fares and an increase of speed, though they are seldom bashful in expressing their indignation at any little delay of the train, or even at any seeming delay of companies in adopting the wise opinions of the *public*, who have little knowledge, at least from experience, in such matters.

The article alluded to shows what an *unshackled* railway company can do in the way of accommodating and benefiting the community, in the reduction of its fare from London to Birmingham from 32s. 6d. and 30s. in the two first class cars and from 25 and 20s. in the two second class cars in 1844, to 25 and 20s. in the two first, and to 14s. in the two second class cars in 1846. In addition to this they have adopted a *day ticket*, that is, *out and in same day* for 26s. 6d. in first class cars and 18s. 9d. in second class cars, the time is also reduced about 20 per cent., thus doubly benefiting the traveller. Could they have done this if they had been restricted in their business, or their rates *legislated* down before they were prepared for it by having their works completed? Certainly not—neither can *any road*.

The Cambria

Arrived at Boston on the 18th, with London dates of the 3d, and Liverpool of the 4th, inclusive. We have received full files of the London Railway and Mining Journals, and scientific periodicals, but they did not reach us until after our last number had gone to press, though before its date.

Parliament is again in session, and the railway system is again to be the order of the day; there being now before parliament 815 applications for charters, upon which the deposits have mostly been paid. We find several interesting half yearly reports, showing very favorable results in management and substantial improvements in their business. We shall give several of these reports at intervals, and commence this week with that of the "Midland company," of which Mr. Hudson is chairman.

The iron trade is quite active. Prices have advanced since our last, and large contracts have been entered into by the Great Western railway company, at 13l. to 13l. 5s. per ton, for No. 4 Welsh iron; though an inferior article may be had at from 11l. 10s. to 12l. per ton on board. From these accounts it will be seen that the manufacture of iron must be

greatly extended in this country, to supply the demand sure to be made within the next five years.

We give in another column from the Mining Journal the condition of the London and other markets for four successive weeks in January.

Advantages

Arising from Amalgamating Several Small Concerns into one. — The Expenditure reduced from 50 to 33 per cent., and the Dividend more than Doubled!

We copy from the London Railway Express of 24th January, the report of the directors of the Midland railway company, at their half-yearly meeting at Derby on the 12th. Also the remarks of the chairman, Mr. Hudson, from which it will be seen that the affairs of the company are in a very flourishing condition, and that the most favorable results have followed the amalgamation of several small concerns into one. We should like to see the same system adopted in this country wherever it can be well done—simply because greater regularity may be secured, more and better accommodation given to travel and traffic for less money, of course better returns derived by the proprietors.

This statement should be read by every railroad director and shareholder in the Union.

The New Railways.

Sir Robert Peel gave notice in the house of commons on the first night, that he would the Monday following move for the appointment of a committee to consider the mode in which that house will deal with the railway bills proposed to be submitted to it in the present session.

On the evening of Monday, Jan. 27th, Sir Robert Peel made the motion of which he had given notice, after a speech of some length, in which he stated there were 606 English, 121 Scotch, and 88 Irish, or, in all, 815 applications, or plans deposited at the board of trade, which involve the construction of no less than 20,675 miles, and the expenditure of not less than 350,000,000l. Making every deduction, he said it seemed impossible to supply such an amount of capital for one object without deranging other affairs. It was therefore important that the house consider, at an early period of the session, the principles that ought to govern its course on the subject. He was unwilling, he said, to interfere with enterprise—call it speculation if you please—that it might not be left to private industry and spirit. He was favorably disposed also to the application of British capital in the forwarding of undertakings calculated to promote the general welfare of the empire; and the question is whether there is any *sufficient reason* for interference; and whether interference is justified by the principles which ought to govern parliament.

Sir Robert Peel doubts the policy of investing so largely in railways—especially for the system itself. He proposed therefore that "a select committee should be appointed to consider what course shall be taken with the schemes proposed to be submitted to parliament the present session." The motion was carried and the committee appointed, consisting of the following named gentlemen, viz:—

The question having been put and carried, Mr. J. Collett inquired, whether the committee was to be an open or secret one—whether it would be competent for honorable members to attend without taking part in the committee's deliberations?

Sir R. Peel said that the committee would be a select and secret one.

The following gentlemen were then appointed the committee:—Lord G. Somerset, Sir G. Grey, Mr. Strutt, Mr. Labouchere, Mr. Estcourt, Mr. Greene, Mr. Ewart, Mr. Colquhoun, Mr. Hodgson, Hinde,

Mr. Pakington, Sir G. Clerk, Mr. F. Baring, the O'Conor Don, Lord H. Vane, and Mr. Shaw.

Iron Trade.

We learn, both from our private correspondence, and from the London Mining and other Journals, that the iron trade is in an exceedingly flourishing condition. It is stated that there is not a single iron works of any description in South Staffordshire which is not in operation, or, if not fully employed, it is for lack of raw materials, rather than of orders. The demand for ships, buildings, railways, and other purposes, has increased so rapidly, that there must be a large investment of capital, and extension of works to meet even the home demand, to say nothing of exportation: while, at the same time, the French minister of marine has recommended the repeal of duty on iron, both wrought and pig, shipped to the dock yards in France, for ship building, as they cannot supply it in quantities to enable them to compete in that line of ship building with the English.

We copy an article from the Mining Journal, of 31st January, in relation to the increase of iron ship building—and also a variety of extracts from various English and Scotch papers, showing the condition and variations of the trade during the month of January. Such is the present and prospective demand in Europe, that even a repeal of the present duty on iron imported into this country, would not materially affect the prices here.

We take the following quotations from the Mining Journal, of January 10th, from which it will be seen that prices were up—but during the month there were considerable fluctuations in prices, as speculators or holders became pressed, owing to the political aspect of things—as will be seen from the extracts from various papers, in the Mining Journal of 17th and 24th: but the quotations of the 31st show that prices were fully sustained after the meeting of parliament, which took place on the 22d. There had been much doubt and apprehension as to the course which the government would pursue in relation to the numerous applications for railways. There can be little doubt, however, but that there will be at least three thousand miles and over, chartered out of the *twenty thousand* and upwards applied for. If so, the price of rails will not fall under 12l. per ton on the average.

London, January 9th, 1845.

Iron—bar, Wales, ton.	£0	0s.	—	£9	0s.	0d.
" London.	9	15	—	10	0	0
Nail rods do.	0	0	—	10	10	0
Hoop [Staf.] do.	0	0	—	11	10	0
Sheet do. do.	0	0	—	12	10	0
Bars do. do.	0	0	—	11	0	0
Welsh cold blast foundry pig.	0	0	—	5	10	0
Scotch pig Clyde.	4	0	—	4	5	0
Rails.	0	0	—	12	0	0
Russian CCND.	0	0	—	15	10	0
" PSI.	0	0	—	16	0	0
" Gourieff.	0	0	—	14	10	0
" Archangle.	0	0	—	13	12	6
Swedish, on the spot.	11	10	—	11	15	0
" steel, fag.	0	0	—	15	15	0
" kegs.	0	0	—	15	0	0

Welsh and Staffordshire remain firm at quotations. At the meeting of the Staffordshire masters, held at Birmingham, yesterday, prices were confirmed, and an indisposition evinced by the principal ones to make further sales at existing rates. Scotch pig not quite so buoyant as last week—buyers at 80s., but no sellers under 85s.

The demand for English iron has considerably improved, and higher rates are confidently expected for all descriptions. Scotch pig iron has been sold at 85s. cash during the last ten days; but the market is rather easier, and, with speculators, 82s. 6d. may now be considered a very fair quotation, while

the makers are asking 85s. to 90s. Staffordshire pig iron exceedingly firm, at an advance of 10s. per ton. Rails—large contracts have been entered into, and it is reported, at prices varying from £12 10s. to £13 per ton.

Jan. 6.—The rise in price which we have noted these few days has been sustained. A considerable business was done yesterday—say 3000 to 4000 tons—at 80s. to 82s. 6d.; to-day 1000 tons were sold at 83s., and the market closed with several sellers at 83s. 6d. We quote the price at 80s. to 82s. 6d. cash. Several of the makers are open for contracts or sale, for immediate delivery, at 85s.; but we believe 83s. 6d., prompt cash, would buy from makers 8,000 to 10,000 tons.—*Glasgow National*.

Jan. 17.—Welsh and Staffordshire continue in steady demand, and makers are firm in price. Scotch pigs are dull.

We have very little to notice in the iron market this week; the demand continues good, and prices steady. Scotch pigs can be had at 80s. In other metals no alteration.

Wolverhampton, Jan. 16. [From a correspondent.]—Prices here are improving, pigs have advanced to £5 10s. per ton—being 10s. above that quoted at the late meeting held at Birmingham. Bars and rods, £10; hoops, 10l. 10s. to 11l.; sheets, £11 10s. to £12.

Glasgow, Jan. 13.—The late advance on this article seems, for the present, to have attained its height. These two or three days past large transactions have taken place at 85s. at four months. To-day the above was not obtained; we heard of several parcels offering at 83s., and another parcel of 1000 tons at 80s., which we are not aware met purchasers; we quote the price at 80s., and dull market.—*National*.

Gottenburg, Jan. 1.—Iron being at present a very favorable article here, in consequence of the great demand for Great Britain, considerable speculation within these few days has taken place, and large parcels have been brought up, and the price risen at the exchange, for direct paper on London, at 90 days, making ordinary sizes to stand at £10 14s. 6d.; extra dimensions higher in proportion. The season being now so far advanced, one does not know how the price may rule in spring. Bar iron is a very favorite article here, and rising in price.

January 23.—Welsh and Staffordshire, firm at quotations, but not much business doing. Scotch pigs sold, since our remarks in last week's Mining Journal, at 75s., 76s., 77s. 6d., 78s. 9d., and yesterday at 80s., net cash; more inquiry for exportation. In Swedish some large sales, within the past week, at 11l. to 11l. 10s., according to specification.

English bar and rail iron continue firm; about 35,000 tons of the latter have been contracted for since Friday last, at a price equivalent to 13l. 5s. per ton. Welsh pig is in fair demand at quotations. In Scotch pig iron transactions have been done at 80s. in Glasgow.

Liverpool, Jan. 21.—[From a correspondent.]—The market for pig iron has improved to-day; there are now many buyers at 80s. cash, with few sellers.—Once the difficulty respecting the railway deposits is got over, trade generally will improve.

Glasgow Pig Iron Trade, Jan. 16.—On Wednesday the price was quoted at 80s.; at this figure little has been done. To-day a parcel of 1500 tons was offered at 75s. which was in the course of the day sold at 75s. and 78s.; we quote the price at 78s., prompt cash.—*National Adv.*

Jan. 17.—The market has been quiet this week, and the quotation by the dealers was nominally 80s. to 85s., according to terms of statement. Yesterday 1500 tons was forced on the market for immediate cash, and sold at 75s. cash, payable this day; but this sale was made under peculiar circumstances, and we do not alter the above quotations of 80s. cash, and 82s. 6d. to 85s. bill, which would require to be paid, were buyers to come into the market. The makers are still quoting 85s. to 90s., and none of them are anxious to sell.—*Glasgow Herald*.

Jan. 17.—Common bars 10l.; railway bars 11l. 10s.; and railway chairs 6l. 5s. per ton.

Note of pig iron shipped from the Clyde in 1845.
Exports—coastwise. Exports—foreign.
Total tons.....89,874 Total tons..... 21,918
Shipped in all, 1845, from Clyde.....111,792
Additional from Grangemouth..... 37,000
Total tons.....148,792

All branches of the iron manufactures of South Staffordshire, says the Birmingham Journal of 23d ult., continue in undiminished activity, and it is expected that a further impetus will be given to the trade before the expiration of the present quarter. During the past week, contracts for 120,000 tons of iron rails for the Great Western company have been taken, a large proportion of which has been contracted for in our own district. This immense order—which, it must be borne in mind, is only a small portion of those that may be looked for from the railways which are all but certain to pass in the present session—is required for the Great Western main trunk, and its numerous branches, including the Oxford, Worcester, and Wolverhampton line, the operations of which have already commenced at various points. Of these 120,000 tons, 45,000 are taken by the Coal Brook Dale company; 40,000 by the Plymouth works, Giamorganshire; 20,000 by Messrs. Malins & Rawlins, of West Bromwich; and 15,000 tons by the Chillington iron company; we understand that these contracts have been regulated subject to the fluctuations of trade, but at present prices they will realize more than 13l. per ton. Taking, therefore, into account the large supplies which will be required to meet the demand for British railways, and the orders which may be looked for from the continent, to complete the great lines under contract, we may, without indulging in any very sanguine speculations, safely conclude that the present price of iron will, under any circumstances, be fully maintained. *There is not, we are informed, at this moment, a single iron work, of any description, in South Staffordshire, which is not in constant operation, or if not fully employed, the circumstance is attributable to the want of the raw materials of manufacture, coal and iron-stone.*

London, January 30.

Iron—bar, Wales, ton.....	£0	0s.	—	10	0s.	0d.
“ London.....	9	15	—	10	0	0
Nail rods, do.....	10	10	—	10	15	0
Hoop [Staf.] do.....	11	10	—	12	0	0
Sheet, do. do.....	0	0	—	13	0	0
Bars, do. do.....	0	0	—	11	0	0
Welsh cold blast foundry pig.....	0	0	—	5	10	0
Scotch pig, Clyde.....	0	0	—	4	0	0
Rails.....	0	0	—	12	0	0
Russian, CCND.....	0	0	—	15	0	0
“ PSI.....	0	0	—	16	0	0
“ Gourieff.....	0	0	—	14	10	0
“ Archangle... ..	0	0	—	13	12	6
Swedish, on the spot... ..	11	10	—	12	0	0
“ steel, fagt... ..	0	0	—	16	10	0
“ “ kegs... ..	15	0	—	15	5	0

We have nothing whatever of interest to notice in the metal market this week. The expected decline of 3s. per ton in English tin is now effected; with this exception, there is no change since last week's Journal, and very little business has been done.

English iron continues firm at last week's prices. Very few transactions have taken place in Scotch pig iron; the price may now be quoted at 77s. 6d., cash, and 82s. 6d. for time. Welsh and Staffordshire pig iron steady, but the demand very limited at present. Foreign iron has been in considerable request and higher rates paid. Foreign steel dull.

Glasgow, Jan. 24.—The business in this article during the week has been entirely confined to a few parcels, the prompts of which have not been met by purchasers, being forced off for cash, and the prices obtained varied from 77s. 6d. to 80s. To-day, the political news being thought favorable for holders, the dealers obtained freely 82s. 6d. cash, and a large contract was made by a maker at 85s. It is difficult, in the present political uncertainty, to give a quotation, but the general feeling is in favor of an advance on the above.—*Constitutional*.

Glasgow Pig Iron Trade, Jan. 27.—Notwithstanding the severe pressure on the money market, this article has assumed a very firm appearance. Peel's measures will, without doubt, cause other nations to reciprocate in their tariffs, and consequently we have now opened up an export trade, thus completely removing the difficulty as to stocks. For iron masters, as well as other manufacturers, their prospects have never had so bright an appearance. For money, one or two small lots, under 100 tons, was sold at 80s., but yesterday and Saturday contracts were

made to a limited extent by makers at 85s. cash; and we learn to-day as much as 87s. 6d., say 87s. 6d., four months, was paid; we quote the price for to-day, as 82s. 6d., cash.—*Glasgow National*.

Jan. 23.—Scotch pig iron is maintained firm at 80s., cash, and the demand for shipment and consumption is more felt than since the close of last season. Bars are also brisk at 10l.—less four per cent. for cash.

The Railroad Meeting.

The following are the resolutions passed at the great railroad meeting held in the old court house on Wednesday evening: they are well drawn up, and some of them really eloquent.

Resolved, That the trade, agriculture and manufacturing operations of western Pennsylvania are so intimately combined with the resources of Pittsburg that whatever affects her prosperity must have an influence, either beneficial or detrimental, on that of the western counties of the state.

That while the skill of her manufacturers and the enterprize of her citizens generally, have for a series of years been adding to the wealth and stimulating the exertions of an immense region of country, her people have been suffering the direst calamities—have been deprived, by conflagration, of millions of capital, and have been crippled in their commercial operations by combinations formed for the purpose of transferring her trade to localities with which she will soon be unable to compete, unless assisted by legislative action effectual to the preservation of her interests.

That that action has been recently invoked by applications for granting the right of way to the Baltimore and Ohio railroad company, a subject so deeply important to the citizens of Pittsburg that all other objects of legislation, so far as they are concerned, appear comparatively trifling.

That a denial of the right of way to that company, upon terms equally equitable and liberal, would be effectual in compelling them to make a communication with the Ohio at a point so far below Pittsburg as would destroy the whole of the transit trade so long and prosperously carried on through the Pennsylvania thoroughfares, and must deprive her of the visits of thousands of western merchants who have hitherto taken the Pittsburg route as the most eligible and convenient in their resort to the eastern states.

That such denial of right will not only cut off forever the inexhaustible resources derived from the trade of the western rivers, by driving that trade through a southern region to Baltimore, but will be equally detrimental to our trade with the lakes; as the enterprize of our commercial rivals below us, will induce them to open facilities for the lake trade in combination with the western terminus of the Baltimore and Ohio railroad.

Resolved, That while the attacks upon the tariff, which we are but too much warranted in believing will be successful, threaten greatly to diminish the resources derived from our manufactures, we cannot view without the most serious alarm, the dangers which impend over our transit trade and our commercial prosperity, should the Baltimore and Ohio railroad company be compelled through

illiberal legislation, to terminate the improvement at any other point than Pittsburg.

Resolved, That the completion of the railroad route to the Atlantic seaboard, will, in the opinion of this meeting, add greatly to the carrying trade in heavy burthen, upon the Pennsylvania canal, an opinion founded upon the superior capabilities of canals for such kind of transportation.

Resolved, That in the original act giving to the Baltimore and Ohio railroad company the right of way, without restrictions that would be detrimental to their interests, we conceive the commonwealth to have pledged its faith to a liberal course of proceeding towards that company, should its finances at any time permit it to locate the road within the jurisdiction of Pennsylvania.

Resolved, That we duly appreciate the advantages to be derived to the state from the construction of the Erie and Sunbury railroad, and would earnestly urge on the legislature the granting such privileges to the company as may insure the successful completion of that great work.

Resolved, That this meeting cheerfully concur in the expediency of granting to the citizens of Philadelphia (in whose prosperity we are deeply interested) the privilege for the construction of a railroad from that metropolis to Pittsburg by the middle route, and that while we go with them heart and hand in this new and all important improvement, we cannot for a moment suppose that the enlightened citizens of our commercial metropolis will hesitate to aid us in carrying through a project of so much advantage to us as the grant of the right of way to the Baltimore and Ohio railroad company.

Resolved, That we deplore the spirit of opposition to this great measure which has been manifested in a particular quarter of the state, but our regret is mingled with no unkind or malevolent feeling. A difference of opinion, about opening a road through any part of the family estate, can never make us forget, as Pennsylvanians, the thousand ties of interest and affection that bind us indissolubly together. We are identified with the great works of internal improvement, that now traverse the commonwealth. The debt incurred by their construction is a sacred lien on the property, and the industry of every one amongst us. We can hope to alleviate the burden only, by their increased productiveness. We firmly believe that the projected work, will tend to swell the prosperity of these great channels of communication, while a contrary policy must speedily exhibit them in solitary exhaustion and decay.

Resolved, That the south-western counties of the state, having expended large sums in the construction of turnpikes, and have with exemplary patience, paid with great promptness onerous taxes imposed upon them for the purpose of discharging interest on debts created in the prosecution of works that have deprived them of the benefits of all these expenditures, are entitled to having the right of way granted through that portion of the state as a matter of mere remunerative justice to the inhabitants.

Resolved, That the proceedings be signed by the officers, and that they be published in all our papers, and that a copy be forwarded to the speakers of both houses.

On motion of Wm. Larimer, Jr.

Resolved, That the legislature of Pennsylvania be, and they are hereby requested to incorporate a company to make a railroad from the termination of the Cumberland valley railroad at Chambersburg, to intersect the Baltimore and Ohio railroad at such a point on the same, within this state as may be found most advantageous to the commonwealth and our eastern commercial metropolis, Philadelphia.

John Gebhart, president; Wm. Larimer, Jr., and George Breed, vice-presidents; H. S. Magraw, and John Mecaskey, secretaries.

After the adoption of the foregoing resolutions, a committee from the councils appeared and presented the following preamble and resolutions, unanimously passed in both councils. They were read to the meeting, and unanimously approved.

Whereas, The advantages derived from the construction of railroads by affording a cheap and speedy means of transporting passengers and valuable freight; by disbursing large sums of money in the district through which they pass; and by facilitating that intercourse between the remote sections of our wide extended Union, which must ever rank among the most efficient means of cementing that Union together, are to well known to require proof, or admit of debate, and are independent of any benefits resulting to the stockholders thereof; *And, whereas*, A bill is now before the legislature of this state providing for the construction of a central railroad from this city to Harrisburg, intended to complete the railroad communication between the Ohio and the Delaware; *And, whereas*, A bill is also before the legislature of this state granting the right of way through the state to the Baltimore and Ohio railroad company, upon such terms as will prove advantageous to the commonwealth, and especially so to those sections which have derived no advantages from the construction of the public works, although they have borne their proportion of the burdens thence arising; *And, whereas*, Great apprehensions are entertained that unless the said bill be passed at the present session of the legislature, the state of Virginia will offer such inducements to said company as will divert the road entirely from our state; and by forming a connection with the Ohio river below the western boundary of Pennsylvania, will intercept the travel and trade which would otherwise pass along our public works, and aid in defraying the expenses of their construction and management.

Therefore, be it resolved by the citizens of Pittsburg, in select and common councils assembled, That the legislature of this commonwealth be respectfully, yet earnestly, requested to pass the bill now before the senate, granting to the Baltimore and Ohio railroad company the right of way from the state line near Cumberland, to the Ohio river at Pittsburg.

Resolved, That the legislature be also re-

quested to incorporate a company to construct a railroad from Harrisburg to Pittsburg, upon such terms as may be consistent with the preservation of the state improvements, and may promote the general welfare of the citizens of Pennsylvania.

Resolved, That copies of the foregoing preamble and resolutions be signed by the presidents of the councils, and the mayor, and transmitted to the speakers of the senate and assembly, with a request to lay the same before their respective houses.

Letter against Granting the Right of Way to the Baltimore and Ohio Railroad Company, through Pennsylvania to the Ohio River, at Pittsburg.—Philadelphia, January 30, 1846.

GENTLEMEN: We have observed with pain the use which has been made of our names to promote the views of the Baltimore and Ohio railroad company, in their pending application to the legislature of this commonwealth for the right of way through Pennsylvania to Pittsburg. We deem the occasion of sufficient importance to address this letter to you as the representatives of this city and county, in order, by putting you in possession of the grounds on which we acted, at a particular juncture, to prevent any misapprehension of our motives or opinions. When about a year ago, we were induced to sign a paper recommending the revival of the act of 1828, in favor of that enterprize, we did so from positive assurances that Virginia was about to grant to the company a right of passage through her territory to Parkersburg.

In these assurances we were misled, as subsequent events proved. The legislature of Virginia, then in session, not only denied the solicited boon, but withdrew its subscription of a million of dollars formerly granted to aid the road in its way to Wheeling. A similar application, within a few weeks, was not only unsuccessful, but a bill has actually passed the lower house of the Virginia legislature, at its present session, for the construction of a railway from Richmond, in Virginia, to the Ohio river. The sentiments of Virginia in these measures may be considered as fairly expressed, and the door to further negotiation on that subject as finally closed.

After these unequivocal manifestations of feeling, we need entertain no fear that the Baltimore and Ohio railroad will ever reach a point below Pittsburg, with the approbation or assistance of Virginia. This danger being removed, we do not hesitate to say, that we are entirely opposed to the admission of this railway within the confines of Pennsylvania. We never regarded its admission as a thing desirable in itself, but acquiescing in the supposed necessity of preventing any connection with the Ohio, at Parkersburg, we concurred with our western friends in desiring the selection of Pittsburg as its western terminus.

But another and independent objection is urged against the admission of this road at all. We have no security, it is suggested, that Pittsburg would permanently prove its

western terminus. What, it has been asked, would prevent its future extension along the level margin of the Ohio, to a point below the obstructions in the navigation of that river? Such an extension of the road would it must be confessed, as effectually frustrate the policy of a Pennsylvania grant, by the interception of the Pittsburg trade, and its diversions from our local improvements, as an original termination at Parkersburg.

But the danger of an original terminus at that point, by the permission of Virginia, being wholly at end, what plausible reason can justify Pennsylvania in the grant of a boon, which, in the absence of plain advantages, or useless for the prevention of a greater evil, must be characterized as an act of sheer liberality, if not a romantic sacrifice of interest and duty? Our friends of Pittsburg, indeed, appealing to the selfish principles of our nature, insist that Philadelphia would be greatly benefitted by a connection of Baltimore with Pittsburg. Now, suppose this to be true; the question may be seriously asked, if any possible advantage, exclusively for the eastern and western extremities of the state, is entitled to favorable regard, against the manifest and irretrievable injury which would ensue to the long line of intervening improvements, from one end of Pennsylvania to the other?

We view the accident of local superiority as an element of wealth, and as legitimately the subject of price and value, as the article of coal or wheat, or any other material commodity. Baltimore is shut out by the natural situation of her territory, from any approach to the Ohio, except by the voluntary act of one or other of the contiguous states. She is still further removed from the vast trade of the lakes, and yet she aspires, without the offer of an appreciable equivalent, to participate in its advantages. She knows that Pittsburg naturally concentrates the trade of the Ohio, by standing at its head; and that she is destined to command a portion of the *lake trade*, by a connection with Erie. Now, by what right, either founded in nature or resulting from good neighborhood or political ties, is Baltimore entitled to participate in benefits which nature has denied to her, without some return graduated by their present value and prospective magnitude? While the cities of New York and Boston are struggling for a connection with the lakes, and are expending millions of dollars to secure a portion of the vast trade of these inland seas, by the construction of long lines of railway, is it reasonable that Pennsylvania should diminish or part with that share which she may appropriate, to a corporation, which is chartered to subserve the interests of another state? Is it reasonable that Maryland, presenting herself as a rival to Pennsylvania, should expect from her the exercise of such exalted munificence? Is it right that Pennsylvania, while sustaining a debt of nearly forty millions of dollars, should relinquish, even to a sister state, any portion of those benefits which that debt was contracted to secure?

While Philadelphia is ever ready to avert danger and remove calamity from her friends

of Pittsburg; while she would protect them, even at great sacrifices, from the designs of an ambitious rival; while she desires to promote a close connection of that important and rising city with the Atlantic coast; she ought not to overlook her higher duties to the commonwealth, nor that these are paramount to all local considerations whatever. We are anxious that the distinctive and peculiar interests of Pittsburg should be cherished and sustained by kind and benignant legislation. And with an eye to these and the state at large, we think that all would be best promoted and secured by a continuous railway from Harrisburg to the west. It is for such a road, *through our own territory*, in the place of one from another state, that we ask the sympathy, and desire the hearty and unremitting exertions of our representatives. We think that it is the duty of Pennsylvania to turn aside, like Virginia, from the solicitations of the Baltimore and Ohio railroad and taking counsel, like her, from her own interests and necessities, adopt instant measures to unite by a railway, her metropolis with the western waters.

The advantages to the commonwealth of a continuous railway, running nearly parallel with the canal which traverses the state, are too apparent to require exposition. The business on the Columbia road, forming more than one-fourth of the entire chain, would unavoidably be increased at least ten-fold throughout the year. But the benefits of two concurrent means of transportation, cannot easily be estimated. One will be open at all seasons, and the other also during the busiest portion of the year; one is suited to the carriage of finer, and the other to coarser kinds of merchandize; one to passengers, and the other to more bulky articles of commerce; while presenting together, except during the winter season, a choice of accommodation by land or water, and in the event of accident to one, a certainty of transit by means of the other. In the calculations of business, and as a means of securing and increasing trade, the value of a promise to carry passengers and merchandize, under all reasonable circumstances, and in the face of untoward and even extraordinary emergencies, cannot well be overrated. A promise so important to the business world, *could be made and kept* in Pennsylvania, with a railroad and canal running side by side, and terminating at the same points.

But, gentlemen, we cannot forget that the local interests of Philadelphia, bound up as they essentially are, with the prosperity of our beloved commonwealth, imperatively require the construction of a railway to connect the Delaware with the Ohio. Our northern and southern neighbors have been long contending with praiseworthy activity, for the possession of that great prize, the western and lake trade, nearly all of which so far as it reached the Atlantic, was once concentrated in Philadelphia. In this contest Pennsylvania has not been conspicuous. Her improvements, though greater in amount than any other state of the Union, were chiefly intended to develop her own priceless re-

sources. She has scarcely looked beyond her own borders; she has never coveted the possessions of others; she has never fed a prurient ambition, by soliciting a territorial franchise from any of her sisters.

The railway here recommended, is the first great improvement of that nature, by means of which Pennsylvania has attempted to extend her western trade. It is almost the only aid which the bountiful and unsurpassed advantages of her natural position require. If a bill be passed with such provisions as will induce the requisite amount of subscriptions for the speedy completion of the work, the fortunes of Pennsylvania would soon be secure, and Philadelphia, now fallen behind New York in population, might soon anticipate a census which would proclaim the return of her ancient ascendancy, as the metropolis of the Union, and the mistress of American cities. With the aid of this road, the finances of Pennsylvania would be placed on a firm and prosperous basis. Without it the doom of Philadelphia is sealed, and our honored commonwealth, sympathizing in her decline, will be condemned to the prospect of a decayed credit, and an avowed bankruptcy; or to eking out her annual payments by unceasing drains upon the pockets of her people; thus blasting the fruits of industry, and driving capital and enterprise from her borders. We are, gentlemen, Your friends, etc.,

Thos. P. Cope, Robt. Toland, Thos. P. Hoopes, J. R. Tyson, T. C. Rockhill, Jno. Grigg, Grigg and Elliot, Bancroft and Co., Myers, Claghorn and Co., A. & G. Ralston, & Co., Wm. R. Thompson, Richards & Bispham, Farnum, Newhall & Co., Chas. W. Churchman, Martin & Smith, Fales, Lothrop & Co., Hacker, Lea & Co., J. McLannan & Co.

To W. C. Crabb, C. Gibbons, C. B. Treg, Thos. G. Connor, B. Matthias, Thomas C. Steel, W. W. Haley, H. L. Benner, John Foulkrod, O. P. Cornman, T. H. Forsyth, T. Daly, D. Bird, F. W. Weest, T. S. Fernos, John Kline, Jos. Eneu & John Ruper, esquires, representatives in the legislature of Pennsylvania, from the city and county of Philadelphia.

Philadelphia, January 30, 1846.

Great Western Railroad,

From London to Bristol.—The "Great Western railway" proper, is 118 miles in length from London to Bristol, and cost £6,678,125, or 56,594*l.* per mile. The following concise account of its origin is the introduction to a "travelling chart, or iron road book" of the road, upon which is laid down every bridge, whether over or under, road crossings on a level, tunnel, or stream between Paddington and Bristol. It also gives the figures of the principal items of its cost with the last twelve semi-annual statements of receipts, they showing the regular and astonishing increase of its *traffic* from 65,885*l.*, for the six months from June to December 1839 to 440,046*l.* for the corresponding period of 1844.

This chart is published in the London Chronicle and is beautifully illustrated with cuts representing, and descriptions of, the various places of note and interest along the line, but for want of the engravings we are only able to give the introduction.

With the experience of only the Liverpool and Manchester railway before him, Mr. I. K. Brunel, who inherits the genius and enterprising skill of his father, the engineer of the Thames tunnel, made the bold experiment of constructing the Great Western railway upon principles quite novel to general railway practice. Cost being a secondary consideration, he resolved that this railway should surpass all others in its better gradients; curves of larger radius; broader gauge, the rails being seven feet part instead of four feet eight inches and a half, the common gauge of nearly all the other British lines—engines of greater power, and wheels of larger diameter. It is unnecessary, for the present purpose, to discuss any of these various novelties, which already have been fully considered in the "New Sketches of Old Railways," a series of papers, published in the *Railway Chronicle* of 1844, pp. 147 to 245. The practical result of the Great Western system, which the public at large recognizes, is, that passenger trains travel with safety daily 50 miles an hour on its line.

The act of parliament for the construction of the Great Western was first applied for in 1834, but not obtained until 1835. As in other railways, the expenditure was soon found to exceed the estimate—by two millions and a half; and in 1839 a new act was obtained, empowering the company to raise an additional capital. The sums authorized to be raised, including loans, have now reached \$1,600,000. An act was procured in 1837 for an alteration in the line and the terminus at Paddington, the first intention being to use the same terminus as the London and Birmingham.

On the 4th of June, 1838, the line was opened to Maidenhead; on the 1st of July, 1839, to Twyford; in 1840, to Reading; and on the 30th of June, 1841, the whole line was opened between London and Bristol.

The Oxford branch, opened on the 12th of June, 1844, belongs to the Great Western, but it is only the lessee, at a rental of 17,000l. a year, of the branch line from Swindon to Gloucester, opened throughout on the 12th of May, 1845; and of the Bristol and Exeter, opened throughout on the 1st of May, 1844.

The progress of the traffic is shown by the following half-yearly summaries, which include the receipts of the branch lines:—

Six months ending—	Receipts.
December 31, 1839.....	£65,885
June 30, 1840.....	89,937
December 31, 1840.....	153,912
June 30, 1841.....	187,780
December 31, 1841.....	337,352
June 30, 1842.....	310,871
December 31, 1842.....	359,376
June 30, 1843.....	330,847
December 31, 1843.....	377,797
June 30, 1844.....	369,904
December 31, 1844.....	440,046
June 30, 1845.....	433,296

The works appear comparatively light as far as Box tunnel, 101 miles from Paddington. The length of this tunnel is 3,168 yards. Hence all the way to Bristol the works present various kinds of engineering difficulties and interest. In the last seven-

teen miles before reaching Bristol, there are five short tunnels besides the Box tunnel. The cuttings are lighter than is generally the case, being about 10,000,000 cubic yards, or an average of 80,000 per mile; whilst those on the South-Western average 200,000 per mile; on the London and Birmingham, 110,000; on the Liverpool and Manchester, 100,000.

The distances are marked on the north side of the line.

The precise gradients of the whole line are given at each point on the chart, from the official sections. It will be observed that, as far as Didcot, 51 miles from Paddington, the line is almost, on a *dead level*, rising generally less than 4 feet per mile, or 1 in 1320. From this point to Swindon, the highest point on the line, is a rise of 147 feet, making Swindon in all 263 feet above Paddington and 275 feet above Bristol.

The cost of the Great Western, from Paddington to Bristol, has been as follows:—

Works, surveying permanent way....	£5,054,180
Carriages and engines.....	578,331
Land.....	790,218
Law.....	99,091
Other expenses.....	156,305

Total..... £6,678,125
being an expense per mile of 56,594l.

NOTICE TO CONTRACTORS. Proposals will be received at Bridgeport, until the 20th of March next, for re-laying the Housatonic railroad with an H rail.

Specifications will be furnished at the office of the undersigned, in Bridgeport, on and after the 20th February. R. B. Mason, Engineer.
Bridgeport, February 14, 1846. 8 5t

LAWRENCE'S ROSENDALE HYDRATIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.
Orders for the above will be received and promptly attended to at this office. 32 ly

KITE'S PATENT SAFETY BEAM.
PLAN

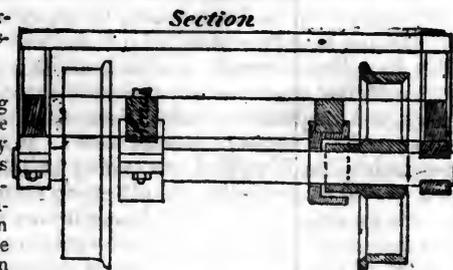
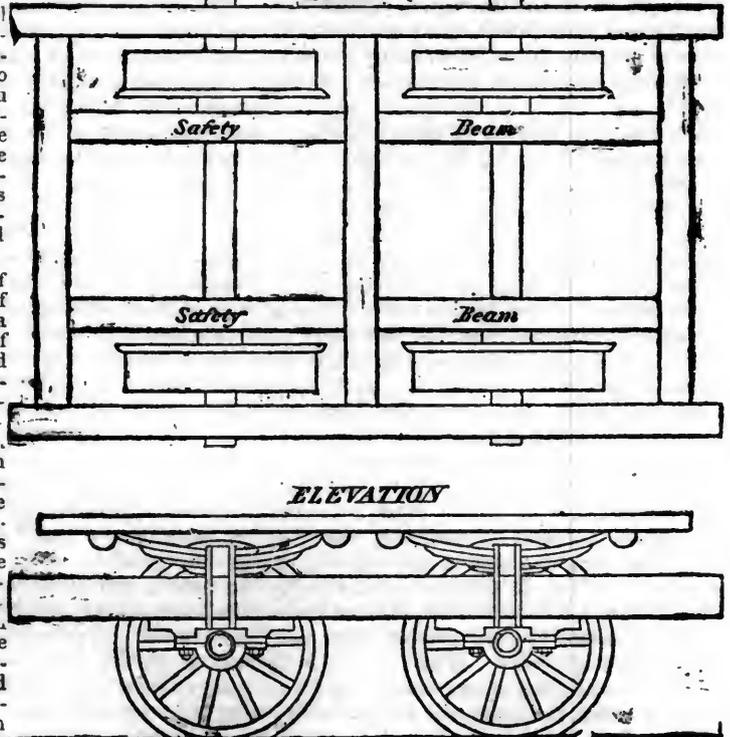
Messrs. Editors.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheeled passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.
Wilmington, Del., Sept. 28, 1840.

The undersigned takes pleasure in attesting to the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.

In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.

JOHN FRAZER, Agent,
GEORGE CRAIG, Superintendent,
JAMES ELLIOTT, Sup. Motive Power,
W. L. ASHMEAD, Agent.
A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 1 Hanover st., N. York.



PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, or to Messrs. Baldwin & Whitney, of this city, will be promptly executed.

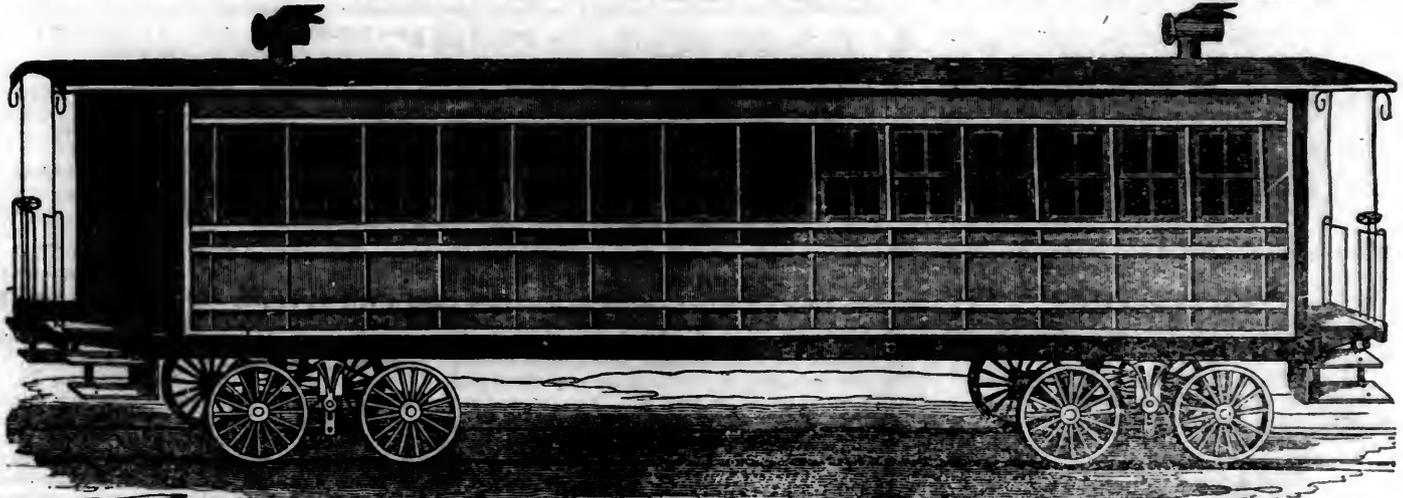
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45

BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

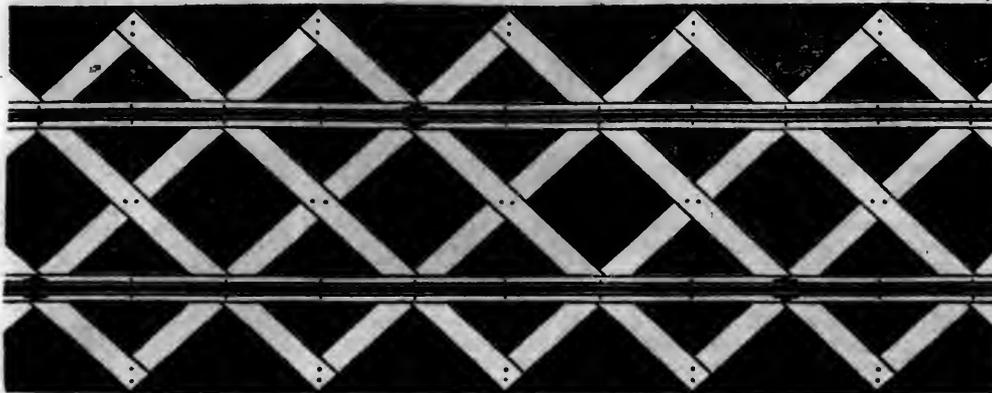
The article is complete in itself, occupies but little space, is perfectly portable, and requires no brick work, not even to stand upon. It is valuable not only in the saving of time and labor, but in the economy of fuel, as it has been ascertained by accurate measurement, that the saving in that article is fully two-thirds over other methods heretofore in use. They are now for the first time introduced into New York and Boston by the subscriber, who has the exclusive right for the New England states, New York and New Jersey, and are manufactured by CURTIS & RANDALL, Boston; and by FORCE, GREEN & CO. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern, and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All order punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for *Two hundred dollars per mile per annum.** To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made. 1y1

W. R. CASEY, CIVIL ENGINEER, NO. 23 Chambers street, New York, will make survey estimates of cost and reports for railways, canals, roads, docks, wharves, dams and bridges of every description. He will also act as agent for the sale of machinery, and of patent rights for improvements to public works.

TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 1lf

C. J. F. BINNEY, GENERAL COMMISSION MERCHANT and Agent for Coal, and also Iron Manufactures, etc.

No. 1 CITY WHARF, Boston.

Advances made on Consignments.

Refer to: Amos Binney, Boston.

Grant & Stone, } Philadelphia.

Brown, Earl & Erringer, }

Weld & Seaver, Baltimore.

December 8, 1845.

1m 50

SCRIBNER'S ENGINEERS' AND MECHANICS' COMPANION. For sale at this office. Price \$1.50.

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ¼ inch Flat Punched Rails, 20 ft. long. 25 " 2½ x ¼ " Flange Iron Rails. 75 " 1 x ¼ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 1lf

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,

Albany Iron and Nail Works,

1ly

Troy, N. Y.

RAILROAD IRON WANTED. Wanted, 50 tons of Light Flat Bar Railroad Iron. The advertisers would prefer second-hand iron, if not too much worn. Address Box 384 Philadelphia P. O.—Post paid. 8 4t

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

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One page per annum.....	\$125 00
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ENGINEERS and MACHINISTS.

- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- H. R. DUNHAM & Co., N. Y.
- WEST POINT FOUNDRY, N. Y.
- PHOENIX FOUNDRY, N. Y.
- R. HOE & Co., N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.
- BALDWIN & WHITNEY, Philadelphia, Pa.
- THOMAS & EDMUND GEORGE, Philadelphia. (See Adv.)

PROVIDENCE AND WORCESTER Railroad.—Notice to Contractors.

The Route of this Road will be prepared for Examination by Contractors on the 16th of February, and Proposals for the Graduation, Masonry, Bridges, Timber, Spikes, Chains, etc., will be received after that date, until the 25th of February.

Blank Proposals, with Specifications attached, may be obtained, and the Profiles examined, at the offices in Worcester and Providence, after the 16th of February.

T. WILLIS PRATT,

Engineer.

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Stanching Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

BALTIMORE AND SUSQUEHANNA
Railroad. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a.m., and arrives at 6 1/2 p.m. Arrives at York at 12 1/4 p.m., and leaves for Columbia at 1 1/4 p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62 1/2. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3 1/4 p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc.

Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day any passenger train.

D. C. H. BORDLEY, *Supt.*
Ticket Office, 63 North st.

CENTRAL RAILROAD-FROM SAVANNAH
to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods..... 13 cts. per cubic ft. On brls. wet (except molasses and oil).....\$1 50 per barrel. On brls. dry (except lime).... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred. On hdds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd. On molasses and oil.....\$6 00 per hhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, 40 Gen'l. Supt. Transportation.

GEORGIA RAILROAD. FROM AUGUSTA
to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

- On Boxes of Hats, Bonnets, and Furniture per foot.....16 cts.
- " Dry goods, shoes, saddlery, drugs, etc., per 100 lbs.....95 "
- " Sugar, coffee, iron, hardware, etc.....65 "
- " Flour, bacon, mill machinery, grindstones, etc.....33 1/2 "
- " Molasses, per hogshead \$9 50; salt per bus. 20 "
- " Ploughs and cornshellers, each.....75 "

Passengers \$10 50; children under 12 years of age half price. Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
Ch. Eng. and Gen. Agent.

Augusta, Oct. 21 1845. *44 ly

WHARF BOLTS. THE SUBSCRIBERS are now ready to Contract to deliver Wharf Bolts, at a reduction of 10 per cent. on last year's prices. SAM'L KIMBER & CO. 84t 59 North Wharves, Philadelphia.

WESTERN AND ATLANTIC RAILROAD. The Western and Atlantic Railroad is now in operation to Marietta, and will be opened to Cartersville, in Cass county, on the 20th of October, and to Coosa Depot, (formerly known as Borough's), on the 20th of November.

The passenger train will continue, as at present to connect daily (Sundays excepted) with the train from Augusta, and the stage from Griffin.

CHAS. F. M. GARNETT,
Chief Engineer.

LITTLE MIAMI RAILROAD. — DISTANCE 65 1/2 Miles. Fare, \$1 50. From 1st November to 1st March Passenger Trains leave Cincinnati for:

Xenia at 11 o'clock, A.M. Returning, leaves Xenia at 8 1/2 o'clock, A.M. Freight Trains run daily, Sundays excepted.

At Xenia, Passenger Trains connect with daily lines of stages to Columbus, Wheeling, Cleveland and Sandusky city.

W. H. CLEMENT,
Supt. and Engineer.

LXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above.

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. G. A. NICOLLS, 445 Reading, Pa.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Allaire, } New York.
- Peter Cooper, } New York.
- Murdock, Leavirt & Co. } New York.
- J. Triplett & Son, Richmond, Va.
- J. R. Anderson, Tredegar Iron Works, Richmond, Va.
- J. Patton, Jr. } Philadelphia, Pa.
- Colwell & Co. } Philadelphia, Pa.
- J. M. L. & W. H. Scovill, Waterbury, Con.
- N. E. Screw Co. } Providence, R. I.
- Eagle Screw Co. } Providence, R. I.
- William Parker, Supt. Bost. and Worc. R. R.
- New Jersey Malleable Iron Co., Newark, N. J.
- Gardiner, Harrison & Co. Newark, N. J.

DAVIS, BROOKS & CO., 30 WALL ST.,

have on hand for sale, Railway Iron of different sizes—heavy and flat bars.

A Steam Pile Driver—built by "Dunham & Co."—in complete order; has never been used, and for sale a bargain. Cost originally \$5,000. Also 12 Railway Passenger Cars, that have never been used, which will be sold a bargain. 8 ft

PROVIDENCE & WORCESTER R. R.
Notice to Contractors. The time for receiving proposals has been extended to the 11th March. The route is ready for examination, and blank proposals and specifications may be had at Worcester and Providence. All proposals must be sealed, accompanied by names of references and sureties, and directed to the engineer, at Providence, prior to the above date.

T. WILLIS PRATT, *Engineer.*

MACHINE WORKS OF ROGERS,

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.

THE SUBSCRIBERS, SOLE AGENTS

for the sale of Codorus, Glendon, Spring Mill, and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L KIMBER, & CO., 59 North Wharves,

Jan. 14, 1846. [1y4] Philadelphia, Pa.

GEORGE VAIL & CO., SPEEDWELL IRON

Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. t ja45ly

RAILROAD IRON AND LOCOMOTIVE
 Tyres imported to order and constantly on hand
 by **A. & G. RALSTON**
 Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
 Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gear-ing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
 President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS.
 etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

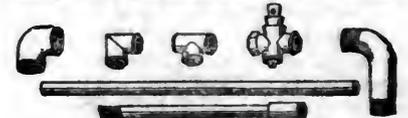
W. Mc. C. CUSHMAN, Civil Engineer,
 Albany, N. Y.
 Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

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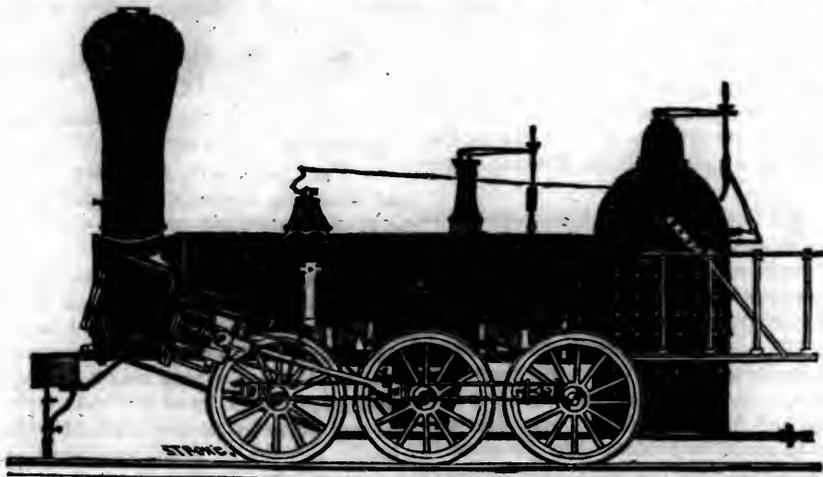
WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L., and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
 Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

NORRIS' LOCOMOTIVE WORKS.
 BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of	Cylinder,	× 20 inches	Stroke.
" 2,	14	"	"	× 24	" "
" 3,	14 1/2	"	"	× 20	" "
" 4,	12 1/2	"	"	× 20	" "
" 5,	11 1/2	"	"	× 20	" "
" 6,	10 1/2	"	"	× 18	" "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

RAILROAD IRON.—THE MARYLAND AND NEW YORK IRON AND COAL Company are now prepared to make contracts for Rails of all kinds. Address the Subscriber, at Jennon's Run, Alleghany County, Maryland.
WILLIAM YOUNG,
 President.

TO IRON MASTERS.—FOR SALE.—MILL SITES in the immediate neighborhood of Bituminous Coal and Iron Ore, of the first quality, at Ralston, Lyoming Co., Pa. This is the nearest point to tide water where such coal and ore are found together, and the communication is complete with Philadelphia and Baltimore by canals and railways. The interest on the cost of water power and lot is all that will be required for many years the coal will not cost more than \$1 to \$1 25 at the mill sites, without any trouble on the part of the manufacturer; rich iron ore may be laid down still more cheaply at the works; and, taken together these sites offer remarkable advantages to practical manufacturers with small capital. For pamphlets, descriptive of the property, and further information, apply to Archibald McIntyre, Albany, to Archibald Robertson, Philadelphia, or to the undersigned, at No. 23 Chambers street, New York, where may be seen specimens of the coal and ore.

W. R. CASEY, Civil Engineer,

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 feet, with lathes, work benches, &c.

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 1/2 feet two stories high, with a shed part 45 1/2 x 20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS, 48 State st.,** or to **CURTIS, LEAVENS & CO., 106 State st., Boston,** or to **A. & G. RALSTON & Co., Philadelphia.**

CYRUS ALGER & CO., South Boston Iron Company.

New York Corporation.—Various Charter Proceedings in Chronological Order.

Ancient Petition for a Charter

By the Mayor, Aldermen, and Commonalty of the city of New York.

ARRIVAL OF GOV. DONGAN FROM ENGLAND.
August ye 27th, 1683, being Munday.

COLL. THOMAS DONGAN, Governor of this Province, who arrived here ye 25th Instant, was this day pleased to appoint ye Magistrates to meet him at ye City hall about ten of ye clock, where he read and published his Commission to be his Royall Highness Lieutenant & Governor, &c., & his Commission for vice Admirall, & shewed his instructions wherein he was ordered to give & Confirm to this City all their Rights and privileges & more if necessary, and that for ye future all writs and warrants should Issue out in his Royall Highness name, & declared that his Royall Highness had Commissionated Mr. John Spragg Secretary of ye Province, for all which ye Magistrates returned thanks to his Royall Highness and his Honour, & waiting on him to ye Forte, they invited his Honour to dine with them at ye City Hall ye next day, and severall of ye old Magistrates and ancient Inhabitants to accompany him, Where his Honour received a large & plentifull Intertainment; and they had great satisfaction in his Honours Company.

Petition of the Mayor, etc., for a Charter for the city of New York.

Petition presented to ye Governor in ye name of ye Mayor, Aldermen, and Commonalty of ye City for a Charter.

To the Right Honorable Col. Thomas Dongan, Esq., Lieutenant & Governor and vice admirall and his Royall Highness James Duke of Yorke & Albany, &c., of New-Yorke and dependencies in America.

The humble petition of ye Mayor, Aldermen and Commonalty of ye City of New-York,—Sheweth

That this City hath had & enjoyed severall antient Customes privileges and Ammunities which were confirmed and granted to them by Col. Richard Nicholls, late Governor of this Province by authority and his Royal Highnesse, Anno 1665, who incorporated ye Inhabitants thereof—New-Harlem and others Inhabiting on ye Island manhattan, whereon this City standeth as one body Politique and Corporate under ye Government of a Mayor Aldermen and Sheriffe, in which manner it hath continued in practice ever since, and hath had and Injoyed ye Customes libertyes and privileges following, viz.:

1st. That all ye Inhabitants on ye Island Manhatans was under ye Government of ye City of New Yorke.

2nd. That ye Government of said City was by seven Magistrates & a schout formerly called Burgomaster and Schepen, now one Mayor, six Aldermen & one Sheriffe.

3d. These Magistrates had power to appoint all Inferior Officers, as Constables & Overseers under Sheriffs, Cryers and Marshalls throughout ye whole Island, and also did make such peculiar orders as they judged convenient ffor ye well Governing ye In-

habitants of said Corporation, & held once in 14 dayes or oftener on special desire or occasion, a Court of Judicature at ye City Hall where they did heare and determine all causes and matters whatsoever brought before them, by Jury or in equity as ye cause required. The Mayor or Chief Magistrate had power to determine all matters that came before him under 40s. without appeale or any other processe than a verball hearing of.

4th. The Sheriffe served all writs & summons, & attachments within ye limytts of ye Corporation, and acted as Water-bayliffe on ye Water.

5th. They had their own Clerk and kept ye Records of ye City distinctly.

6th. This City was ye staple port of ye whole province, where all merchandize was shipped and unloaden.

7th. None were to be esteemed Freemen of the City but such as admitted (to sell) by (retayle) ye Magestrates aforesaid, and none before such admission to sell by retayle or exercise any handycraft trade or occupation, and every merchant or shop keeper was to pay for ye public use of ye City 3/ 12s, every handy Craftmen 1/ 4s on being made free.

8th. No Freemen of ye City was to be arrested or have their goods attached unless it was made appear that they were departing or conveying away their estates to defraud their Creditors.

9th. No person was admitted to trade up North River except he was a Freeman and had been arrival Inhabitant of this City offor ye space of 3 years, and if any ffreeman should be absent out of ye City ye space of 12 month, and not keep ffire and candle & pay seat and cott, should loose his freedome.

10th. All ye Inhabitants up Hudson River were forbid to trade over sea.

11th. No Flower was to be bolted or Packed or Biskett made for exportation but in ye City of New Yorke, being for ye Incouragement of trade and keeping up ye reputation of New Yorke fflower, which is in great request in ye West India and ye (Inhabitants) only support and maintenance of ye Inhabitants of this City, and if not confirmed to them, will ruin and depopulate ye same.

12th. That ye said City had a Common seale to serve ffor ye dealing of all and singular their affairs matters and business touching ye said Corporation.

All which said ancient customs privileges and lybertys ye said Mayor and Aldermen in behalf of themselves and ye Citizens of ye said City do humbly present & make known to yr Honour, humbly beseching yr honor in their behalf to Interceed & procure that ye same be Confirmed to them by charter ffrom his Royal Highnesse with these additions following:

1. That ye said Corporation be divided into six Wards.

2. That ye ffreemen in each Ward do once every year elect their own officers to say Aldermen, Common Councilmen, Constables, Overseers of ye poor, Scavengers,

Questmen or other officers useful and necessary ffor ye said Corporation & Wards.

3. That there be a Mayor & a Recorder, who with ye said six Aldermen & Common Councillors shall represent ye whole body of ye said City and Corporation & shall have power to make peculiar Laws and ordinances ffor ye good Government and snpport thereof.

4. That a Mayor be appointed every year by Governour & Council, & to be one of ye Aldermen chosen as aforesaid.

5. That all Magistrates so chosen shall not be admitted to ye execution of their offices until sworn before ye Governor and Council.

6. That ye Recorder be appointed by ye Governor and Council, who shall be judge of ye city and corporation and be ayding and assisting ye Mayor, Aldermen and Common Council in all matters yt relate to ye well being thereof.

7. That a Sheriffe be annually appointed by the Governor and Council.

8. That ye Coroner and Towne Clark be appointed by the Governor and Council.

9. That ye Mayor, Recorder, Aldermen and Common Council do appoint a Treasurer for collecting and paying all public debts and Revenues.

This and whatsoever else your Honor and his Royall Highnesse shall think ffit, necessary and convenient ffor ye good rule, order and welfare of this city or Corporation, your Petitioners humbly pray may be granted and confirmed to them, in as full and ample manner and fform as his majesty hath been graciously pleased to grant to other Corporations within his Realme of England, ffor ye.

Of which they again humbly begg your honor to become their supplyant, whose kindness and service therein shall be most thankfully acknowledged.

New York, 9bre, ye 9th. 1683. And as in duty bound, your petitioners shall ever pray, &c.

Explanation asked of the Mayor, &c. as to certain parts of the foregoing Petition by the Governor and Council.

Some objections made by ye Governor and Council to ye petition presented in the name of the Mayor, Aldermen and Commonalty with desire to be explained.

Att a Councill held in New Yorke ye 10th 9bre, 1683.

Present

The Governor,
Mr. Frederick Phillips,
Mr. Lewis Sancton.

A Petition from ye Deputy Mayor, Aldermen and Commonalty of ye city of New Yorke being read, was concluded as follows:

In answer to the first article it is thought reasonable that the Towne of Harlem shall have liberty to determine all matters yt come before them under 40s., att their own Towne Court. To ye third article it is answered that there being these words, these Magistrates had power to appoint all Inferior Officers, and Constables, Overseers, under Sheriffs, Cryers and Marshalls, it is desired that it

may be explained what is meant by Marshall in ye second article; it is also desired yt it may be explained what is meant by peculiar Laws, and how far they will extend, as likewise what is meant by Court of Judicature, and how far ye s'd Court is to extend, and yt ye Court of Judicature under forty shillings being allowed it is thought convenient to distinguish betwixt ye s'd Courts and make two articles of this one, being ye third article to ye fourth article, it is thought yt ye water Bailiffs belongs to ye admiralty, and ye seventh article Jews are to be accepted who are left to ye discretion of ye Governor.

By order in Councill,
JOHN SPRAGG, Sec'ry.

Explanations to the Foregoing, Given by the Mayor, &c.

An explanation of several heads contained in ye petition lately presented to his honor ye Governor, by ye Mayor, Aldermen and Commonalty of ye city of New Yorke, pursuant to ye desire of the Governor and Councill, Humbly presented to his honor's further consideration.

The Town of Harlem is a village belonging to this City and Corporation ffor ye more easy administration and dispatch of Justice. Officers have been annually appointed by ye Mayor and Aldermen to hold Courts and determine matters not exceeding 40s., both at Harlem and the Bowery, and shall do ye like for ye future, and is intended to be one of ye six Wards.

3. Marshall is an under officer assistant to ye Sheriff in serving writs, summoning Jurys, looking after prisoners and attending ye Court, and that Officer and the Cryer has hitherto been one person.

Peculiar Laws, and Laws and Ordinances by the Mayor, Aldermen and Common Councill, ffor ye well and good government of this City and Corporation and to extend as ffar as the limit thereof.

Court of Judicature is a Court to hear and determine all causes and matters whatsoever brought before them, both Civill and Criminal, not extending to life, limb, or member, and had jurisdiction over all the harbours and Bays, Coves, Creeks and Inlets belonging ye to same.

The whole Island being one Corporation, ye inhabitants are all members of one body and conceive no need of distinction. The Mayor, Aldermen and Common Councill having ye care and charge to make all things easy and convenient ffor ye Inhabitants as possible, and will have the same regard thereto as formerly.

A Water Bailliffe is an officer belonging to a Corporation, and ye Sheriffe of this City hath usually exercised the office by serving arrests and attachments in ye harbours, Bays, Coves, Creeks and Inlets belonging to this Corporation, by Warrant ffrom ye Mayor, Sheriffe or other his superiors to him directed as Sheriffe or Water Bailliffe, as well in Civill as Criminal matters.

What belongeth to the Governor or prerogative, think not fit to meddle with or any way restraints.

New Yorke, 9bre. 19th, 1683

New Magistrates Commissioned by the Governor.

City of New Yorke,

Saturday ye 24th of 9bre, 1683.

The old Magistrates, Mr. Cor's Steenwick, Mr. N. Bayard, Mr. Jo. Joinns, Mr. Wm. Pinhorn, Mr. Guline Verplanke, Mr. Robertson and Mr. Wm. Cox, being sent for, all waited on ye Governor at ye fforte, except Mr. Cox, where ye old Magistrates were discharged, and a commission given to Mr. Cornelius Steenwick, to be Mayor and the other persons above named to be aldermen; ffor the the City of New Yorke untill ye usual time of New Elections, being the 14th of 8bre, and Mr. Jo. Inder was likewise appointed Sheriffe of ye s'd City, and were all sworne accordingly.

The old magistrates conducted ye new ones to ye City Hall, where their Commission was read in ye Court Chamber, and they resigned to ym ye Bench, who took their places as nominated in ye Commission. Mr. Wm. Cox, who was absent when ye Mayor and ye next of ye old Aldermen were sworne, had ye oath of an Alderman administered by ye Secretary, ye then Mayor and Alderman ordered their Commissions to be published att ye door of the City Hall, which was accordingly performed by ye Towne Clerke.

Such under officers as you shall judge necessary ffor whom this may concerne to give due obedience unto you as they and every of them will answer ye contrary att their perills, and ffor so doing this shall be to you and every of you a sufficient Warrant and discharge, this Commission be of force untill ye 14th day of 8bre, next ensueing in ye year 1684, or till further order. Given under my hand and sealed with ye seal of ye province att fforte James ye 24th day of 9bre, 1683.

THO. DONGAN.

Town Clerk Commissioned by the Governor.

Commission of John West to be Clerke of ye City of New Yorke. Col. Thomas Dongan, Lieutenant and Governor, and Vice Admirall, &c., of New Yorke and dependencies in America.

By virtue of ye Authority derived unto me from his Royall Highness, I do hereby constitute and appoint you, Mr. John West, Clerke of the City of New Yorke, authorizing you to take into your custody all Records, Books and Papers of Publicke Concerne belonging thereto, and to act in ye said employ as a clerk, may and ought to do according to law and practice, and that during my pleasure only. Given under my hand and seal att Forte James, ye 24th day of 9bre, 1683.

Tho. Dongan.

Passed ye office, John Spragg, Secty.

Petition of the Mayor and Aldermen to the Governor and Council for Further Privileges and Grants.

To the Right Honourable Thomas Dongan, Lieutenant and Governor under his Royal Highness James Duke of Yorke and Albany of New Yorke, and dependencye in America.

The humble petition of ye Mayor and Aldermen of ye City of New Yorke Showeth,

That whereas ye necessary public works belonging to this city are much out of repair and decayed, and ye revenue yt was to support and maintaine ye same ffor ye present lost and destroyed, and whereas ye 9th Instant a Petition was presented to your honor by your petitioners, in ye name of ye Mayor and Aldermen and Commonalty of this City, sitting fforth ye priviledges, usage, custome, and practice of ye said city, and what they conceived further necessary for ye Weal good Government and support thereof, which they prayed your honour would procure to be confirmed to them by charter to them ffrom his Royal Highness. Your petitioners do hereby likewise humbly pray and desire yt with this alteration only yt ye city may have ye choice of their Towne Clerke for ye ffuture, and yt since it cannot be so soone effected as ye urgent affairs of this city doth require, your honor will be pleased to order and declare yt ye fforme and method therein prescribed, may be put in practice until such time as his Royal Highness pleasure shall be further known therein, and yt your honour will be further pleased to confirme to this city all ye (benefit of granting lycences to all ye) vacant lands within this island to low water marke, the benefit of granting lycences to all yt keep public houses, ye benefit of ye (fferry) docke warfe, and bridge, markt and markt house, with ye fferry now between ye said city and Long Island, or yt hereafter shall be appointed between ye said city and Corporation, or any other place which may helpe to enable them to defray their public charge and expence and their publicke works;

And your petitioners shall ever pray &c.

Cornelius Stenwick,
N. Bayard,
Jo. Iniens,
Wm. Pinhorne,
Guleine Verplanke,
John Robertson,
Wm. Cox,

Dated at ye City Hall ye 27th day of 9bre, 1683.

Answer of the Governor and Council to the Foregoing Petition.

Answer of ye Governor and Councill to ye petition of ye Mayor and Aldermen, dated ye 6th 9bre, 1683.

At a Councel held in New Yorke ye 6th day of December, 1683.

The Governor,
Capt. Anthony Brockholls,
Mr. Fred. Phillips,
Mr. Steph. Courtlandt,
M. Lucus Sancton.

The petition of ye Mayor and Aldermen being read, the Governor in Council gave answer thereto in ye following resolutions and Proposals:

That he much wondered yt having lateley granted almost every particular of a large and considerable petition lately offered by ye preceeding Mayor and Aldermen, he should so suddenly receive another petition from ye

present Magistrates to request either what was before granted or anything contrary to their former petition, however is willing to oblige them as farr as can be Reasonably done, as may be seen by ye following particulars. Their first request is already granted, with a Recorder, according to former desire.

The Ferrys Granted, with a proviso, that two boates ffor passengers be kept on each side of ye River, and one boate for cattle on each side of the River also.

The Town Clerke is Referred to his Royal Highness his nomination. The vacant Lands to low Water marke within this Island, are already disposed of.

The whole Island is ordered to be surveyed, and when it is done, some land in the woods not yet disposed of, shall be appointed for the use of the city.

The Dock and Warfe is allowed to ye city provided it be well kept and cleared, if not it shall be forfeited, but no duty is to be paid upon the Bridge. No ferry in any other place allowed but what is already. The Licesences always belong to the Governor, the benefit of ye Markett and Markett houses is Granted, Provided there be nothing sold but upon Wednesday and Saturday, beginning betwixt Nine and Ten of ye clock in ye florenoon. And all brought into ye markt place, nothing being allowed to be sold in any vessel, boat or canoe whatsoever; only Butchers meat is to be sold every day in ye week, Sunday excepted, but to be sold in ye markt and no were else.

That it is convenient a clerk of ye markt be appointed, and that by ye Governor, who shall see after ye weight and measures and due Regulations of ye markt. That there be Twenty carmen and no more allowed and their wages regulated, and ye number of sworne porters stated, with their wages likewise. The Mayor is also to look after ye weights and value of bread, and ye value and measures of all liquors sold and retailed, and to put a price upon all other things sold, according as ye season shall require, and all Bakers shall be obliged to sell and keep good household bread ffor any who will demand it.

That ye said household bread be baked as ye meale comes ffrom ye mill. That ye city will appoint one or more if necessary to look after ye chimneys for ye preventing of fire, and yt all houses keep one or more leather bucketts.

By order of Councill, Jo. Spragg, Secy.

Order made by the Governor and Council as to the Temporary Government of the City.

The Governor to put in practice ye fforme prescribed in ye petition of 9bre ffor the Government of this city.

By the Governor.

In answer to a petition presented by ye Mayor and Aldermen bearing date the 27th November Past, Ordered that ye fforme and method prescribed in a petition presented by ye fformer Mayor and Aldermen, bearing date ye 9th 9bre past, ffor ye Weal and Government of ye said city, be put in practice untill such time as his Royal Highness plea-

sure be further knowne thereon. Given under my hand att Forte James ye 10th day of Xbre, 1683.

Passed ye office, John Spragg, Secy.

Recorder appointed by the Governor and Council, and his Commission.

A Recorder appointed, and oath of fidelity administered by ye Mayor.

City of New Yorke.

The Court of Record of the city afores'd, holden att ye City Hall within ye s'd city on Tuesday, ye 15th day of January, 1684. Before

Mr. Cornelius Stenwick, Mayor,
Mr. Nicholas Bayard,
Mr. Jo. Inians,
Mr. Wm. Pinhorne,
Mr. Guleine Verplanke,
Mr. Wm. Cox, Aldermen.

Before ye opening of ye Court, Mr. Secretary Spragg and Mr. Sancton come to ye City Hall and presented Mr. James Graham to ye (Governor held) Mayor and Aldermen, and acquainted them that his Honor ye Governor had been pleased to commissionate him Recorder of this city, whose commission was accordingly read as followeth:

The Recorder's Commission.

By the Governor—
Whereas the Mayor and Aldermen of ye City of New Yorke, by petition, in ye name of themselves and the Commonalty of ye s'd city, desired a confirmation of their ancient Rights and Priviledges with several alterations and additions within specified, and containing, as is usual and practicable in other cities and corporations, and having thought fit and necessary that a Recorder be appointed to be assistant to the Mayor and Aldermen in ye Rule and Government of ye s'd city, and administration of justice in their Court of Record—I do hereby, in virtue of ye authority derived unto me, constitute, authorize and appointe you, Mr. James Graham, to be Recorder of ye s'd city, giving unto you full power and authority to execute and performe what to ye office of a Recorder within a city and corporation doth of Right belong and appertaine both ffor ye weale and governm't of said city during pleasure. Given under my hand and seale, att Forte James, New Yorke, ye 14th day of December, 1683.

THOMAS DONGAN.

Passed ye office, Jno. Spragg, Sec'y.

The first Recorder of the City of New York sworn into Office and took his Seat.

Wednesday, ye 16th January, ye Court being adjourned to meet in ye afternoon, the Mayor, Recorder, and Aldermen, Sheriffe, and Clerke, were sent ffor to ye Fort, before ye Governor and Councill, were ye oath of fidelity to His Royal Highness, as in ye old law book, was administered to them, and ye Recorder sworne in his office, ffrom whence they went to ye City Hall and held Court according to adjournment.

The Recorder took his place on ye bench on ye right hand of ye Mayor.

City of New Yorke.

Proceedings att a Common Councill held at the City Hall for the said city, on Monday the 2d day of February, 1684—

Present—Mayor, Recorder, N. Bayard, Mr. Jno. Lawrence, Mr. Andrew Bowne, and Mr. Cerfleeck, and Mr. Wm. Merritt, Mr. Abm. Corbett, Mr. Debrucque, Mr. Sam'l Wilson, Mr. Kipp, Common Councill.

Resolved, unanimously, That the Governour be Treated with to confirme to this city all the vacant land in and about this city and island, to low water mark. The Ferry and all the several Patents to the Inhabitants, the City Hall and Land thereto belonging, markt house and markt place, dock, bridge, and streets, and with all Royalties and Priviledges thereunto belonging.

1686.

Proceedings of the Mayor, etc., in Relation to Governor Dongan's Charter.

At a Common Councill held for the city of New Yorke, the 24th day of Aprile, Anno Domini, 1686. Upon reading the charter, it it agreed by the Common Councill, that they will pay his honour 200l. upon signing the same, and give him security for 100l. more in six months. That the fee for Licesences to retaile Drinke exceed not 5l. the fine for retailing 19s. and the fee for fireedom 5l. That the Mayor take care to raise the said 200l., paying therefor such interest as to him shall seeme fitt. And do likewise to care to secure the said 200l. to the person of whom he shall take up the same, and the said 100l. to the Governour.

Resolved, That next common councill to be held in this city, effectual care shall be taken for the reimbursement of the said 300l., and other the charges concerning the said charter.

Report of the Mayor that he had Raised the Money and Paid for the Charter.

Att Common Councill held at the City Hall for the City of New Yorke, the Eleventh day of May, 1686.

The Mayor Reports that he hath paid 300l. for the Patent and 24l. to the Sec'y, and hath taken 4 sums up at ten per cent. interest, to be paid in a yeare, w'ch is allowed off, and Resolved, that care be taken pursuant to the above ord'r, to raise money for satisfying thereof, and what other charges shall be expended thereon.

Resolved and ordered, That Mr. Mayor, Mr. Alderman Depeyster, Mr. Demyco, and Mr. Dekey be appointed as a committee to consider what waeyes proper for raising the money paid for the Patent, and if they shall thinke fit that same be raised by sale of lands, That then they be hereby impowered to sell and dispose of so much land as will amount to the sums for the moste benefitte and advantage off which to make reporte.

Remonstrance of the Syracuse and Utica Railroad Company, against the bill to reduce their fare, and the appointment of a Commissioner.

To the Honorable the Legislature of the State of New York in Senate and Assembly convened:

The memorial of the Syracuse and Utica railroad company respectfully represents, that this company has noticed the presentation of petitions to the legislature, asking for a law to reduce their fare, and also for the appointment of a commissioner to regulate their business, and the introduction of bills for these objects. This company is duly organized under a law of the legislature, inviting the association of the necessary capital and persons for the construction of a railroad between Syracuse and Utica, and it has been the design of the board of directors, to which the management of the affairs of the company have been committed, faithfully to discharge their duties. They are influenced by no favoritism for any locality or interest, by no wish to extort from the traveller an unreasonable reward for his passage, and they trust by none but the motives which should govern honorable men. They have witnessed, from year to year, the fact that applications are made to the legislature to modify and control their business, which if carried out, they believe would be disastrous to their property. These applications have been met in a spirit of fairness by your memorialists (with other companies,) and when they have heretofore presented objections to the respective applications, sustained by argument and fact, your memorialists have been generously listened to by past legislatures, in a spirit of candor and fairness; we now ask leave to refer to a remonstrance of the several railroad companies in 1843, which may be found among the assembly documents of that year, and is No. 106. Also to another remonstrance in the year 1845, which may be found among the assembly documents as No. 194.

The last remonstrance named was referred to the railroad committee of the assembly of the last session, and a deliberate examination was bestowed upon all the questions submitted. That committee presented a report on the 15th of April, 1845, which

may be found among the assembly documents, and is No. 224. We ask to refer to that report, and to say, that its perusal will well repay the labor and time necessary, and that it will be approved after full and dispassionate examination. It was regarded then, as it must be now, as an able exposition of the relative rights of these companies and the legislature, and in declaring that "this great state occupies too lofty a position and entertains too just a sense of her imperial character, to repudiate any of the obligations fairly inferable from legislative enactments, in which her citizens and the citizens of other states have placed implicit and unwavering confidence," it but suggests that which will be readily approved by all who reflect.

We did suppose that the examination then given to the subject had put it at rest, and that there would as soon be a proposition to sully the reputation of the state, by violating its faith to those who held its obligation to pay, as in this way to prostrate the value of our property and to paralyze this kind of improvement. Finding, however, that the matter is again before you, we are constrained to appear and to urge the objections to the action which is invoked by the petitioners. If these objections are stated at length, and with earnestness, we trust that we shall be heard with forbearance, because, in our view, this question is one vital to our success.

We have heretofore submitted to that which we regarded as a clear violation of our rights, in the statute which imposed tolls upon the transportation of property over our railroad during the suspension of canal navigation. The right to carry property without tolls in the winter, was distinctly tendered as one of the powers of the corporation. We have thus submitted, under the hope that a further power to destroy our property would not be asserted.

We trust that we are not to meet those, who at this day will deny the immense benefits that the railway has produced. "This new element that has been infused into the social, commercial and political system of the world, the increasing effects of which we can now but faintly foresee," must go on improving and progressing. We cannot go back, nor do without them. The system must go on.—Will the state make and own railroads? We suppose there is but one answer—it will not. Who and what is to make them? Single individuals have not the means, and do not live long enough to construct and manage them, if they had the pecuniary ability. Our laws as to placing property in trust, make some artificial existence necessary for the construction and management of a railroad. It is of little consequence what the association is called, whether a firm, a company, or a corporation. We submit that it is an unsound sentiment, that objects to a railway because a corporation owns it, for nothing else can own it.

When this line of railway was commenced, the legislature declined to make it a state work. The same decision has been adhered to as to other railways. It became indispensable that it should be made, or our great commercial city would have lost the trade of the west. Other railways were conceived and commenced from Baltimore and Philadelphia and this work was indispensable for our people and for the business of our cities. The state delegated its sovereign power to the corporations who have made the railroads. They make them as the agents of the state, for the public use. It is upon this ground that they are authorized to take the land of individuals. If the state makes the railway, the public use would be the same as is now enjoyed. It would be no more or less than if owned by a corporation.—Whoever uses the railroad must pay for such use whether the state is the owner or not. The law which authorized this railroad contains some prominent provisions. The Attica and Buffalo railroad had been previously authorized by a law. In the provisions for that road it was believed, as has since been found to be true, that its construction would require but a small capital. The provision as to the fare of passengers is as follows: The corporation shall not charge a greater sum than at the rate of three cents per mile for the transportation of a passenger and his ordinary baggage.

The law which authorizes the railroad from Syracuse to Utica confers all the privileges contained in the law for the Attica and Buffalo railroad, with this addition. The corporation may receive a sum

not exceeding four cents per mile for the transportation of a passenger and his ordinary baggage.

Here was a difference between these charters as to privileges, and when those inclined to subscribe to the stock, examined the laws, they saw the difference and considered the advantages of each proposition. One road would cost less, and therefore was limited to a less fare. The other would cost more and could therefore charge more. The result has shown that one road has cost double the amount per mile to the other. The provision above cited is as plain a legislative promise as words can make. It means, we insist, precisely what it says, that this company may charge four cents per mile as long as it is for its interest, or until the state shall take the road under a subsequent provision. The men who subscribed to the stock, who paid their money, and who made the road, believed that they did so, subject to but one contingency, and that is contained in the 17th section of the Attica and Buffalo charter in which the state reserved the right to take the railroad at any time after ten and within fifteen years from the commencement of its operation, on paying the proprietors the cost of the same with ten per cent. interest, deducting the dividends received. The proprietors have the solemn faith of the state thus held out to them, and they are sure that it will not be violated when they present it. The state thus deciding to make the road, through the agency of a corporation, and promising four cents per mile passage fare to those who made it, did in principle the same thing, as if it had made the road, as a state work, and borrowed of those who own the stock now, an amount of money, equal to their stock, and had promised them interest payable out of the profits of the railroad. Under such a case, could the state have reduced the fare, without violating its faith.—It will be difficult to perceive any difference in favor of the idea that our fare can now any more be reduced; both would as distinctly violate the promise held out, as can possibly be conceived. Will it be claimed that this promise of four cents fare was made with the implied understanding that it might be reduced? Reduced to what sum we ask? To two cents this year, and to one cent next, and all for what? To test a theory? We entirely deny that our rights can be thus speculated upon. When we do thus insist and refuse to submit our property, to test the theory, that low fare will increase our receipts, where is the right or faith, to place our property in jeopardy? The right to alter, modify, or repeal does not allow the legislature to destroy the guaranty upon which the investment was made. It may be exercised when there is fraud or abuse of privilege by the company, but cannot be exercised in an arbitrary manner without cause.

If the power is possessed by the legislature to reduce our fare, where is it to stop? We think that we have learned that it cannot be reduced, without depriving us of profit, and that practically destroys the value of the property; though brokers might still speculate in the stock as they now do in unproductive railroads. If the fare can be reduced to a nominal sum, that of course, it will be claimed, is done for the benefit of the public. Thus the people, or the public, or the state, will in fact take it, without paying us for it, according to the section above cited. The railroad will not be annihilated; but it must be used without profit; and thus, in place of valuable property acquired, under a reliance upon the laws of a just people, would become a burthen to the proprietors. Can the state take the railroads without paying for them? It can do so, if it can reduce our fare. We submit that it cannot do that indirectly, which it cannot do directly.

If the petitioners ask to reduce our fare, should they not offer to indemnify us? We claim the faith of the people pledged to us, that we may charge four cents a mile, and also that we may make ten per cent. interest, if we can. It is for this reason that we ask, should not an indemnity be offered? The legislature regarded ten per cent as not an unreasonable profit for the hazard incurred in this business.

If the petitioners shall induce your honorable body to guaranty to us ten per cent. to which we claim to be entitled, then we will test the theory of low fare, as long as the legislature may desire.

Or, if we can have a guaranty that the state will take the railroad under the 17th section, and thus assure that we can have the benefits held out to us by law, then, also, will we test the theory.

It must be familiar to the recollection of many members of the legislature, how earnestly and anxiously the western portion of our state looked to the construction of this line of road, and how its completion was hailed as a blessing to the country.

When it was found that a fare of three cents per mile would not insure the construction of a railroad from Auburn to Rochester, then the legislature promptly offered four cents per mile as may be seen in the act, found in the session laws of 1837, page 9, using the same language, as in the case of this company. No right to alter this, was reserved, and we say that it is a legitimate inference, that an alteration could not, in any case, be made without the consent of the company, consistent with good faith.

When after the legislature had loaned the credit of the state to the amount of \$200,000 to the Auburn and Syracuse railroad company, to aid the construction of their road, and it was found that this was not sufficient, and in the session of 1839 [see laws of that year, page 233,] that company was allowed to charge five cents a mile for three years; was not all this in earnest on the part of the legislature.

Is it to be said or claimed that all this was done, to induce those who had the means, to advance them, and make the roads, with the suppressed intention of falsifying these promises as soon as they had been accepted, and confided in by the stockholders, and are similar promises, in like manner to be hereafter broken to every unfinished work?

We cannot believe that any such intention existed, or that a serious attempt now to break these promises, will be pressed, when the violation of faith, is so apparent.

Suppose that instead of promising the then future proprietors of this railroad, that they may receive four cents a mile, the promise had been qualified by saying that the legislature might thereafter at any time reduce this fare when properly petitioned to do so.—Would the proprietors have advanced their money on such a contingency? We say that not one dollar could have been raised. No honest prudent man would ever have placed his property in such hazard, we submit, that the report of the committee of the present session No. 54, on page 3, seems to consider the matter as we do, for they say that in making such grants, it should be distinctly understood, that they take and receive their charters upon the express understanding and agreement that any amendment, etc., strictly belongs to and may be exercised by the state. This must be prospective in its application.

We know the jealous care with which the legislature have guarded the faith of the state when held by its creditors, and we feel assured that when our position is understood that a like care will guard the same faith to the stockholders of this company.

We desire to present for examination, the position of two sets of persons who have contributed large amounts to construct a part of this line. One set under a law of this state has advanced \$200,000 to the railroad company, and has received of the company, the certificates of indebtedness therefor signed by the comptroller on behalf of the people in this state, declaring that the holder was thereby entitled to the payment of the principal sum of twenty years, with five per cent. interest, payable quarterly. To secure this contingent pledge of faith, the railroad company has mortgaged all its property to the state. This set to persons feel secure, because, all will say, they have the faith of the state, through the railroad company.

Another set has advanced \$400,000 under another law of the state, to the same railroad company, and have received certificates showing that they are entitled to all the benefits of this law, one of which was, that they might receive five cents a mile of passengers for three years, and after that four cents; and they have calculated that this privilege, notwithstanding they consented to pledge their whole property to secure the interest and principal to the first set, and also notwithstanding that they also actually pay the interest to the first set, would produce them a fair profit. All will admit that the first set hold the faith of the state pledged to them. We should also say, much more do the other set hold it pledged to them, that this fare shall not be interfered with without their consent, because, otherwise the burthen of the whole comes on them.

If it is not so, of what possible use or meaning

was the reservation of the right to take the railroad which is contained in the 17th section before cited.

For if the state can reduce our fare, so also can they take the road, if there had been no such provision as that of the 17th section.

The very reservation of that provision shows what was then intended, and we ask no more than the fair fulfilment of the intention of the law.

A reduction of our fare, working a destruction of the value of our property, would place it where it would not be worth taking under the 17th section and paying for, although perhaps practically, the public would thus take it for nothing.

Under the provisions as they stand the proprietors of the railroad are safe, because the state will pay for it, if it is taken according to law; but under the assumed power to reduce the fare there is no safety, because situated as we are upon the point where we must renew and greatly improve the railway, a reduction would so shake confidence that a reconstruction would be impossible.

We should neither dare to attempt to borrow the money, nor would those having it listen to us a moment, if we did attempt. We could offer them nothing but a property subject to constant assault, and to be made the experiment to try any theory that the most dreamy speculater could suggest.

A reconstruction would then be hopeless. The last session of the legislature not only rejected all these propositions to reduce our fare, as has been stated, but it encouraged us to go on and prepare for a reconstruction of our road, and authorized us to borrow money for that purpose [see laws of 1845, page 405.]

Under the faith of this last law we have gone on preparing for a new track, and have expended a large sum for that purpose.

We suppose that all agree that these roads should be reconstructed as soon and as thoroughly as possible.

We also suppose that the petitioners do not wish us to do a business without a fair profit.

Have they thought of guarantying us a profit of eight per cent. even if they reduce? If they would not do this, is there good faith in the application?

The petitioners ought to reflect that railroads are in their infancy; that ours are very imperfect, and require constant large expenditures; that although they are constructed by corporations, they are made really by the people, through the procurement of the legislature; that the offer or promise of four cents fare and ten per cent. dividends, is only another mode of paying the persons who advance the money to make them, and that faith is as much to be kept with one set of creditors, as with another; that it is nothing but the faith of the state that sustains its great debt, for its promises in this way cannot be enforced; that there is the same power to violate its faith to its creditors, for twenty millions of dollars, that there is to a railroad company for one million of dollars; that the blow which prostrates our property and withers our rights, will next fall upon other railroad lines, and will to a certainty determine from the construction of another work of the kind.

Let the petitioners carefully and honestly reflect upon all these things, and then if they are prepared to renew and press these applications, so far as this company is concerned, we say let the state take the railroads and try the experiment of low fares. We are ready to meet the question under the 17th section. Then the loss, if any, will fall equally upon all, and the benefits, if any, will be equal, in like manner. We cannot consent to be thus experimented upon unless it is to go through all other business.

The consciousness of having endeavored faithfully to discharge our duty under the trust which we have assumed, impresses us so strongly, that we ought not to be subjected to these annual difficulties, that we are the more inclined to submit to the legislature to take the property and pay for it according to law, and let it thereafter be controlled like other property of the state. For it cannot be that reliance upon a plain law has drawn us into a position where the legislature can either take our property, and pay for it fairly as it reserved the right to do, or can deliberately impair its value and then refuse to take it. The reciprocal relations of right and duty forbid such an inference.

It adds little to the consolations of our position,

that we may believe that we have all the guaranties which the state faith can give, to our property, if we must be annually constrained to appear and resist ruinous attacks upon it. All our accounts and all our doings are open to the legislature and to the public, and we desire to say that we have nothing to which we are unwilling that the strictest scrutiny should be applied.

Having said thus much upon what we consider as the legal and fair view of the case, we will further suggest such considerations as have occurred to us in looking at the matter in the fairest aspect for the petitioners.

So far as we are informed, this is the only line of railroad in the world, that is limited by law to the transportation of passengers. By means of the prohibition upon the Utica and Schenectady railroad, no portion of the line can successfully enter into the transportation of property, except in the winter, which is the most expensive and difficult part of the year in which to do that business. We are thus cut off from the participation in that which, on all other railroads, is an important business. The receipt for freight on many railroads in New England, are about as important as from passengers. It is to them, and to all roads, so important as to enable them to transport passengers at a lower rate than they otherwise could do.

The imperfect and unfinished nature of this line of railroad is obvious, and this consideration ought to influence our fellow-citizens to exertion, in our aid, rather than ruinous attacks upon our business and our credit. We consider that nothing is now more important than the thorough reconstruction of the railroad from Buffalo to Schenectady. The cost of iron to lay that part of it from Syracuse to Utica, at the present prices, will be at least \$400,000, and the other material necessary, and the labor, would make the whole cost of this section not less than half a million of dollars. Where is this amount to be derived? What is the inducement for incurring this great expense? Surely we may ask, is it today to satisfy that public convenience and comfort, which to-morrow may demand the sacrifice of all that has been added to the investment? This would follow if the petitioners speak the true public sentiment. We cannot believe that they do. On the other hand, there must be a just and liberal sentiment, which will induce a full examination of the whole matter.

When this is had, we fear not, that it will be found "to be matter of great importance that public confidence in these investments should be studiously and carefully preserved, to enable the companies to command new subscriptions, or favorable loans, if need be," for the reconstruction of the roads.

We have been nearly seven years engaged in the transportation of passengers, and in that time by the most careful examination of the business and a comparison of one year with another, have sought to find the point at which the interests of the company as well as of the passengers meet. We have no motive to charge any fare but that which will produce to the company a reasonable remuneration upon its capital. We should most cheerfully charge a low rate, if we were not conscious that it would not pay. It is to the interest of the company, as well as entirely conformable to the feelings and inclinations of the directors individually, to charge the lowest rate that will pay. In pursuance of this we have heretofore charged low fares, but the number of passengers was not materially increased. We have found that there were more passengers in 1839 and in 1841 than there have been since. There is a strong competition with us upon the canal; and to all those who do not value their time that is a favorite mode of travelling. There are several routes through the southern and middle states that compete with us for the western travel. The Erie railroad soon to be in operation is still further to divide our business. All these matters are very carefully considered by us. We have endeavored to ascertain what the whole amount of the travel is, and how far our numbers can be increased by any reduction. The whole through and way travel is equal to about ninety thousand passengers over our road in the year. A reduction of 75 cents would be a diminution of an aggregate of near \$70,000. There are about twenty thousand through passengers upon the packet boats, and if we could get all these by the reduction, their fare would be less than thirty thou-

sand dollars. Thus we should lose 70 and gain 30. This is four per cent. upon our capital; and of course would sink its value, and place a renewal of the road beyond hope. But it would be as impossible to get a moiety of this twenty thousand passengers as it has been heretofore. The people by the construction of the canal, furnish the main capital for the packet boats to do business upon, and they can reduce easier than we can. The whole cost of a line of packets is a small matter, and the moment that we attempt to draw off their business by a low price, they can go so much lower, as instead, to draw from us. The capital invested is so unequal that the controversy is ruinous to us.

Our experience in this question is precisely like that upon all other roads with which we are acquainted. The railroads in this country are divided into two classes. One of them furnishes a dividend to the proprietors, the other does not. We think it will be found that the largest number are in the last class. The stocks of these furnish the aliment for gambling speculation, and their main value consists, not in the fact, that they produce anything to the proprietors, but that they may be sold again *perhaps* at an advance, if speculation is rife. It will be easy to enumerate many of this class. It is almost uniformly the case that it is the non-paying railroads, upon which the low fares are charged.

We are not aware of the existence of any railroad which is confined to the passage business, that pays a dividend on a low fare. So far, we believe, all experience is the same as we have learned. All the fares in Europe [except in Belgium] so far as we are informed, are considerably higher than ours. In Belgium the railroads are all owned by the government. It is one of the most densely populated countries in the world. We have the authority of one of the reviews that the annual charge upon the government on account of the railroads is a little over four and a half per cent. while the income is only about two and seven-tenths per cent. on the cost, leaving an annual loss to the government of £100,000, or half a million of dollars. The first class fare there is two cents per mile per passenger, and the second class is one and half cents. We may ask where is the experience or the example to the contrary of this. We believe there is none to be found. Certainly there no general rule to uphold the grounds assumed by the petitioners.

We desire to cite one other instance of the policy of the country in which the railway system has advanced farther than in any other.

"An act was passed by the British parliament August 8, 1844, authorizing the lords of the treasury at anytime after twenty-one years from the incorporation of any new company to reduce the scale of tolls of any such company, provided the divisible profits shall exceed ten per cent. on an average, for the last three years; guarantying to the company at least ten per cent profits: the fare thus fixed, to remain twenty-one years. They are also authorized to purchase the road and its property, after twenty-one years, on paying a sum equal to twenty-five years divisible profits, to be estimated in like manner."

A similar provision has been adopted in Massachusetts.

The passage fare of this company has never been above about three and three-quarter cents per mile, and we maintain that when all circumstance are considered, that is a reasonable fare. It has never produced extraordinary profits. A table appended to the annual report of this company, made to the secretary of state, a copy of which is hereto annexed, shows the receipts from all sources each year, and the payments made. This company, some years back, fixed the dividends at eight per cent. annually. They have neither the expectation that they can increase the amount, or the disposition to attempt it, because they know how much is required to keep up this work. The time, the fatigue, and the expenses of living, which are saved to the passengers, should all be taken into the account, when estimating the fare that he pays.

There is one further suggestion which we desire to make, and the force of which may very soon become more apparent than at present. It is by no means impossible that in less time from this day than has occurred since the first railway was opened in our country, the present motive power may be wholly dispensed with, and the atmospheric system substituted. Many of the most distinguished men in

England have adopted it, and have given their opinions that it will supercede the present system.

Some of the petitioners ask for the appointment of a commissioner to control our operations, and to direct the course of our business. We think that there are many strong objections to such a measure. The very fact of such an appointment raises the inference that he is to differ with us in policy. Who would be most likely to be right? An officer who has everything to learn, who cannot have the motives for careful investigation that we have, who must to some extent have a political bias, who may be influenced by the interests of some locality, or some machinists or manufacturers; or, the directors and officers of a company, familiar with the wants and interests of the various sections, where they reside, fitted by their experience to manage their business, having a deep stake in the success of their enterprise, familiar with their machinery, their grades, their railway.

If they differ, would not the directors be much the most likely to be right? Certainly such an officer would be fortunate if he was at once better fitted to control a business than men who had been many years engaged in it.

We believe that government management of railways, has not been successful in this country. It has been distinguished for its favoritism, for its improvident expenses, for the fluctuating policy resulting from political change, and generally it has been so unsuccessful as to induce the proposition for the government to sell out the railroads and quit a business for which it is so obviously unfitted.

JOHN WILKINSON, *Pres't.*

V. A. SMITH, *Secretary.*

Dated Syracuse, February 9, 1846.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.

Saturday, March 7, 1846.

ONE DAY TOO MUCH.

According to our last number February had twenty-nine days. This differs from the almanac makers, who allow but twenty-eight days in that month this year—and we believe they are right.

RAILWAY TRAFFIC IN GREAT BRITAIN.

In our last we promised an interesting tabular statement of four years' business on the British railroads; and it is in type, but deferred for want of room. It will be given next week. It will be found quite interesting, showing the gradual but regular extension of railways, and increase and fluctuations of the traffic, each month, during the four years.

RAILROAD IRON.

The attention of the purchasers of railroad iron is invited to the advertisement of Messrs. Davis and Brooks, inserted to-day.

RAILROAD IRON. 500 TONS HEAVY
T Rails, of an approved pattern, expected to arrive here during March, or early in April.
Apply to DAVIS, BROOKS & CO.
March 5, if 30 Wall street.

ENGINEERS' AND SURVEYERS' INSTRUMENTS.

The attention of our professional readers, and railroad companies, is invited to the advertisement of Mr. Draper, mathematical instrument maker, of Philadelphia, which appears in our columns to-day.

ENGINEERS' AND SURVEYERS'
INSTRUMENTS MADE BY
EDMUND DRAPER,
Surviving partner of
STANCLIFFE & DRAPER.



No 23 Pear street, near Third, below Walnut, Philadelphia.

AMERICAN RAILROAD IRON. THE WAY IT WORKS.

We have before referred to this new establishment for making railroad iron; and we would now ask the attention of railroad companies to it, as it is to be in operation in April, and Mr. Cooper is now ready to take contracts for delivery after 1st of July next. We shall be gratified to learn that he has more applications than he can supply, and thus induce others to engage in the business.

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.

PETER COOPER, 17 Burling Slip.
New York, January 23d, 1846. 1y 10

Reports.

Those obliging friends, who have furnished us with copies of the "annual railroad reports of the state of Massachusetts," and of the "Reading railroad company," for 1845, will please accept of our thanks.

The Legislature and the Railroads of N.Y.

In our last number we promised to give large extracts from the "REMONSTRANCE of the Syracuse and Utica railroad company against the bill to reduce their fare, and the appointment of a commissioner;" but on reading it again with care, we cannot find a superfluous paragraph, nor a page of it which is not directly to the point, and therefore essential to the connection of the argument in defence of the rights of the company.

It is well said in the 2d paragraph that the report made to the legislature on the 15th April, 1845, "was regarded as an able exposition of the relative rights of these companies and the legislature"—and they may well say that "we did suppose that the examination then given to the subject had put it at rest, and that there would as soon be a proposition to sully the reputation of the state, by violating its faith to those who held its obligation to pay, as in this way to prostrate the value of our property and to paralyze this kind of improvement."

The charter of the Syracuse and Utica company authorises them to charge four cents a mile for passengers, and to carry freight, during the close of navigation on the canal, without paying canal tolls—yet they are now required, by a law passed a year or two since, authorising the Utica and Schenectady company—which was before prohibited even in winter—to carry freight, to pay canal tolls to the state; and now it is proposed to reduce their fares

from three and three quarter cents—not 4 cents as they are allowed to charge—to two cents, 3/4 mills per mile—thus placing them in the predicament of the man who attempted to fill a cask set on end, by pouring in at the spigot, from which, when nearly filled, a wag, or a legislature, we are not sure which—slyly removed the bung, and thus, with his best efforts, he not only could not fill the cask, but the discharge was actually greater than the supply—so will it be with those companies, under the proposition to reduce their fares, unless they are allowed to enter fully and unrestrictedly into the transportation of freight; and even then the legislature cannot with justice reduce their rates of fare below what is specified in their charters.

The remonstrance says, "we have heretofore submitted to what we regarded as a clear violation of our rights, in the statute which imposes tolls upon the transportation of property over our road during the suspension of navigation. The right to carry property without tolls in the winter, was distinctly tendered as one of the powers of the corporation. We have thus submitted, under the hope that a further power to destroy our property would not be assisted."

We would like to give a running comment upon this well reasoned Remonstrance, but there are two, among many, reasons, which just now must serve as our apology for omitting much of what we designed and desire to say—viz, a want of space, and of strength. We will therefore simply say to those interested in such matters, and especially to those called to act upon this question, read this document with care, and then look well to the subject, that a more serious obstacle is not thrown in the way of railroad improvements, in this state, by unwise legislation, than it has heretofore had to contend with, in all countries, from want of experience.

The railroad system has had heretofore to encounter the most formidable obstacles in a universal absence of practical knowledge in relation to it. Millions upon millions have been spent in acquiring the rudiments of this important science—and we are now only beginning to understand it. It is the duty of legislatures, therefore, to foster and protect those who have risked their capital, and devoted their best energies, to the development of the capabilities of this new science—or system—for promoting the intelligence, the happiness, and the interest of man, in all their just—and certainly in all their granted—rights, and especially those rights, the granting of which was the main inducement to invest their capital.

We cannot omit however to call attention to the 8th and 9th paragraphs.

"If the power is possessed by the legislature to reduce our fare" say the remonstrants, "where is it to stop?" The legislature possesses the power to take the roads, after ten, and within fifteen years from completion, by paying cost and ten per cent. per annum, deducting dividends, from the completion, but it certainly has not the right to render the property not only not worth taking, but also not worth keeping by those who have it in possession; which would be the case if every citizen has a right to require the company to carry him over the road for less than cost. If this constant interference is to be persisted in, and the companies are to be, not only cropped on the right ear, for the benefit of the public, which has contributed about one penny to the success of railroads where they have derived dollars of advantage in the economy and comfort of travelling, including the saving of time and money and in the increased value of property, but also on the left ear, at the re-

quest of a few of the people, who would require others to serve them without a fair equivalent, it is proper that the state should take and pay for the roads, as authorized in their charters, or guarantee to the companies 10, or even 8 per cent. per annum, and thus enable them to re-construct their roads in a permanent manner, and test the correctness of the opinions of those who are so wise when the loss, if any, is to fall on others and the certain gain theirs. One year's experience of managing these railroads by the state, would satisfy at least a portion of those who complain, those residing in the state who pay taxes, if not those whose contributions to the public barthens, and the support of public institutions, consist in finding fault with those who sustain the government and to construct the public works: and in attempts to obtain by legislation what they do not earn by honest industry, or pay a fair equivalent for.

While writing the foregoing we have received a copy of the remonstrance, of the Tonawanda railroad company, to the same measure as that of the Syracuse and Utica company.

The charter for that road was the second granted on this line, and contained no restrictions upon charges either of passengers or freight. The only reservation was that the state might take the road on paying its cost and fourteen per cent. per annum, after deducting dividends! Does not this show conclusively the views of the legislature in 1832 and their desire to induce the people to construct railroads? And even those liberal offers enabled the company to complete only a part of their road from Rochester to Batavia, 32 miles, during the first five years. And they were not able to complete it until January 1843, or eleven years from the granting of the charter containing these liberal provisions, to construct 43 miles of road! And we much doubt whether it has yet paid 2 per cent. per annum; indeed we do not find in our table that it ever paid a dividend until 1844, but we cannot vouch for the accuracy of the table in respect of the roads composing this line, as they have not generally, and some of them never yet, furnished us with their annual reports. This may answer their purpose well enough, though not ours, but it certainly gives them little claim to our columns, when the day of trial comes; and enables us to be less efficient than we might be with all the reports before us, yet the principle claims, and shall have our best efforts, and we shall be as much gratified as any one can be if they avail ought of good in the present struggle of right against avarice, prejudice and ignorance.

We learn from this remonstrance that 9 per cent. has been divided previous to 1845, viz: 1840 July 1. 3½ per cent.; 1841 January 1, 3 per cent.; 1842 Jan. 1, 2½ per cent.

We give annexed a tabular statement, showing in detail, though not as full as we could wish, the receipts and expenditures of the Syracuse and Utica company for seven years and one less perfect as it does not give the different items of receipts of the Utica and Schenectady road for ten years not having all the reports we cannot fill all the blanks yet we give enough to show that the proposed reduction of the fare between Schenectady and Utica from 3, to \$1.50; and the reduction between Utica and Syracuse from \$3, to \$1.25, will reduce their receipts to an extent which will prevent them from making anything like a fair dividend upon the capital, and of course prevent them from completing the reconstructing their roads, a work in which they are now engaged.

We also give an exceedingly valuable table for which we are indebted to some unknown friend,

showing the length, cost and business operation, of all the Massachusetts railroads for the year 1845. By referring to this table it will be seen that nearly one half of receipts, viz: \$1,471,255. out of \$3,325,218. was for freight, of course this and this only has enabled them to carry passengers at lower rates, and to make reasonable dividends.

Syracuse & Utica and Utica & Schenectady Railroads.

The following table shows the cost of these two roads at different periods; and the annual receipts, cost of permanent improvements, working expenses and repairs, total expenditures, and net profits—the first for seven, and the second for ten years.

Year.	Names of Roads.	Length in miles.	Cost of Road and Machinery.	Receipts from passengers.	Receipts from freight.	Receipts from mails & miscellaneous items.	Total receipts.	Construction or permanent improvements.	Repairing and working road.	Total expenditures.	Net receipts.	No. of miles run.
1839	Syracuse and Utica.	53	\$914,389 42	\$122,185 29	\$1,636 29	\$14,726 63	\$137,548 21	\$25,393 45	\$34,438 02	\$59,831 47	\$62,353 82	113,350
1840	"	"	"	178,509 57	2,341 16	6,343 25	187,194 98	42,998 00	66,526 65	110,822 36	84,060 13	150,000
1841	"	"	"	190,829 32	1,620 01	12,590 31	204,040 64	38,896 94	59,970 50	109,024 22	89,889 51	150,000
1842	"	"	"	155,224 95	2,119 82	14,312 86	171,657 63	7,413 31	66,796 44	98,867 44	70,567 83	155,898
1843	"	"	"	147,363 40	3,457 09	9,576 99	160,397 48	3 678 42	80,924 53	116,502 95	89,576 33	155,898
1844	"	"	"	181,647 34	12,947 50	8,907 95	203,502 79	975 00	140,204 59	151,269 59	78,178 47	155,898
1845	"	"	"	182,485 78	\$24,121 87	\$66,457 99	\$1,248,814 51	\$195,570 83	\$515,546 95	\$711,117 78	\$537,696 73	155,898
1836	Utica & Schenectady.	78	1,470,323 47	297,176 87	20,000 00	18,376 00	317,552 87	760 00	125,912 00	323,464 87	143,048 00	150,000
1837	"	"	1,891,367 87	319,332 73	406,674 00	361,342 00	1,127,383 46	54,292 00	131,584 00	1,258,967 46	192,794 00	150,000
1838	"	"	"	"	381,342 00	410,486 00	792,828 00	46,732 00	137,220 00	1,030,048 00	211,036 00	150,000
1839	"	"	"	"	333,385 00	333,385 00	666,770 00	66,237 00	183,953 00	850,723 00	220,798 00	150,000
1840	"	"	"	"	306,278 75	9,402 27	68,710 57	79,202 00	154,424 00	233,713 00	197,369 00	155,898
1841	"	"	"	358,810 11	41,769 73	4,549 32	365,129 16	44,651 00	132,859 00	497,988 16	187,617 00	155,898
1842	"	"	"	"	"	"	348,297 00	76,702 00	133,759 00	482,056 00	99,672 00	155,898
1843	"	"	"	"	"	"	384,393 00	44,651 00	132,859 00	521,903 00	206,901 00	164,906
1844	"	"	"	"	"	"	442,139 00	20,841 00	147,657 00	609,796 00	273,732 00	196,480
1845	"	"	"	"	"	"	\$3,458,138 00	\$369,505 00	\$1,277,809 00	\$1,567,314 00	\$1,370,823 00	196,480

Canadian Railroads.

The following extracts from a letter just received, will be perused with interest. We can confidently assert that the writer is well acquainted with the subject of which he treats, and we would commend them to the notice of some of our London exchanges who appear to entirely overlook Canadian railways, leaving them, (we presume) to us.

"The Hamilton Gazette of the 19th Feb. contains nearly two pages of communications on the Great Western, and Toronto and Lake Huron railways, the latter having attacked the former unfairly, as they consider. But the point to which I would draw your attention, is the inimitable coolness (a stronger term would be more correct) with which the 'Governor' of the Canada (land) company speculates—and with apparent success too—on the ignorance of his hearers, as regards all matters relating to the American western travel. The 'Governor,' representing the Toronto and lake Huron railroad company, considers it 'essentially necessary' that the railway should form a route open throughout the year, and also secure the trade and travel of lake Eric to the upper lakes. This he very properly gives as the first and great object of a railway across the peninsula, and then proposes an union of the two companies. This failing, the 'Governor' subsequently announces that the 'directors of the Toronto company will proceed steadily with their own enterprize.' The company, he says, offered to coalesce with the Great Western, in order to prevent the injurious effects of competing lines!—thus leading the British public to believe that these two works are rivals for the same business, and smuggling the Toronto road into a degree of importance immeasurably beyond its deserts.

"As regards the business of the country, a line from Toronto, to Goderich, on lake Huron will not in any way interfere with the way business of the Great Western, which, it may be observed in passing, is and must always be very many times greater than the Toronto road. With reference to the American travel, that large and constantly increasing portion which takes the line of railway from Albany to Buffalo, will, of course, never go via Toronto. There remains, then, the western travel, Canadian as well as American, via lake Ontario. Now, the Toronto line offers no inducement whatever to travellers to Detroit, Chicago, Milwaukee, and the country to the westward, though it would form a good route to Mackinaw and Green Bay, if they had a line of powerful and expensive steamers at Goderich, to run in connection with the railroad. I am unable to state the relative amount of business on these two routes; it would be underrating the traffic via Detroit, to assume it as twenty times greater than that to Mackinaw and Green Bay; but this is of little consequence, as the Toronto road would not even secure that trifling business, because it is altogether too small to furnish employment to a line even of small steamers from Goderich,

and because that place lies out of the track of the American steamboats. Indeed, the regularity, speed and comfort of the large American boats from Detroit, would make the route via Hamilton and Detroit preferable to that via Toronto and Goderich, so that the latter line would, practically speaking, be thrown entirely on its way-business, which cannot be expected to pay expenses for some years to come.

"The 'Governor' does not assert that any considerable amount of business exists on the line of the Toronto road; but, knowing well the dread with which British capitalists regard competing lines, he very adroitly gives his own line a degree of respectability it can never attain and at the same time degrades the Great Western proportionally by placing them before the public as competing lines. It is to be sincerely hoped that this charlatanry, clever as it may be, will not lead British capitalists to run blindfold into a ruinous undertaking. If the first great railway constructed in the Province shall fail to yield a fair return to the stockholders in England, the most disastrous effects must result to the interests of the country generally, hence the early introduction of the railway system into Canada hinges mainly on the success which shall attend the first works completed.

"Amalgamation is the order of the day in England. The 'Governor' could by no other means have raised the Toronto road so high as by elevating it to the dignity of a rival of the Great Western; and by no other means could he do so much towards insuring its construction as by *amalgamation* with the Great Western. The former position is indignantly repelled by the president of that company, and the latter proposal was declined by the directors. The reader will perhaps ask how the two lines *could* amalgamate; it is beyond my power to answer that question, but the proposal was in plain English this, on the strength of the income from the American travel, i. e. on the credit of the Great Western—to divert that work somewhat from its natural route, and to construct above a hundred miles of additional railway for the benefit of the Canada company. By this modest proposal, the Great Western is not only to be saddled with the construction and maintenance of a hundred miles of railroad, but it is to be most seriously crippled in its ability to compete for the American travel, the very life-blood of the project. It appears to me that the Great Western company were wrong in ever entertaining any proposition to unite the two lines, to do which, without sacrificing the interests of their work, may be considered physically impossible. Such at least is my view of the case, and it is at your service."

The following extract from a letter dated Feb. 3d, informs us that within "another eight weeks the Croydon Atmospheric railway for eight miles will be in full operation; and in June next, when the Epsom races will come off, the whole road for 20

miles will be in use, when several hundred thousand people will travel on it during the four days the races continue, by which the value of the system will be tested. So also in the spring, that portion of the South Devon nearest Plymouth will be in operation; and also the St. Germain railway, with Hallett's new [lip] valve, will be in use near Paris.

"We all expect England will have a new lease of life given to her by the admirable free trade policy of Sir Robert Peel, who is the boldest, and most successful statesman and minister this country has had for an hundred years. Although money is high, owing to the railway deposits, [being 5 per cent. for discounts of short paper] yet everything is flourishing.

"Iron for American railroads, which are satisfied to put down a lower quality than is used on English railways, can be had for £11 10s to £12 per ton, free on board in Wales; though good No. 4 Welsh iron has been contracted for by the Great Western railway company as high as £13 5s. per ton, to be payable by sliding scale according to price of merchant bars during month of delivery."

This will be more encouraging to iron makers than to railroad companies. Its effects, however, will be to insure an abundant supply in this country of *good American*, rather than poor English, iron; and we again urge upon American capitalists the importance and the safety of an early investment in the manufacture of iron. We feel quite well satisfied that we must rely upon our own resources, mainly, for railroad iron during the next *two or three* years, unless extensive new works are erected this year in England and Wales, as the present session of parliament will charter at least 2,500 miles of new road, and probably over 3,000 miles.

Election of Directors of the Western R. R.

We learn from the Hartford Courant that at the late annual meeting of the stockholders of the Western railroad, the following gentlemen were chosen directors for the ensuing year, by nearly a unanimous vote, viz: Addison Gilmore, Josiah Stickney, Jonathan Chapman, and Stephen Fairbanks, of Boston, and John Howard of Springfield. All the members of the late board declined a re-election except Mr. Stickney. Messrs. Dwight, of Boston, and Howland, of New Bedford, state directors, remain in office another year. On Thursday, the legislature re-elected Robert Campbell of Pittsfield, and James Russell of West Cambridge. Addison Gilmore was elected president by an unanimous vote of the board, says the Boston Courier, and the difficulties between the Western and Worcester railroads have been adjusted, by the influence and tact of this gentleman, in a manner highly satisfactory to both corporations. We are well pleased to learn this important fact. It speaks well for the new board, and we trust they will now carry out the recommendation of their predecessors, as far as the best interest of the stockholders will be promoted thereby. On the subject of reducing the fares, the old board in their report to the stockholders, say:

"After weighing maturely all these considerations, the undersigned have *unanimously* arrived at the conclusion, that a moderate reduction of the passenger fares, both *through* and *way*, is advisable for the present season."

The following, from the Boston Daily Advertiser, in relation to the settlement between the two companies, is of course authentic, as the editor of the Advertiser is president of the Worcester company. Of the equity of this agreement, under present circumstances—that is, while there are two dis-

inct corporations—we need not express an opinion, inasmuch as it is the result of an amicable arrangement between the parties; and we presume they have both conceded somewhat of former claims to bring it about; but we do not hesitate to say that we much regret that the late negotiation for a *union* of the two companies had not resulted as favorably. We trust it will yet be effected, as it cannot, we think, be doubted but that it would promote the interest of both the shareholders and the public. The following is the agreement alluded to:

Agreement between the Worcester and Western railroad corporations.—The agreement is on the basis, that the income derived from the transportation of passengers and merchandize, over the line formed by the two roads, shall be done as heretofore, in cars, running through, each corporation either furnishing its proportion of cars, or paying an equivalent. The income, both from passengers and merchandize, is divided between the two corporations, by making, in the first place, on each a stipulated allowance from the Boston and Worcester corporation to the Western, for the greater cost of road and expenses of working, in proportion to the amount of transportation; and dividing the residue between the two corporations, in proportion to the distance of transportation on their respective roads. On the same ground, of greater expense of transportation on the Western road, the Worcester corporation agrees to defray the expenses of loading, unloading, collection and other local charges, on this end of the line, as an offset to like expenses defrayed by the Western corporation on their part of the line, although the receipts of the latter, from the joint freight, are two or three times the amount of those of the former.

The effect of the principle of division, as applied, is to give of the first class passenger fare, as regulated for the present, to the Worcester road for a distance of 44½ miles, \$1; and to the Western road, on a distance of 156 miles, from Worcester to Albany, \$1; and on way passengers a rate not exceeding 3 cents a mile, in addition to 25 cents allowed on the Worcester road.

On the freight, which is graduated, as is well known, at extremely low rates, and consequently gives a very low rate of profit, an allowance is made to the Western road, beyond a pro rata division, of 10 cents a ton, deducted from the share of the Worcester road, on all freight conveyed to or from places beyond Springfield. The Boston and Worcester corporation agrees to pay to the Western \$2,000 per annum, on account of the ferry boat between Albany and Greenbush. There are various other stipulations of minor importance.

Canals in England.

The following statement shows that railways have not yet destroyed *all* the canals in the kingdom, even if some few have yielded. Here are 36 canals, paying from 2 to 98 per cent. *per annum*, on their cost, and averaging 22 per cent. We should like exceedingly to obtain the dimensions of them—that is, their length, width, and depth of water, number, and size of locks, cost, character, and amount of traffic, etc. Can and will any of the readers of the Journal furnish us with them?

Value of Canals as Joint-Stock Property.

Joint-stock companies have, within the last half century, increased to an almost incalculable extent, and are still increasing, and have in a social and commercial point of view, been the means of producing the majority of those gigantic works, and noble institutions, which render this favored island the wonder and admiration of the world. Among the very numerous undertakings which have been carried out by these bodies, which private wealth never could have accomplished, and to many of which government most probably would never have lent its aid, some few have proved a certain loss to the proprietors, some have paid a moderate interest on the capital, others have proved a source of revenue far above the commonly rated value of property, and a few have returned an enormous amount of interest; the principal among this latter description is canal property, on which large fortunes have been raised, and as these are likely now to be greatly interfered with, if not annihilated, by the construction of railroads, we have collected some particulars of their present position, to place before our readers, as a matter of reference at a future time, when it is not improbable that canals, like all other sub-ordinary matters, will be only noticed as among the things that were. The following table will show their relative value:—

Canals.	Price per share.	Div'd. annum.	Pr. cent. per annum.
Loughborough	£143	£140	£98
Leeds and Liverpool	100	68	68
Erewash	100	64	64
Oxford	100	60	60
Coventry	100	50	50
Neath	100	40	40
Stafford and Worcester	140	56	40
Cromford	100	28	28
Shrewsbury	125	30	24
Birmingham	35	8	23
Monmouthshire	100	20	20
Melton Mowbray	100	20	20
Warwick and Birmingham	100	18	18
Warwick and Napton	100	16	16
Grantham	150	12	18
Derby	100	16	16
Glamorganshire	172	27½	15
Barnsley	160	24	15
Leicester	140	20	14½
Grand Junction	100	14	14
Stourbridge	145	40	14
Ashton and Oldham	98	10½	10
Leicester and Northampton	83½	8½	10
Montgomeryshire	100	10	10
Somerset coal	150	15	10
Severn and Wye	27	2½	10
Worcester and Birmingham	78½	8	10
Rochdale	85	8	9½
Peak Forest	78	6	8
Ashby-de-la-Zouch	113	8	7
Brecknock and Abergavenny	150	10	6½
Ellesmere and Chester	133	8	6
Regent's [London]	33	2	6
Somerset Coal Lock Fm'd Stock	12½	½	6
Wilts and Berks	67½	2½	3½
Kennet and Avon	40	½	2

Thus it will be seen that, with the exception of two, there is not one out of thirty-six canals, but what has paid from 6 to 10 per cent., while the others have ranged from that figure to 20, 30, 60, and one even to 98 per cent.—an average of return unprecedented in joint stock undertakings—(excepting perhaps a few of the earlier assurance companies)—whether railways, banks, docks, or others, average about 22 per cent.

London and Birmingham Railway.— Reduction of Fares.

The following extract from Herapath's Journal of January 24, shows what may be done in the way of reducing fares on a well located and well constructed railroad, when it has been put in complete working condition.

The London and Birmingham railway proper is 112½ miles long and it has 63½ miles of branches.— The total cost for the whole is put down at 6,997,065*l*. The company was allowed to fix its own rates of fare and freight. In August, 1844, the rates of fare and time were as follows, viz:

Special train.	Miles.	Hours.	s.	d.	Nov.	s.	d.
1st class	112½	4½	32	6	1846	25	25
2d "	112½	4½	25		1846	14	14
Regular train							
1st "	112½	5	30		1846	20	20
2d "	112½	5	20		1846	14	14
3d "	112½	5	12	6	1846	9	5

or 1d. per mile. And for day tickets, that is from London to Birmingham and return same day, 26s. 6d. in first class instead of 60s., as in 1844, thus saving 33s. 6d., and 18s. 6d. in second class, instead of 40s. as before. The average saving in time upon the nine through trips—exclusive of the express train through in three hours—is 412-3 minutes. Thus it will be seen that both in time and price very important improvements for the public, have been made during the past two years—and they have been accomplished without legislation—not however until their road had been completed in the most thorough manner and stocked with an ample supply of the best machinery, and their managers, agents, and servants had all learned their duties. The most perfect equipment and thorough experience, and an immense merchandize as well as passenger traffic, has enabled them to reduce their rates for passengers, more than 40 per cent. on the average, and the time near 20 per cent.—but does anyone suppose they could have done this if they had been attacked by parliament, and their rates reduced before their road was completed and equipped and confidence established in the value of their stock? Certainly not, and more especially not, if they had been denied the privilege of carrying freight, or had been charged a heavy toll by government, in addition to a fair rate of freight for transportation; nor can the railroads in this state, under present restrictions; but give them the privilege of carrying freight, and thus enable them to lay down heavy iron, and for first rate roads, and then, if they do not reduce their rates and increase their speed, to promote their own interest, we will admit that they possess less sagacity than we give them credit for.

Herapath says, and says truly that—

"The public are very prone to forget benefits, though it is to be remarked they have generally an extremely retentive memory for grievances. The little failings not unfrequently show themselves in the event of accidents and delays, which are continually being harped upon, and in the case of reduction of fares and increase of speeds, and other benefits of which the public reap the advantage, pass scarcely acknowledged or even noticed. It is but right therefore to call public attention now and then to the debit side of the account, and we are satisfied that all just dealing and conscientious persons will not feel disoblged by us for so doing.

The London and Birmingham company occupies the first position among railways.— It possesses, if the public will so call it, the greatest monopoly of all the companies.—

Its conduct therefore should be watched with the first degree of attention, and from its actions we are justified in forming an idea of the nature and propensities of what has been styled the "great railway monopoly." If we find this, the most powerful and the most independent company, to be liberally inclined towards the public, studiously endeavoring on every occasion that presents itself to increase accommodation to the public, acting upon the principle that the public reciprocate benefits, we trust it is not too much to assume that that monopoly has been greatly scandalized.

The above company, we may say, has possessed for years, now possesses, and whatever may turn up in the present session of parliament, must possess for years to come, the sole right of way from London to Birmingham. It has had within itself the power to treat the public as it willed, harshly or leniently, to exact or to remit. What course has it pursued during the last few years?—Uniformly, that which appears to be liberal. As the company became wealthy, large portions of its wealth have been distributed back to the public in spontaneous reductions in the fares; as dividends and prosperity increased, fares have been reduced. These reductions we find have not been made at once, but progressively, time upon time; nor have they been made with the view of increasing the traffic and the receipts (though that has been the result,) but confessedly, and before the result could be known, for the object of giving a boon to the public; nor was it a liberality forced by policy, to prevent competing schemes coming into the field, since it was begun long before anything of the kind was thought of.

Our readers will perceive by the following facts that the above statements are well founded. The published time-bills of the Company for August, 1844, show that the two first-class fares from London to Birmingham (the highest being for special train) were 32s. 6d. and 30s. Now, turning to the present time-bills, for 1846, we find these first-class fares respectfully, 25s. and 20s. Therefore they have been reduced since 1844, in the one case to the extent of 7s. 6d.; and in the other to as much as 10s. In the latter case, which is the ordinary first-class—in fact the first class—the reduction amounts to one-third of the old fare, or to about 33 per cent. But by the introduction of the system of day-tickets, the reduction actually effected is still greater—it amounts to more than half the old fare. The Birmingham company commenced the day-ticket system in Jan., 1845, having been now therefore a year in operation. In 1844, it cost a traveller to go to Birmingham and back by the first-class, 60s.; he can now go by the same class there and back for 26s. 6d.—saving no less than 33s. 6d.; an abatement which is, as we have said, more, much more than half of the fare charged in 1844. Why, this shows the old fare to have been greater than the new to the extent of 126 per cent., or more than two-and-a-quarter times the present charge!

Again, with regard to the second and third-class fares, the same heavy, and—unless we confined ourselves to the facts before us, it would seem almost incredible—reductions have been made. The two old, 1844, second-class fares were 25s. and 20s., while the new, reduced to one price, is 14s.; hence there has here been

of remittance to the public in the fare from London to Birmingham, by second-class, equivalent to 8s. 6d.: by the day-ticket it amounts to 9s. 3d. So that here, as in the first-class fares, the cost formerly of traveling to Birmingham and back by the London and Birmingham railway was more than double of what it is now—in 1844 the cheapest second-class passage to Birmingham and back was 40s., while now it is 18s. 6d.

We beg our readers to bear in mind that we are not romancing, but stating the facts as we find them in the Companies' published time-tables.

Thus far with respect to the behaviour of the first of railway companies to the public in point of charges. On that subject, we think we have shown that a truly liberal, and we may add wise, spirit has dictated its proceedings. It has, it would seem, been equally attentive to the public accommodation in conducting the business. The average time now occupied in making the journey to Birmingham is at least 20 per cent. less than what it was in 1843.—

We extract the following from the official Time-tables.

	In 1843 Time. hours.	1845. Time. hours.	Saving. hours
By 6 o'clock, a. m.,			
down train,	5	4 1-2	1-2
7 ditto (2rd. class)	8 1-2	7 1-2	1
7 1-2 ditto	5 1-2	5	1-2
8 1-2 ditto	5 1-4	4 1-4	1
10 ditto (day mail)	4 1-2	3 1-2	1
11 ditto	5 1-4	4 3-4	1-2
12 1-2 ditto, p. m.	5 1-2	5	1-2
Express.	none	3	
5 o'clock, p. m.	5	4 1-	2 1-2
8 1-2 ditto.	5	4 1-2	3-4

This gives an average of about three-quarters of an hour saved on each journey from London to Birmingham. A remark upon the importance of this is needless. There is also now a special train which performs the journey in three hours, while formerly there was none.

We confess, though it has cost us some pains to collect the facts, it has afforded us considerable pleasure and pride in pointing out the liberal and wise principle on which our railways are conducted. A sense of justice requires that facts like these should be known.

Railroad from Jeffersonville, to Columbus, Indiana.

This road is designed to extend from the Ohio river at Jeffersonville, Ia., opposite Louisville, Ky., to Columbus, about 70 miles, where it is to connect with the Madison and Indianapolis railroad, and thus divide the business of that road. It appears to us that a better policy would be to bear further westward to Bloomington or Bloomfield, and thence to Terre Haute or Newport, or both on the Wabash.

A line of railroad in this direction it seems to us, without being familiar with the circumstances, would be more useful to the people of Indiana, and consequently more profitable to the stockholders, than by running into the Madison and Indianapolis road at Columbus.

It is important, in a new country like much of Indiana and Illinois, to commence works of this kind at proper points, and carry them in a direction to be extended, and to receive branches; and such would be the case with this road if it were made in the direction indicated by

us, and it would eventually be the main trunk of a long line with branches—whereas, by running into another road it must rely upon its way business and what it can draw by competition, and the superior advantages of its termination, if it have any, from the main line; unless it is designed to cross the other road and reach far up north and east towards, or quite to, lake Erie. If this be the object in view, the case is quite different.

"We have read the charter of the Ohio and Indianapolis rail road company. The grant, says the Louisville Journal, is liberal, though the details may be voluminous and redundant, and though some provisions were introduced by the opponents of the work that will be inoperative for good or evil. The plenary powers of the charter and the importance of the work commend the subject to the prompt and efficient action of the citizens of Louisville and of the people of Indiana near the route thus opened to the market of Louisville and the South.

"The fine timber (the best ship and stave timber of the Ohio valley) along the line, some of it on the broken ground intervening between the Ohio and the branches of White river, now worthless, will at once become valuable and afford an inexhaustible supply to our industrious and enterprising mechanics. The granaries of Indiana in the valleys of White river and the Wabash will open to the depot of Louisville, and our city, already the cheapest and best supplier of groceries in the west, will find her field and range of business greatly enlarged by the ready and extensive market furnished her for the products and groceries of the south.

"It is unnecessary to enlarge upon the importance of this road. But about seventy miles long, and passing over a level country, it would connect the falls of the Ohio with almost every communication by land or water in the state of Indiana. It crosses white river, unites with the Madison rail road which will touch the Wabash at Lafayette, and intersects the national road. The Madison road will no doubt be extended to the lakes, and at Lafayette it will unite with roads running out into Illinois. It is certainly a most rare and fortunate circumstance that a city like this can by so small an expenditure multiply so vastly her connections with a region so fertile and extensive. The position of Louisville in regard to the trade of Indiana is much more favorable than that of Cincinnati in regard to Ohio. The greater part of the agricultural products of Ohio tend toward the eastern markets, but those of the greater part of Indiana will seek a southern market. But during a great part of the year in both states the canals are closed, and produce will be transported on the rail roads."

Tolls.—Pennsylvania Canal and Railroad.

The Pittsburg Gazette, of Feb. 17th, has the following in relation to the proceedings of the canal commissioners of that state. If such language were used in this region it would be by some deemed personal, or at least pointed.

The rates of tolls.—On the Pennsylvania state works are at last announced. They are not materially changed from those of last year. Dry goods of some descriptions, are reduced 12 c. 1 m. per 100 lbs. Dry goods, as shoes, hats, caps, etc. 2 c. 2m. " Leather, 7 c. 3m. " Drugs, medic's, liqu'rs, etc.; 9 c. 4m. "

White lead is advanced! 2 1-2c per 100 lbs.
Queensware advanced!! 2 1-2c "
Copper & tin advanced!!! 2 1-2c "
Spanish whiting, bacon, butter,
Lard, cheese, lard oil, tallow,
all advanced, 1c "

Wool and rags destined to Baltimore are advanced 2 cents 6 mills per 100 lbs.

Other articles remain about as they were last year. The charge for motive power is reduced 1 mill per 1000 lbs. on the Columbia railroad, but to balance this the charge on empty cars is increased. All the discriminations in favor of Philadelphia and against Baltimore are retained.

It is difficult, in writing about this outrageous imposition upon the public, to preserve one's temper. It is so replete with an insolent exercise of power, so utterly disregardful of the wishes and interests of the mercantile community, so suicidal to the interests of the state, and exhibits such concentrated stupidity, we are at a loss to find language sufficiently pointed to condemn it. At this very moment we are in receipt of intelligence that the tolls on the Erie canal, in accordance with an announcement to that effect last fall, have been largely reduced. In the face of this movement by New York, our commissioners have reduced the tolls on a few items just so far as to do very little good, and increased them on others the least able to bear it!! We will endeavor to show to the public the utter injustice of this new scale of tolls, and the hostility of Wm. B. Foster, jr., and his colleagues, to the interests of our merchants and the state.

Bridges over the Ohio.

It would seem that the success of Pittsburg in bridging the limbs, has induced an effort to span the body, of this beautiful river. Even Kentucky has spoken on this subject, as will be seen by the following extract from the Pittsburg Gazette.

SOMETHING LIKE.—The west is beginning to look abroad to its interest. Wheeling asks for a bridge across the Ohio. The legislature of this state passes a bill urging our senators and representatives to press this matter before congress, and now the house (it will pass the senate) of representatives of Kentucky, have passed a similar resolution. We like to see the western states looking thus to important interests. It augurs well for their hearty union upon all great western measures of a national character.

The resolutions passed by the Kentucky house of representatives, introduced by Gen. L. Coombs, are as follows:

Resolved unanimously by the house of representatives of the commonwealth of Kentucky, That the congress of the United States be respectfully requested to make such appropriation as may be sufficient to erect a wire-suspension bridge across the Ohio river, connecting the national road in Virginia with that in Ohio, so as not to impede navigation, but to facilitate the transportation of the mails.

Resolved, That the governor be, and he is hereby requested, to transmit a copy of the foregoing resolution to each of our senators, and representatives in congress.

Mississippi Railroad.

VICKSBURG, Jan. 20, 1846.

Knowing that many in your city were formerly largely interested in commercial and railroad bank of Vicksburg stock, I am happy to state that there is the dawn of coming events calculated to inspire brighter hopes to those interested in our railroad than have for some time existed. You are perhaps aware that at the late Memphis convention of dele-

gates from the south and west many of the first men from those sections met, with the object of discussing and forwarding the great interests there represented among which that of internal improvements occupied a large space. The practicability of a continuous line of railroad communication, connecting the Mississippi with the Atlantic at Charleston, or Savannah, was so satisfactory to the many there, that there no longer exists a doubt of the ultimate results.

Within the past week, Messrs. Bodley and Arthur have returned from Huntsville, Ala., whither they went to solicit a charter from the state of Alabama for a road to connect the Georgia and Vicksburg road through the state. They were entirely successful, and have obtained a more favorable charter than could have been expected.

We have now a bill before our legislature to perfect the connection to the Alabama line, and there is no doubt of its speedy and favorable passage.—Everybody is sanguine of the advantages to accrue to all interested, and we have already pledged to its completion the 2 per cent. fund, which amounts to some \$300,000, and we are assured that congress will favor the scheme by grant of alternate sections of land on the line.—Express.

"The Iron Steam Schooner, Hunter, Lieut. McLaughlin, U. S. N., says the Louisville Democrat, of 8th inst., has just passed over the falls on her way to New Orleans. The Hunter is propelled by Lieut. Hunter's submerged horizontal propeller, and if great speed and the utmost facility of working can establish the success of anything, then they have established in the vessel the entire success of Hunter's propellers. The Hunter left Pittsburg on Tuesday night and made the run to Wheeling in less than nine hours, through heavy drift ice which filled the river all the way down to Wheeling. She arrived in Cincinnati at 8 o'clock on Friday morning, after nine hours' detention on the passage. She left Cincinnati on Friday evening at 20 minutes after 7, and made the run to the big Miami, a distance of 22 miles, in one hour and twenty minutes. This may be truly called a remarkable speed for any boat of but 100 feet in length, no matter how propelled, and that it had been accomplished by Lieut. Hunter's submerged wheels in the Hunter, is incontestible evidence of their entire success."

We hope this may be realized in general use, as well as in the experiment—though we have our doubts.

The Iron Business of Pittsburg.—The produce of iron in its various forms, from the pig, for the year 1846, in Pittsburg city, will be an average of 1000 tons per week. About one-fifth of this will be in the form of nails.

Boston and New York Line—New Arrangement. The Boston and Providence and Stonington railroads, says the Boston Traveller, have formed a connection with a line of steamboats to run between New York and Stonington, to be composed of the famous steamers Oregon and Knickerbocker.

The new arrangement will go into effect on the 1st day of April.

Troy and Greenbush Railroad.—The recent report of this road extending from Greenbush, opposite the city of Albany, to Troy, shows that it was partially opened for travel on the 13th of June last. It appears from the report that the road is six miles in length, has cost \$233,371 39; and that the receipts since June 13th have been, from passengers \$12,200 86, and from freight \$3,647 32. Expenditures \$5,981 21; dividends \$7,843 62. Whole number of passengers 78,711.

Milwaukie and Mississippi Railroad.—A bill to incorporate the Milwaukie and Mississippi railroad company, says the Milwaukie Sentinel, has been introduced in the council. It will pass, amended, perhaps, by leaving the termination on lake Michigan to be fixed by the stockholders. This is fair enough and will give all the towns on the lake shore a chance to put in their claims.

Public Documents.

We are indebted to the civility of A. C. Flagg, Esq., comptroller of the state of New York, for his annual report to the legislature, and also for the an-

nual report of the commissioners of the canal fund, and the report of the secretary of state transmitting the annual reports of the railroad companies in the state of New York; and to W. R. McKee, Esq., president of the Lexington and Ohio railroad company, for the annual report of the board of internal improvement in Kentucky, for all which we acknowledge our obligation—and of which we shall endeavor to give some account hereafter.

ANTIQUITY.—GOVERNOR DONGAN.—CITY CHARTER.

Those of our readers who are fond of comparing the present with the past, may be amused by reading the proceedings of the common council of this city, a copy of which we give in this number, on the arrival of Governor Dongan, in 1683! or 162 years ago last August!!

From these proceedings it will be seen that the people and the public functionaries of the present day are by no means alone, nor without precedent, in their efforts to extend their power and obtain possession of more territory. The common council not only desired jurisdiction over "Harlem and the Bowers," but also "in ye Bayes, Coves, Creeks, and Inlets belonging to this corporation."

Virginia Right of Way.—The bill "supplemental to and amendatory of the act entitled an act to authorize the Baltimore and Ohio railroad company to complete their road to the Ohio river and for other purposes," passed February 19th, 1845, has passed the Virginia senate without amendment, and having previously passed the house, is now a law.

NOTICE TO CONTRACTORS. Proposals will be received at Bridgeport, until the 20th of March next, for re-laying the Housatonic railroad with an H rail.

Specifications will be furnished at the office of the undersigned, in Bridgeport, on and after the 20th February. R. B. MASON, Engineer. Bridgeport, February 14, 1846. 8 5t

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York. Orders for the above will be received and promptly attended to at this office. 32 ly

KITE'S PATENT SAFETY BEAM.

Messrs. Editors.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheeled passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.

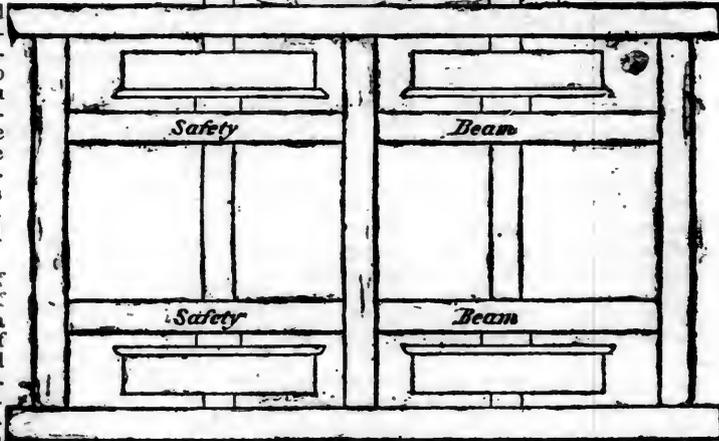
Wilmington, Del., Sept. 28, 1840.

The undersigned takes pleasure in attesting to the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.

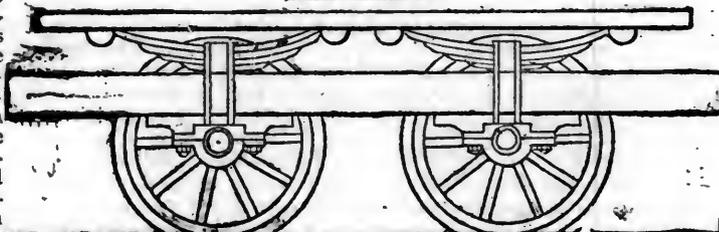
In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.

JOHN FRAZER, Agent, GEORGE CRAIG, Superintendent, A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 1 Hanover st., N. York.

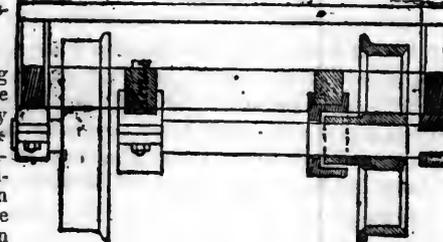
PLAN



ELEVATION



Section



FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

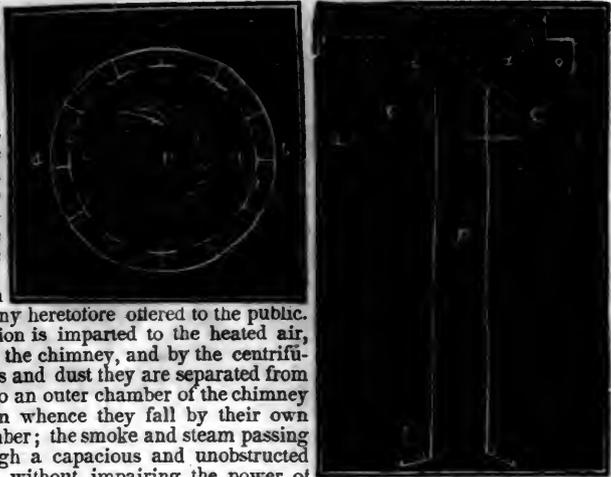
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, or to Messrs. Baldwin & Whitney, of this city, will be promptly executed.

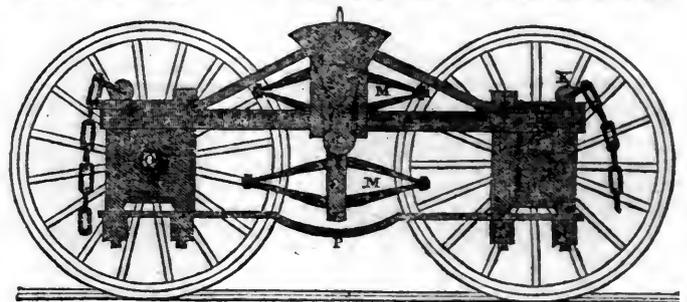
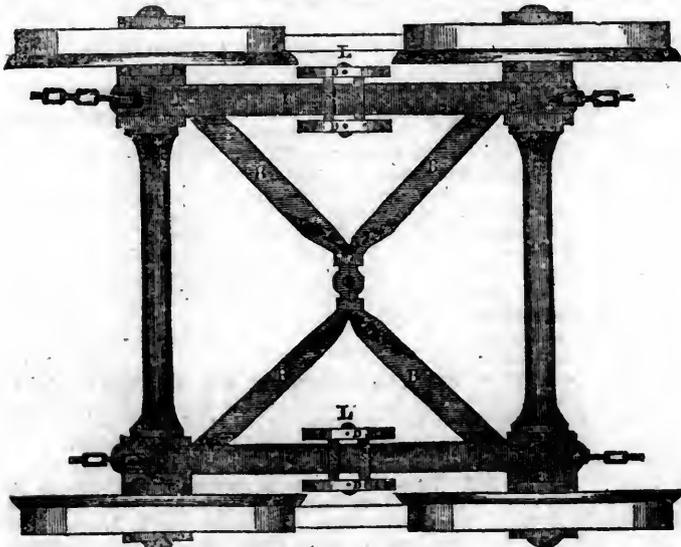
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45



BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' PATENT CAR AND TRUCK.



DAVENPORT & BRIDGES' IMPROVED PATENT IRON TRUCK FOR RAILROAD CARS, is presented above, and the attention of Railroad Companies is respectfully invited to the following description of their justly-celebrated invention.

These Trucks are adapted as well for eight-wheeled passenger cars as for baggage and freight cars, giving to each a more agreeable and easy motion than any other Truck heretofore constructed or in use. They are simple in their construction, combining strength and great durability, although weighing at least twelve hundred pounds less than the common Trucks. Besides these excellences, by reason of the elasticity of the braces, B, B, B, B, as seen in the drawing, and the other peculiarities of construction, made for inside or outside bearing, the weight is equalized upon all the wheels, and yet any one

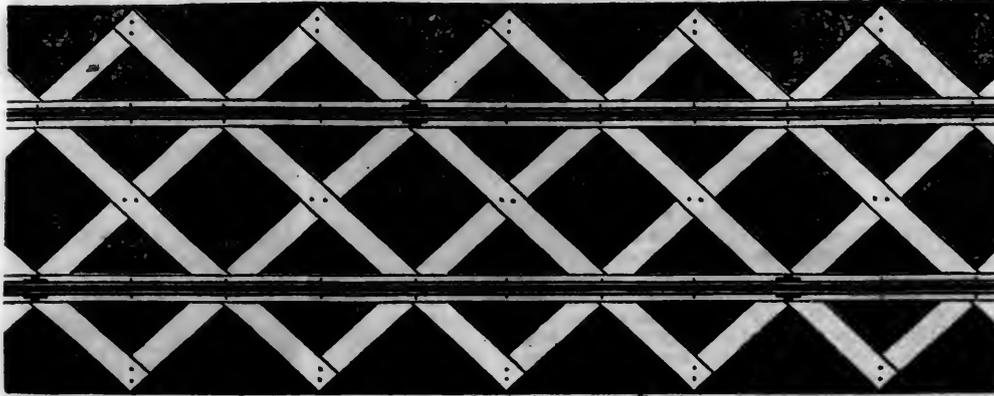
may be raised so as to pass any inequality on the rails without lifting either of the other wheels from the track, thus rendering it almost impossible to run a car off. Being bound, and having as it were but four joinings, they are protected from injury by lateral strains, and in case of damage are easily repaired.

These excellences have been fully tested by use, for a long time, on the Eastern, the Fitchburg and Long Island railroads; and for proof of the above stated superiority of these Trucks over all others, we refer to the experience of those who have used and run them.

CAMBRIDGEPORT, April 1, 1845.

DAVENPORT & BRIDGES

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY Superstructure effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for *Two hundred dollars per mile per annum.** To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.
Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum...	5 00

ENGINEERS and MACHINISTS.

- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM and GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- H. R. DUNHAM & Co., N. Y.
- WEST POINT FOUNDRY, N. Y.
- PHENIX FOUNDRY, N. Y.
- R. HOE & Co., N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.
- BALDWIN & WHITNEY, Philadelphia, Pa.
- THOMAS & EDMUND GEORGE, Philadelphia. (See Adv.)

W. R. CASEY, CIVIL ENGINEER, NO. 23 Chambers street, New York, will make surveys estimates of cost and reports for railways, canals, roads, docks, wharves, dams and bridges of every description. He will also act as agent for the sale of machinery, and of patent rights for improvements to public works.

TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 1lf

C. J. F. BINNEY,

GENERAL COMMISSION MERCHANT and Agent for Coal, and also Iron Manufactures, etc.

No. 1 CITY WHARF, Boston.

Advances made on Consignments.

Refer to Amos Binney, Boston.

Grant & Stone, } Philadelphia.

Brown, Earl & Erringer, }

Weld & Seaver, Baltimore.

December 8, 1845.

1m 50

SCRIBNER'S ENGINEERS' AND MECHANICS' COMPANION. For sale at this office. Price \$1-50.

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/2 x 1/4 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/2 x 1/4 " Flange Iron Rails.

75 " 1 x 1/4 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 1lf

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/4 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, Albany Iron and Nail Works, Troy, N. Y.

1 ly

RAILROAD IRON WANTED. WANTED, 50 tons of Light Flat Bar Railroad Iron. The advertisers would prefer second-hand iron, if not too much worn. Address Box 384 Philadelphia P. O.—Post paid. 8 4t

PROVIDENCE AND WORCESTER Railroad.—Notice to Contractors.

The Route of this Road will be prepared for Examination by Contractors on the 16th of February, and Proposals for the Graduation, Masonry, Bridges, Timber, Spikes, Chains, etc., will be received after that date, until the 25th of February.

Blank Proposals, with Specifications attached, may be obtained, and the Profiles examined, at the offices in Worcester and Providence, after the 16th of February.

T. WILLIS PRATT, Engineer.

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 ly

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

BALTIMORE AND SUSQUEHANNA
Railroad. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a.m., and arrives at 6 1/2 p.m. Arrives at York at 12 1/2 p.m., and leaves for Columbia at 1 1/2 p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62 1/2. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania Improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3 1/2 p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc.

Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day on any passenger train.

D. C. H. BORDLEY, Supt.
Ticket Office, 63 North st.

31 ly

CENTRAL RAILROAD-FROM SAVANNAH
to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.
On measurement goods... 13 cts. per cubic ft.
On brls. wet (except molasses and oil)..... \$1 50 per barrel.

On brls. dry (except lime)... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.

On hdds. and pipes of liquor, not over 120 gallons..... \$5 00 per hhd.
On molasses and oil..... \$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission.
THOMAS PURSE,
40 Gen'l. Supt. Transportation.

GEORGIA RAILROAD. FROM AUGUSTA
to ATLANTA—171 MILES.
AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot..... 16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs..... .95 "
" Sugar, coffee, iron, hardware, etc..... .65 "
" Flour, bacon, mill machinery, grindstones, etc..... .33 1/2 "
" Molasses, per hogshead \$9 50; salt per bus. 20 "
" Ploughs and cornshellers, each..... 75 "

Passengers \$10 50; children under 12 years of age half price.

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
Ch. Eng. and Gen. Agent.
Augusta, Oct. 21 1845. *44 ly

WHARF BOLTS. THE SUBSCRIBERS
are now ready to Contract to deliver Wharf Bolts, at a reduction of 10 per cent. on last year's prices.

SAM'L KIMBER & CO.
81 t 59 North Wharves, Philadelphia.

WESTERN AND ATLANTIC RAILROAD. The Western and Atlantic Railroad is now in operation to Marietta, and will be opened to Cartersville, in Cass county, on the 20th of October, and to Coosa Depot, (formerly known as Borough's,) on the 20th of November.

The passenger train will continue, as at present to connect daily (Sundays excepted) with the train from Augusta, and the stage from Griffin.

CHAS. F. M. GARNETT,
Chief Engineer.

LITTLE MIAMI RAILROAD. -- DISTANCE
65 1/2 Miles. Fare, \$1 50. From 1st November to 1st March Passenger Trains leave Cincinnati for Xenia at 11 o'clock, A.M.

Returning, leaves Xenia at 8 1/2 o'clock, A.M. Freight Trains run daily, Sundays excepted.

At Xenia, Passenger Trains connect with daily lines of stages to Columbus, Wheeling, Cleveland and Sandusky city.

W. H. CLEMENT,
Supt. and Engineer.

LEXINGTON AND OHIO RAILROAD. Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above.

NICOLL'S PATENT SAFETY SWITCH
for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee.
G. A. NICOLLS,
Reading, Pa.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, Peter Cooper, } New York.
Murdock, Leavitt & Co. }
J. Triplett & Son, Richmond, Va.
J. R. Anderson, Tredegar Iron Works, Richmond, Va.
J. Patton, Jr. } Philadelphia, Pa.
Colwell & Co. }
J. M. L. & W. H. Scovill, Waterbury, Con.
N. E. Screw Co. } Providence, R. I.
Eagle Screw Co. }
William Parker, Supt. Bost. and Worc. R. R.
New Jersey Malleable Iron Co., Newark, N. J.
Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly. 35 ly

DAVIS, BROOKS & CO., 30 WALL ST., have on hand for sale, Railway Iron of different sizes—heavy and flat bars.

A Steam Pile Driver—built by "Dunham & Co."—in complete order; has never been used, and for sale a bargain. Cost originally \$5,000. Also 12 Railway Passenger Cars, that have never been used, which will be sold a bargain. 8 ft

PROVIDENCE & WORCESTER R. R.
Notice to Contractors. The time for receiving proposals has been extended to the 11th March. The route is ready for examination, and blank proposals and specifications may be had at Worcester and Providence. All proposals must be sealed, accompanied by names of references and sureties, and directed to the engineer, at Providence, prior to the above date.

T. WILLIS PRATT, Engineer.

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns; and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
a45 Paterson, N. J., or 60 Wall street, N. York.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,
ja45 N. E. cor. 12th and Market sts., Philad., Pa.

THE SUBSCRIBERS, SOLE AGENTS for the sale of

Codorus, Glendon, Spring Mill, and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L KIMBER & CO.,
59 North Wharves,
Jan. 14, 1846. [1y4] Philadelphia, Pa.

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in. thick,—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. ja45ly

RAILROAD IRON AND LOCOMOTIVE
 Tyres imported to order and constantly on hand
 by **A. & G. RALSTON**
 Mar. 20th 4 South Front St., Philadelphia.

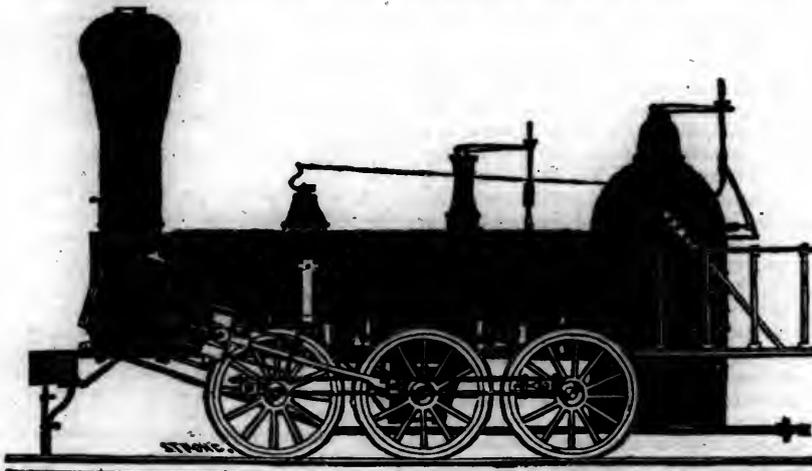
THE NEWCASTLE MANUFACTURING
 Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
 a45 President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS.
 etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
 Albany, N. Y.
 Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

NORRIS' LOCOMOTIVE WORKS.
 BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels or the Trucks of Locomotives, Tenders and Cars.

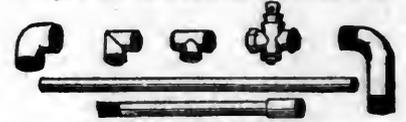
NORRIS, BROTHERS.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
 Warehouse S. E. Corner of Third & Walnut Streets,
 PHILADELPHIA.

RAILROAD IRON.—THE MARYLAND AND NEW YORK IRON AND Coal Company are now prepared to make contracts for Rails of all kinds. Address the Subscriber, at Jennon's Run, Alleghany County, Maryland.
WILLIAM YOUNG,
 President.

TO IRON MASTERS.—FOR SALE.—MILL SITES in the immediate neighborhood of Bituminous Coal and Iron Ore, of the first quality, at Ralston, Lyoming Co., Pa. This is the nearest point to tide water where such coal and ore are found together, and the communication is complete with Philadelphia and Baltimore by canals and railways. The interest on the cost of water power and lot is all that will be required for many years: the coal will not cost more than \$1 to \$1 25 at the mill sites, without any trouble on the part of the manufacturer; rich iron ore may be laid down still more cheaply at the works; and, taken together these sites offer remarkable advantages to practical manufacturers with small capital. For pamphlets, descriptive of the property, and further information, apply to Archibald McIntyre, Albany, to Archibald Robertson, Philadelphia, or to the undersigned, at No. 23 Chambers street, New York, where may be seen specimens of the coal and ore.
W. R. CASEY, Civil Engineer,

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

- Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.
 - Pattern shop, 35x32 feet, with lathes, work benches, &c.
 - Work shop, 86x35 feet, on the same floor with the pattern shop.
 - Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.
 - Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.
 - Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.
 - Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.
 - Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:
 - Boiler house 50 feet long by 30 feet wide, two stories.
 - Blacksmith shop, 49 feet long by 20 feet wide.
- For terms, apply to **HENRY ANDREWS**, 48 State st., or to **CURTIS, LEAVENS & CO.**, 106 State st., Boston, or to **A. & G. RALSTON & Co.**, Philadelphia. ja45
- CYRUS ALGER & CO.**, South Boston Iron Company.

Royal Anti-Charter, Approved by the King.

The following act was passed by the colonial assembly of the province of New York, in 1695, and was approved by King William III, May 11th, 1697, O. S.

This act was in force when the constitution of this state was adopted in 1777, and was confirmed by section 35 of that instrument.

The repealing act of 1787, specified certain colonial acts which it repealed by their respective titles, and confirmed all not thus designated. The constitution of 1821, by section 13, of article 7, confirmed all colonial laws then in force, and continued them in force, subject to the future disposal of the legislature.

In the revision of the statutes of the state in 1830, all colonial laws were repealed by the general repealing clause, in vol. 3 of the revised statutes, and shortly after this the New York city charter was amended, and this amended charter is now in force.

The following act speaks volumes. What the corporation of New York was then, it is now—stretching forward for arbitrary power—and abusing it to an extent beyond conception.

An act against unlawful by-laws and unreasonable forfeitures.

In all humble manner the representatives of this their majesties' province of New York, show and complain unto your excellency, and their majesties' council, that the people of the city of New York, under color and pretext of their charter, or custom, or both, have taken upon them to make and publish certain by-laws, orders, ordinances and regulations, whereby they forbid the bringing of any flour or bread, for exportation, to New York, under the penalty of forfeiture of the same; which said city being the principal port of this province for sending forth the produce and manufacture thereof, and the chief market within the same, they thereby not only prohibit the importation and selling such flour and bread at the same city, and obstruct and hinder all bolting of flour and baking of bread for exportation, which are lawful mysteries, crafts, and trades in all other parts of the province; but also arrogate to themselves the sole bolting, baking, using, making, and selling, of all such flour and bread, raised or to be produced within this province; and under color and pretence of the said orders, by-laws, ordinances, and regulations, have taken, condemned, and converted to their own uses, divers quantities of flour belonging to several of their majesties' good subjects of this province—ALL WHICH BEING CONTRARY TO LAW, to the grievous damage and impoverishing of many of their majesties' good people, and the said by-laws and orders, are unreasonable, and of evil, dangerous and pernicious consequence to all their majesties' subjects of this province—They therefore most earnestly pray that it may be enacted, and it hereby enacted, by his excellency, the council and representatives of their majesties' province, in general assembly met and assembled, and by authority of the same. That the said pretended by-laws, orders, ordinances, and regulations of the people of New York, made in the name of mayor, aldermen and commonalty of the city of New York, or in or by any other name or style whatsoever, and every claim or thing in the same, or any other rule, order or ordinance, contained, in any wise concerning the restraint of bolting of flour, baking of bread, or importing of flour or bread to New York aforesaid, OR CONCERNING OR RELATING TO THE PROHIBITION, OB-

STRUCTION, OR HINDRANCE OF THE USING, PRACTISING, OR ENJOYING OF ANY OTHER LAWFUL TRADE, MYSTERY, OR OCCUPATION, OR AGAINST THE IMPORTING IN OR TO, OR EXPORTING FROM THE CITY OF NEW YORK, OR ANY OTHER LAWFUL PORT IN THE PROVINCE, any wine, corn, flour, bread, flesh, fish, victuals, wares, merchandize, and all other things vendable and not, by the common law or statutes of the realm prohibited; and all process, proceedings, judgments and executions thereupon hereafter to be issued, ordered, entered, awarded, published or executed, shall be entirely void and holden for none; and they are hereby declared void and null to all intents and purposes whatsoever; any pretended by-law, order, ordinance, custom, usage or practice, to the contrary hereof in any wise notwithstanding.

And further, be it enacted, etc., That if any time after the making and publishing this act, any officer, minister, or other person or persons whatsoever, shall presume, by or under color of any such pretended by-laws, ordinances or regulations, to take, seize, condemn or convert, to his or their own uses, any flour, or other goods or merchandize whatsoever, not by law prohibited at any time to be imported from the said city of New York, or any other lawful port in this province, he and they, and every of them shall forfeit to the owner of such flour, bread and other goods or merchandize, treble the value of the flour, bread or other goods or merchandize, so to be taken, seized, condemned, or converted as aforesaid, and also his treble costs, to be recovered by action of debt in any of the majesties' courts within this province, wherein no assign, protection or wager of law, nor any more than one importance shall be allowed, provided always, and it is the true intent and meaning of this act, that no officer, minister, or other person or persons, shall at any time be impeached, prosecuted, condemned, troubled or disquieted, by virtue of this act, or upon any construction or interpretation of the same, for any fact, matter or thing acted, done, perpetrated or committed at any time before the making or publication hereof; but that such officer, minister, or other person or persons, as to any fact, matter or thing, heretofore acted, done, perpetrated or committed, shall be and remain in such plight, state and condition, as if this act, and every clause therein contained, had never been made, anything before herein expressed to the contrary hereof in any wise notwithstanding. Wm. III, pp. 23 and 24, Law 1719, London edition, acts passed by the general assembly of the colony of New York in March, July and October, 1695. This volume is in the State Library.—*Examiner.*

King John's Charter of 1846.

The following communication is from the pen of a very distinguished citizen of New York;

A WORD IN SEASON.

The city of New York is the queen of the west. It numbers about 400,000 people. It includes upwards of 250,000,000 of property, besides the immense masses of merchandize, and vast amount of funds and credits, which are currently flowing into, and out of, and abiding within it, as incidental to its mighty business. Its port has always within it, afloat, a multitude of vessels from all parts, and of all classes, of all nations, containing thousands of persons, and millions of products. It is great in position and beauty: surrounded by water—having easy access to—yet land locked from the ocean: its extensive bay, studded with beautiful islands, magnificent scenery, on every side, and other cities, and many prosperous villages, prosperous and increasing, in every direction, by means of its resources, available by them. To the west, the far, far, far west, connected by river, and other water communications—

and to the south and east by large estuaries. By the aid of these, and its own great wealth, and by means of the wonderful energy and enterprize of its people, it is now, in proportion to its population transacting, more business than any other city in the world.

All this population, property and business, for safety, security and protection, rest chiefly on the municipal charter, laws, and authorities of the city.

This charter is in fact its constitution; in virtue of it, the powers and the action of the city authorities, bear immediately on the people: on the property of the people: on the rights, privileges, health, morals, and very happiness of the people.

Wherefore it has been, and is, an established rule in our country, that such an instrument formed and adopted (as this charter was,) deliberately and carefully, by men sitting in convention (men who had been selected by the people—as eminent for wisdom intelligence and virtue;) an instrument as thus formed and adopted—thereupon and after due examination, by the people, and afterwards its meaning established—& as interpreted—by judicial decision—and by executive and legislative action, is not to be changed or amended, except by similar deliberate and prudent proceedings—for in an instrument of such extreme importance every word has weight—every word should be accurately employed and well understood; the document in every part is material: Each sentence may declare or determine a principle; each word involve a valuable right.

In virtue of the present charter, the common council of this city is only a legislative body; they cannot lawfully do any act, except what is consistent with that charter, and within the powers thereby delegated to them. The present common council is the first legislative body in this state that has ventured, as they have recently done, to legislate a constitution or charter in lieu of one by which they are created. In doing so they have transcended their power and usurped a right which alone belongs to the people, by means of a convention. The existing charter was formed in solemn convention by those who were regarded as the most wise, intelligent and virtuous men of their day. It has been in existence since 1830. It appears that certain members of the present common council, upon the profession of correcting evils, and remedying defects, in the existing charter, thus carefully adopted, have, without consulting the people, received and passed a new charter or constitution, formed by an individual previously, for them, and have so passed it with scarce any discussion or opposition, except the manly and honorable stand of the alderman of the 10th ward, against the act of usurpation; and they have now sent it to the legislature to be passed as a final law! Can it be that in this hasty manner, a grave and high instrument, involving and professing to adjust the various rights and relationships and proprieties, permanently, of this vast community is to be adopted, and a charter valued and maturely considered and understood, suddenly abrogated by men elected for another purpose!

What are the evils and defects of the present charter? What the abuses? What are the remedies administered by the proposed scheme? One evil complained of, is a want of equal representation. Strange, the plan proposed actually perpetuates this evil! One abuse complained of is the increase of taxes; this is not the fault of the charter, but the abuse of the members of the common council in unjustly and illegally squandering the money of the city; does the proposed plan provide a remedy for this? Not at all. Does it prohibit the spending of large sums of money for entertainments under pretence of city hospitalities, tea room refreshments, visits to Blackwell's Island, &c. Does it diminish the number of useless officers—does it mitigate the burdens of the people? No—on the contrary it specifically adds pay to the aldermen, increasing the burden thus \$30,000 per annum, and increases the number of officers under the name of bureaus. Another abuse complained of is that the business is not done by executive departments, and why? Simply and only because the members violate in this the present charter! The present charter expressly tells them that the business is to be done by executive departments. Yet they do it by committees.

But look over this proposed charter, and see if it really provides, under proper penalties, against the

mis-application of the public money? If it is calculated to diminish expense; if it provides proper checks against fraud, tyrannic power, or extravagance; if it is clear, perspicuous in its language, in its method or arrangement; if it will give rise to no conflict of opinion, no difficulty of interpretation, if it duly conforms to the great principles of enlightened jurisprudence and civil liberty, that no one class be oppressed, no one right or privilege destroyed, if it is efficient, yet just to all—calculated to give security to right, punishment to wrong—to secure economy, good will, and happiness to the population which it is to govern.

All these things should be maturely weighed and considered by the people in convention, not by a legislative body, before an instrument of so high a nature should be adopted.

Note.—The communication of a distinguished citizen, on this page, contains one paragraph marked thus * which we shall notice in our next as not being exactly orthodox.—*Examiner.*

Railroad Meeting at Pittsfield, Mass.

We have received the following call for a meeting of those interested in the line of railroad from Pittsfield, or rather from North Adams, Mass., to Rutland, Vt. It appears to us that the people of this city are as much interested in this line as the people of Boston, and we hope therefore, that delegates will be appointed to attend, and say to the people of western Vermont, that they may rely upon New York for aid in its construction—who will move in this matter?

At a meeting of those interested in the construction of a railroad from North Adams to Rutland, the undersigned were appointed a committee to cause a survey of said road, and to collect such other information as might be necessary to ascertain the practicability of building the same; and having completed the survey and ascertained all the facts which they deem expedient for present purposes, they take the liberty of calling a meeting, which they hope may be attended by all interested in this project, to be held at Pittsfield, Mass., on the 18th of March, 1846, at 10 o'clock, a.m.

Leonard Sargeant, C. W. Fenton, George W. Strong, A. P. Lyman, *committee.*
Bennington, March, 9, 1846.

Annual Report of the President and Managers of the Philadelphia and Reading Railroad Company to the Stockholders, January, 1846.

The managers have much pleasure in communicating to you the present position of the company, the business of the past year, and the arrangements which are made for the future.

Annexed is a statement from the treasurer, showing the liabilities on the 30th November, last.

It will be observed that at that time the company was encumbered with a large floating debt. The managers have since made a negotiation with the share and bondholders on the following terms, viz:

For an issue of stock at par.....	\$1,100,000
" mortgage bonds, payable 1860, do...	250,000
" obligations " Jan. 1, '48..	75,000
" " " 1, '49..	75,000

making in all, one million, five hundred thousand dollars.

For the obligations, payable in 1848 and 1849, the money will be immediately paid, and the residue, one-fifth in cash and the balance in four quarterly instalments.

The first payment of \$270,000 has been placed in the hands of the president and treasurer, (in money, and in the obligations of the company now due,) to await your approbation of the arrangement, and your authority for the issue of the shares and bonds.

By reference to the statements of the treasurer, it will be seen that on the 30th November, last, the entire debt was.....	\$8,318,530 91
From which deduct	
case and cash assets..	62,178 98
Bonded debt.....	6,637,200 00
Permanent mortgages..	124,500 00
	<u>6,823,878 98</u>

Leaving of floating liabilities.....\$1,494,651 93 which are provided for by the negotiation just completed.

The managers feel that it must be a matter of great satisfaction to the proprietors to know that the business of the past year, and the very flattering prospects for the future, have enabled them to complete so favorable an arrangement.

A statement is subjoined, showing the net revenue for the fiscal year, to be \$507,304 99

If the company had been then free from a floating debt, the result would be thus, viz:

Interest on old bonded debt \$6,637,200 =	388,824 00
" new " " 400,000 =	24,000 00
	<u>\$112,824 00</u>

Leaving for the holders of stock with the proposed new issue amounting in all to \$3,120,000.....\$94,480 99

which would be upwards of three per cent.

The want of a large number of engines and coal cars has again limited the revenue, although those in use have been quite equal in efficiency to the most sanguine estimates made at the beginning of the year.

The rapidly increasing business in coal has induced the managers to assume the responsibility of contracting for 1000 new iron coal cars, and 17 locomotive engines of the first class, to be delivered prior to 1st June, next.

Taking past experience as a basis, the machinery now employed in the coal trade and that contracted for, will be fully adequate to the transportation of 1,250,000 tons of coal during the present year.

The company have already received applications from parties engaged in that trade for the conveyance of a quantity far beyond the amount specified.

As the parties making these proposals may fall short of the business they now expect, the managers submit to you the propriety of authorizing them to contract for 500 more coal cars, with a corresponding increase of locomotive power. They believe that, unless the prosperity of the country is checked by unforeseen circumstances, there will be full employment for all the proposed machinery by the 1st of July next, at which time it could be placed on the road.

For your information, and to enable you to arrive at a proper conclusion on this question, a table taken from the *Miners' Journal*, of the 10th inst., is affixed, showing the quantity of anthracite coal sent to market from the different regions in Pennsylvania, from the commencement of the trade in 1820 to 1845 inclusive.

It will be perceived that the quantity exported from the Schuylkill region increases in a much larger ratio than from any other, having more than doubled during the last four years. It will also be noticed that the increase in the business of this company is altogether unprecedented.

It may be satisfactory to the proprietors to have the views of the managers relating to the business for the current year, based upon the capabilities of the machinery now on the road and that contracted for and in course of deli-

very, as well as the revenue resulting from it. It would be as follows, viz:

GROSS RECEIPTS.	
From passengers, merchandise, mail, rent of wharves at Richmond, etc....	225,000
For transportation of coal, 1,250,000 tons, say at \$1 20.....	1,500,000
	<u>\$1,725,000</u>
Say, in Jan...50,000	May...110,000
Feb...40,000	June...130,000
Mar...70,000	July...150,000
Apr...90,000	Aug...150,000
	Dec...60,000

The expenses as estimated by the superintendent of transportation and engineer, are as follows, viz:

For the transportation of 1,250,000 tons of coal at 33 cents.....	\$412,500
32,000 " m'dze 75 ".....	24,375
33,000 passengers at 41 ".....	15,580
Expenses of transportation of coal, passengers, and merchandise over the state railroad for the year.....	32,800
Superintendence and salaries.....	17,000
Office expenses, stationery, etc.....	4,450
Wages of watchmen at depots, and switches.....	4,200
Work at depots, etc.....	1,600
Sundries, and all other expenses.....	2,475

Expenses of transportation department....\$514,980
Repairs of roadway.....112,000
Watchmen on bridges.....10,000

To which add dumpage.....30,000
Contingent expenses of office in Phila....70,000

Total expenses.....\$736,980

Leaving a balance of.....\$988,020

The managers state that they can at once contract for the transportation of the quantity of coal stated in the foregoing estimate.

They submit that their past experience warrants them in asserting a most confident opinion that the expenses, with such a traffic, will not exceed the estimate.

That experience is confirmed by English railway companies, which have been doing a large coal traffic for many years. At the head of these stands the *Stockton and Darlington*. On a late occasion, before a committee of the British parliament, Joseph Pease, Esq., chairman of that company, stated, with reference to the transportation of coal on the proposed London and York railroad, that one farthing per ton per mile, would be found ample to cover all transportation expenses, including five per cent. per annum interest on the capital employed in the moveable stock and the proportion of maintenance of way belonging to this branch of the traffic.

At this rate, the expense of conveying coal from Pottsville to Richmond would be about 47 cents per ton, or deducting interest on cars and engines 40 cents per ton, including maintenance of way, or about 30 cents for mere transportation.

This is rather less than our experience hitherto, though if the road was exclusively stocked with the large cars and engines, the expenses would be diminished within his estimate.

Some of the elements of expense may be greater and some less than here, but if on the whole this is somewhat in favor of the English lines, it must be observed that our gradients are infinitely more favorable than those on the proposed London and York railway, to which this evidence refers.

The great knowledge of Mr. Pease upon this subject must be regarded as the reason for this reference to his views. The managers respect his opinion as the highest authority which can be quoted on this question.

AMERICAN RAILROADS.

NAMES OF RAILROADS.	Length in miles.	Cost.	L and debts.	Number of shares.	Paid on share.	1843. Income.		Div. per cent.	1844. Income.		Div. per cent.	1845. Income.		D per cent.
						Gross.	Nett.		Gross.	Nett.		Gross.	Nett.	
Maine. 1 Portland, Saco and Portsmouth.....	50	1,200,000				89,997	47,166	7	131,404	62,172	6			
N. Ham. 2 Concord.....	35	750,000									12			
Mass. 3 Boston and Maine.....	56	1,485,461				178,745	68,499	6	233,101	86,401	6½			
4 Boston and Maine extension.....	17½	455,703	unfin.											
5 Boston and Lowell.....	26	1,863,746				277,315	144,000	8	316,909	147,615	8			
6 Boston and Providence.....	41	1,886,135	none.	18,600	100	233,388	110,823	6	282,701	156,109	6			
7 Boston and Worcester.....	44	2,914,078				404,141	162,000	6	428,437	195,163	7½			
8 Berkshire.....	21	250,000	not stated				17,500	7	17,737					
9 Charlestown branch.....		280,260						13	34,654	13,971	5½			
10 Eastern.....	54	2,388,631				279,563	140,595	6	337,238	227,920	8			
11 Fitchburg.....	50	1,150,000	just op'n'd						42,759	26,835				
12 Nashua and Lowell.....	14½	380,000				84,079		8	94,588	34,944	10			
13 New Bedford and Taunton.....	20	430,962				50,671	24,000	6	64,998	24,000	6			
14 Northampton and Springfield.....		172,883	unfin.											
15 Norwich and Worcester.....	66	2,290,000	900,000	16,535	100	162,336	24,871		230,674	99,464	3			
16 Old Colony.....		87,820	unfin.											
17 Stoughton branch.....	4	63,075	unfin.											
18 Taunton branch.....	11	250,000						8	96,687	20,000	8			
19 Vermont and Massachusetts.....														
20 West Stockbridge.....	3	41,516	200		100						4			
21 Western, (117 miles in Mass.,).....	156	7,686,202	4,686,202	30,000		573,882	284,432		753,753	439,679	3			
22 Worcester branch to Milbury.....	3½	42,000												
23 Housatonic, (10 months,).....	74	1,244,123							150,000					
Conn. 24 Hartford and New Haven.....	38	1,100,000	100,000	10,000	100						6			
25 Hartford and Springfield.....	25½	600,000	400,000	2,000	100									
26 Stonington, (year ending 1st Sept.,).....	48	2,600,000	650,000	13,000	100	113,889			154,724	79,845				
N. York 27 Attica and Buffalo.....	31	336,211				45,896	7,522		73,246	48,033				
28 Auburn and Rochester.....	78	1,796,342	200,000	14,000	100	189,693	112,000		237,667	152,007	6			
29 Auburn and Syracuse.....	26	766,657			133½	86,291	27,334		96,738	52,544	6			
30 Buffalo and Niagara.....	22	200,000		1,500										
31 Erie, (446 miles,).....		5,000,000												
32 Erie, opened.....	53						48,000		126,020	59,075				
33 Harlem.....	26	2,250,000	750,000	30,000					140,685	62,399				
34 Hudson and Berkshire.....	31	575,613			50				35,029	1,789				
35 Long Island.....	96	1,610,221	392,340	29,846					153,456	58,996				
36 Mohawk and Hudson.....	17	1,317,893	400,000	10,000	100	69,948	58,780		79,804	45,763				
37 Saratoga and Schenectady.....	22	303,658				42,242	3,000	1	34,666	8,455				
38 Schenectady and Troy.....	20½	640,800				28,043			32,646	6,365				
39 Syracuse and Utica.....	53	1,115,897	none.	16,000	62½	163,701	72,000		192,061	120,992	8			
40 Tonawanda.....	43	727,332				76,227			114,177	75,865	5			
41 Troy and Greenbush.....	6	180,000												
42 Troy and Saratoga.....	25-	475,801				44,325	21,000		38,502	9,971	2½			
43 Utica and Schenectady.....	78	2,168,165	none.	20,000	100	277,164	180,000	9	331,932	199,094	8			
N. Jersey 44 Camden and Amboy.....	61	3,200,000				682,832	383,880		784,191	404,956				
45 Elizabethtown and Somerville.....	26	500,000												
46 New Jersey.....	34	2,000,000												
47 Paterson.....	16	500,000									6			
Penn. 48 Beaver Meadow.....	26	1,000,000												
49 Cumberland Valley.....	46	1,250,000												
50 Harrisburg and Lancaster.....	36	860,000	645,929									77,538	9,988	
51 Hazleton branch.....	10	120,000												
52 Little Schuylkill.....	29	900,000												
53 Blossburg and Corning.....	40	600,000												
54 Mauch Chunk.....	9	100,000												
55 Buck Mountain.....	4	72,000												
56 Minehill and Schuylkill Haven.....	19½	396,117	25,000	7,019	50			12			12			
57 Norristown.....	20	800,000												
58 Philadelphia and Trenton.....	30	400,000												
59 Pottsville and Danville.....	29½	1,500,000												
60 Reading.....	94	9,457,570	7,447,570	40,200	50				597,613	343,511				
61 Schuylkill valley.....	10	1,000,000												
62 Williamsport and Elmira.....	25	400,000				20,000								
63 Philadelphia and Baltimore.....	93	4,400,000				43,043	200,000			210,000				
Delaw're 64 Frenchtown.....	16	600,000												
Mary'ld 65 Baltimore and Ohio, (1st Oct.).....	188	7,742,410	1,153,709			575,235	279,402		658,620	346,946		738,603	374,762	3
66 Baltimore and Washington.....	38	1,800,000				177,227	71,691		212,129	104,529		208,813	95,094	6
67 Baltimore and Susquehanna.....	58	3,000,000												
68 Wrightsville, York and Gettysburg.....	12½	500,000												
Virginia 69 Greensville and Roanoke.....	18	284,433	37,544	2,000	100				25,368	6,074	3			
70 Petersburg.....	63	969,880	63,000	7,690	100				122,871	72,898	6			
71 Portsmouth and Roanoke.....	78½	1,454,171												
72 Richmond, Fredericksb'g and Potomac.....	76	800,000							185,243	85,688				
73 Richmond and Petersburg.....	22½	700,000												
74 Winchester and Potomac.....	32	500,000												
N. Car. 75 Raleigh and Gaston.....	84½	1,360,000												
76 Wilmington and Raleigh.....	161	1,900,000									5			
S. Car. 77 South Carolina.....	136													
78 Columbia.....	66	5,671,452		34,410	75	201,464	77,456		532,871	140,196				
Georgia 79 Central.....	190½	2,591,723	0	20,510	100	227,532	93,190		328,425	180,704				
80 Georgia.....	147½	2,650,000				248,026	158,207		248,096	147,523				
81 Montgomery and West Point.....	89	500,000	170,000		100				35,000	15,000				
Kent'ky 82 Lexington and Ohio.....	40	450,000												
Ohio 83 Little Miami.....	40	400,000												
84 Mad river.....	40	152,000										24,984	3,280	
Indiana 85 Madison and Indianapolis.....	56	212,000	50,000			22,110	8,639	8	39,031	10,065	9½			
Canada 86 Champlain and St. Lawrence.....	15						12,000		58,000	24,000				

The branch over the Allegheny will pass the channel at an elevation of from 18 to 25 feet higher than any of the present bridges, which will permit the passage of any steamer on our rivers, even at a 10 feet stage of water.

From the abutment at the point, to the central pier, the bridge will have a gentle elevation, and from this pier to the south bank of the Monongahela, it will also be gently elevated until it arrives at a height of 80 feet above low water, mark, over the channel, from whence it will continue level to the shore. This elevation will allow the tallest chimneys ever in this port to pass under the bridge, with 14 feet water, a stage very seldom attained. From the central pier to the Allegheny bank of the river the bridge will be level.

The plan is truly a magnificent one, and if carried out, the structure will be the ornament and pride of the city, as well as afford eminent advantages, which we will notice at another time.

The question arises, will the project be consummated? We are informed that the cost is estimated at \$250,000, and that it is ascertained that \$225,000 can be obtained at once. If this is correct, the work will be accomplished. It will be excellent stock.

Reading Railroad Report.

(Continued from page 166.)

Report of Superintendent.

Transportation Department of the Philadelphia and Reading Railroad, December 1st, 1845.

JOHN TUOKER, Esq., president, Philad. and Reading railroad company.

I respectfully submit the following report, of the business of the road, during the year ending November 30th, 1845.

Statement A contains the business of the road, including its coal and merchandize tonnage, and gross receipts.

It will be found, that the revenue from coal has increased 98 per cent., that from passengers 12; and from merchandize, 23 per cent. over the receipts from the same sources last year.

Statement B exhibits the gross, and statement C the next expenses of the department for the year; the latter separating the cost of transporting coal, passengers, and freight, from other expenses not directly affected by the amount of these items of business.

Statement D shows the amount of running machinery now on the road.

During the past year it has been increased by 7 locomotive engines, all of the 1st class: 648 coal cars, of which 642 are iron, 29 freight cars, for the merchandize business of the road, of late rapidly increasing: 2 eight-wheeled baggage cars for passenger trains, and 46 extra wood tenders, for coal engines. Six tenders of 2d class engines have been enlarged from a capacity of 600 to 1,000 gallons, each.

The four-wheeled wooden coal cars, put upon the road in 1842 and 1843, are being gradually enlarged from a capacity of 3 1-5 to 4-65-100 tons, with an addition of but 3 cwt. to their empty weight. The increased load of 1-45-100 tons, and the superior construction, of the improved car, enlarged in the company's workshops, secures a re-payment of the cost of enlargement, \$36 per car, in three months, and a considerable economy in their subsequent decrease of repairs, reduction of dead weight, etc. During the past year, 408 wooden coal cars have been enlarged, and 943 partially so.

Statement E contains the weight, maker, present condition, duty, etc. of every locomotive engine owned by the company: and Statement F the working, and cost of repairs of same, for the past year. The decreased cost of this item, sufficiently proves the improved

efficiency of the engines, and the good order of the track which passed them.

Statement G exhibits the whole cost of the repairing, renewing, and rebuilding, of all coal, freight, and passenger cars, including ordinary wear and tear, and extraordinary repairs, caused by accidents.

Statement H contains the items in detail, making up the cost of hauling coal over the road for the past year, found to be 37-1-10 cents per ton, and within the limits stated in my last annual report. This decrease, in cost of hauling, of 4-7-10 cents per ton, (or \$38,-271 11 on the year's business) has been chiefly effected by the addition of the first class engines put upon the road during the past year, and the very satisfactory working of these excellent machines. Their power, economy of repairs, ease to the track, and general efficiency, has fully equalled the anticipations which induced their order, and purchase. By their use, the average load of the past year has been 295 tons of coal, for all engines, an increase of 101 tons of coal per train, compared with the business of 1844.

The use of the iron coal car, built of a material almost imperishable, and scarcely affected by the shocks and accidents which break and shatter woodwork, has also contributed to the decrease of the cost of transporting coal, as will be observed, on comparing the cost of repairs of cars, of the present with the past year.

Statement K and L contain the items of cost of running passenger and freight trains for the past year. The slight increase in these items, is caused by wages and fuel being higher this year; and by materially refitting and renewing some of the passenger cars.

Statement M shows the cost of transportation over the 3 1-2 miles of the state road, between the junction of the Reading and Columbia railroads, and the city depot of the former road, amounting to \$25,869 03 for the year.

Statement N contains tables of the points of supply of coal to the Reading road, and the stations on the line of the latter, to which such coal was delivered.

To the present date, three of the company's oldest, and least servicable locomotive engines have been rebuilt, at the workshops of the road, at the moderate expense of \$1,891, \$1,938 and \$2,134 respectively, to engines of considerably increased power and efficiency, and are now used in the passenger and the coal business of the road. Three other engines are at present rebuilding with further improvements at the Reading depot, two of which, for the coal trade of the road will be nearly double the power of the original engines. I purpose rebuilding most of the 2d class engines in this way; the additional freight earned by the increased load of the improved engine, paying in five weeks all expenses of the alteration.

With the number of 1st class engines, and iron coal cars at present contracted for, I think the cost of transporting coal, for the ensuing year, may be further reduced to about 33 cents per ton.

At the commencement of the shipping season next spring, and in anticipation of the increasing coal business of the road, its machinery will be found in excellent condition, and well prepared to meet the demands upon it; the water stations supplied from the Schuylkill river, or large never-failing streams; and the company's workshops furnished with most improved tools and stationary machinery; thus affording facilities for keeping up the cars and engines engaged in the heavy business of the road, more valuable than hitherto experienced; and securing in their repairs, greater

economy, despatch, and excellence of workmanship.

Very respectfully your obedient servant.
G. A. NICCLIS, supt. transp. mach. and motive power.

Statement A.—Business of the year.

TONNAGE.	
Total amount of coal transported in tons of 2,240 lbs.	814,279
Do. do. mdzc. 2,000 lbs. -	26,039
Do. do. of all materials for use of road, including earth for wharves, timber, sills, iron, castings, stone, brick, cordwood, etc. etc., tons of 2,000 lbs. -	102,408
Total tonnage for year, including weight of passengers, passed over the road, in tons of 2,000 lbs. -	1,046,812
Total amount of coal transported to date, tons of 2,240 lbs.	1,505,700
Total tonnage road, from May, 1838, to present date, in tons of 2,000 lbs. -	2,188,048

PASSENGER TRAVEL.	
Total No. of passengers transported during the year -	63,719
Do. " miles travelled by - same, -	3,049,422
Equal to, in through passengers over whole length of road, -	33,146

GROSS RECEIPT OF ROAD.	
From freight on coal, -	\$886,939 09
Passenger travel, -	103,411 13
Freight on mdzc, -	60,587 74
Transportation of U. S. mail, and other sources. -	9,444 13
	<hr/>
	\$1,060,381 09

Statement B.—Gross Expenses of the Transportation Department.

RUNNING ACCOUNT.	
Wages of engineers, firemen, conductors, brakemen, time keepers, wood agents, etc.....	\$69,789 24
Wood 43,218 cords.....	99,141 01
Bills and expenses of cutting wood.....	13,893 17
Loading and unloading wood, wharfage, etc.....	5,811 88
Oil, 24,684 gallons.....	21,583 76
Tallow and grease, 37,652 pounds.....	2,500 99
Tolls paid state road.....	21,516 76
Hauling in Broad street, Philadelphia.....	679 78
Hauling across Schuylkill bridge, [state road].....	1,191 00
Renewals, articles on trains, ropes, lamps, etc..	2,070 32
Coal left on road short of consignment, used by company in water stations and shops.....	1,547 38
Cotton waste.....	1,728 62
Anthracite coal, for engine fuel and other purposes	1,618 86
Sundries, goods lost or damaged, etc.....	1,628 34—\$244,701 11

WORKSHOP ACCOUNT.	
Wages of all mechanics, at repairs of engines and cars in all workshops, and iron foundry, time-keepers, etc.....	64,429 54
Bills of bar iron, steel and hardware.....	17,494 51
Cost of pig metal and materials for iron foundry,	10,886 68
Timber for shops.....	6,234 26

All other materials, copper, brass, tires, axles, etc. 6,478 01
 Work done elsewhere.... 446 37
 Bituminous and anthracite coal for smithshops and stationary engines..... 5,139 99
 Sundries..... 54 06—\$111,163 44

DEPOT ACCOUNT.

Wages of depot hands, furnishing wood and water to trains, loading and unloading freight, etc. \$20,554 30
 Wages of watchmen at depots and switches..... 3,462 87
 Anthracite coal for water stations and offices..... 464 93
 Pumping water [in part.] and water rents..... 1,157 35
 Sundry materials and work for depots, horse feed, etc. etc..... 1,274 82
 Taxes on property..... 600 59
 Sundries..... 104 11—\$27,618 97

SUPERINTENDENCE ACCOUNT.

Salaries of all officers, clerks and agents in department..... 14,124 64

OFFICE ACCOUNT.

Stationery for all offices... 1,224 31
 Printing..... 256 50
 Advertising and subscription to papers..... 136 63
 Furniture, rent, coal and all materials for offices, Sundries..... 891 34
 437 94—2,946 72

Statement C.—Net Expenses of the Transportation Department.

Transportation of 814,279 tons coal, from coal region to Richmond, junction with state road, and other points, at 37 1-10 cents per ton. \$302,097 51
 Expenses of transportation between junction with state road, and company's depot in Philadelphia, including tolls paid state, hauling across Schuylkill bridge, in Broad street, and tolls paid city corporation..... 25,869 03
 Transportation of 26,039 tons merchandise, between Pottsville, Reading, and other points, and junction with state road, at 75 7-10 cents per ton..... 19,711 52
 Transportation of 33,146 through passengers, between Pottsville and junction with state road, at 43 1-10 cents, Superintendence, including salaries of all officers, clerks, and coal agents at depots..... 14,285 93
 Wages of watchmen at depots and switches,..... 14,435 79
 Office expenses, stationery, and all materials..... 3,462 87
 Work and materials for repairs of depots, pumps, etc..... 3,097 50
 Sundry petty expenses, extra engines, taxes, etc. etc..... 1,005 39
 1,526 33

Actual net expenses for year,..... \$385,491 87
 Add for materials on hand November 20, 1845, viz:

Wood..... \$6,916 25
 Bar, boiler, and sheet iron... 1,164 27
 Steel..... 1,368 50
 Car wheels..... 3,553 00
 All other car gearing..... 5,315 88
 Engine gearing, tires, axles, tubes, etc..... 4,269 40
 Copper, tin, brass, lead, spelter, etc..... 1,318 39
 Timber and lumber..... 951 28
 Anthracite coal..... 632 50
 Bituminous do..... 435 00
 Pig metal..... 5,141 00
 Iron castings..... 1,035 00

\$32,100 48

Deduct value of materials on

hand same date last year, 17,037 47—15,063 01

Gross expenses for year..... \$400,554 88

Statement D.—Account of Engines, Cars, and all other Running Machinery.

LOCOMOTIVE ENGINES.

16 1st class locomotive engines.
 29 2d do do
 8 3d do do
 1 2d do do used only for kyanizing timber.
 54 in all.

COAL CARS.

		Average.	Weight empty.	Capacity.
1 8 wheeled iron coal car.		4.7	11.0	
1,497 4 do do do		2.42	5.0	
494 4 do wood'n do		2.2	4.65	
1,112 4 do do do		2.05	3.2	
3,104 in all.	Tons of 2240 lbs.	2.25	4.3	

FREIGHT CARS.

92 four wheeled covered house cars, including 2 for use of road.
 175 four wheeled open platform cars, including 71 for use of road.
 3 eight wheeled covered house cars, including 1 for use of road.
 24 eight wheeled open platform cars, including 13 for use of road.
 294 in all, including 87 for use of road.

PASSENGER CARS.

12 eight wheeled passenger cars.
 2 four do do
 2 eight do baggage cars.
 5 four do do

21 in all.
 In addition to the above running machinery, the company own:

1 eight wheeled box car, extra wood tender for coal trains.
 45 four wheeled box cars, extra wood tender for coal trains. 46 in all.
 4 stationary engines, of 35, 12, 10 and 6 horse power, respectively.
 1 small locomotive engine, "Picayune," and 2 passenger cars, chiefly used by the officers.
 31 horses, chiefly for delivering coal on Richmond wharves and in Philadelphia, all expenses of which are paid by consignees.

Statement F.—Work and Repairs of Locomotive Engines for the year.

How Employed,	Classes.			Total.
	1st.	2d.	3d.	
On Reading railroad "transp." depart..	283,140	360,934	83,386	727,460
On Reading railroad const and roadway department.....		29,516	25,736	55,252
Total Reading R. R.	283,140	390,450	109,122	782,712
On lateral roads in coal region.....		23,130	160	23,290
On Philadelphia and Baltimore R. R....		4,283		4,283
Total of all miles..	283,140	417,863	109,282	810,285

Total number tons hauled one mile, not including engine or tender... 191,514,962 0
 Average weight of loaded coal trains down, not including engine or tender..... 509 1
 Do. empty coal trains up, do. do. 179 0
 Do. passenger train, do. do. 32 2
 Oil used with engine and tender, with above coal train, per 90 miles in qts. 7 2
 Oil used by engine and tender of passenger train in qts. 2 8
 All tons of 2,000 lbs.

Repairs of Above Engines.—Wages of all mechanics at repairs..... \$16,406 29

Cost of all materials used, iron, steel, brass, etc..... 10,813 91
 Superintendence, tools, oil, paint, etc..... 2,721 05

Total cost per year..... \$29,941 25
 Total No. miles ran by all engines owned by company, from May, 1838, to present date..... 2,270,965
 Total No. tons hauled one mile, between same dates..... 387,039,215

Statement G.—Repairs and Renewals of Coal, Freight and Passenger Cars.

Coal and Freight Cars.—Wages of all mechanics at repairs and renewals... \$20,070 98
 Cost of iron, steel, brass, and all metals etc..... 18,132 07
 Do. do. timber..... 6,137 64
 Superintendence, oil, tools, paints, etc... 4,434 07
 Total..... \$48,774 76

No. gallons oil used by coal and freight cars, during the year..... 10,782
 No. lbs. tallow do. do. do..... 31,732

Passenger Cars.—Wages of all mechanics at repairs, renewals and alterations... \$1,684 37
 Cost of materials..... 1,961 09
 Superintendence, oil, tools, paints, etc.... 466 88

Total..... \$4,112 13
 No. gallons oil used during year..... 184
 No. lbs. tallow..... 670

Statement H.—Items of cost, in detail, of hauling coal per round trip of 186 miles, from coal region to tide water, and back with empty cars; transporting an average load of 295 tons of coal.

Items of cost	No.	Des.	Rate	Amt.
Wages of engineer.....	2	days	2 40	\$4 80
Do. " firemen.....	2	do	1 32	2 64
Do. " conductor.....	2	do	1 40	2 80
Do " brakemen.....	5	do	97	4 85
Wood for fuel.....	12 6	cords	3 50	44 17
Oil for engine and tender, 3-6 gal.	295	tons	90	3 24
Do. and tallow for cars..	295	tons	1 5	4 42
Repairs of engine and tender.....	186	miles	4 9	9 11
Do. for coal cars.....	295	tons	5 8	17 11
Renewals of sundries, ropes, lamps, etc.,.....	295	do	6	1 77
Supplying water.....	13	m. gal.	8	1 04
Use of assistant engine at falls, grade,.....	295	tons	1 1	3 25
Car couplers, greasers, timekeepers, dispatchers, and turning crews, 295 do	295	do	9	2 65
Allowance for engines laying over, assistant engines in snow storms, etc., broken trips and sundry petty expenses, 295 do	295	do	2 58	7 61
				109 46

Equal to 37 1 cents per ton.

Statement K.—Items of cost, in detail, of running passenger trains, per daily trip of 92 miles.

Items of cost.	No.	Des.	Rate.	Amt.
Wages of engineer.....	1	day,	\$1 75	\$1 75
do. firemen.....	1	"	90	90
do. conductor.....	1	"	1 35	1 35
do. brakeman.....	1	"	90	90
Wood for fuel.....	1 7	cords,	3 50	5 95
Water used.....	1 7	m. galls.	8	14
Oil for engine and tender, Oil and tallow for cars,	7	gall.	90	63
Repairs of engine.....	89	miles,	2 1 2	2 23
do. and refitting and altering of cars,.....				6 06
Hands at depots.....				1 92
Sundries for train.....				64

\$22 87

Making, at 53 through passengers per train, 43 1 cents per passenger.

Statement L.—Items of cost, in detail, of running freight trains, per daily trip of 92 miles.

Items of cost:	No.	Des.	Rate.	Amt.
Wages of engineer.....	1	day,	\$2 50	\$2 50
do. firemen.....	1	"	1 25	1 25
do. conductor.....	1	"	1 35	1 35
do. brakeman.....	3	"	1 00	3 00
Wood for fuel.....	3½	cords	3 50	12 25
Oil for engine and tender,	1½	galls.	90	1 35
Oil and grease for cars....				1 02
Repairs of engine and tender.....	90	miles	4½	3 82
do. cars.....	61	tons	4:42	2 70
Proportion of depot hands' time and sundries.....				12 35
Water used.....	3½	m.galls.	8	0 28
Renewals of sundry articles.....				1 66
Goods lost, stolen, or damaged.....				2 67
				\$46 20

Making, at 61 tons per train, 75.7 cents per ton.

Statement M.—Details of cost of transportation of coal, passengers, and freight, over state road, and in Broad st., Philadelphia; between the point of junction of the Reading and Columbia railroad, and the Broad street depot in Philadelphia, 3½ miles.

Amount paid state, for tolls,.....	\$21,516 76
do. do. city corporation for tolls,	300 00
Cost of hauling in Broad street, to May 1, 1845.....	379 78
do. do. across Schuylkill bridge,	1,191 00
Wages of brakemen over state road,	330 00
do. do. in Broad street.....	30 00
Repairs of coal cars over state roads and in Broad street.....	814 27
do. passenger cars, do.....	319 26
do. freight, do. do.....	272 46
Cost of extra engine, hauling cars between falls and ptain.....	620 00
Sundry expenses, messengers, etc. etc.	95 50
	\$25,869 03

Statement N.—Points of Supply and Distribution of Coal.

Amount of coal received by various lateral railroads connecting with the coal region.	
West branch railroad at Schuylkill Haven.....	396,725
Mount Carbon railroad, at Mount Carbon.....	228,120
Mount Carbon and Port Carbon railroad fm Port Carbon.....	167,462
Little Schuylkill railroad, at Port Clinton.....	21,972

Total tons.....814,279

AT WHAT POINTS DELIVERED ON LINE OF READING RAILROAD.

Orwigsburg.....	90
Port Clinton.....	5
Mohrsville.....	9
Reading.....	12,142
Douglassville.....	544
Pottstown.....	2,440
Royer's Ford.....	17
Phoenixville.....	7,362
From Valley Forge to Conshehocken, including Norristown.....	10,864
Manayunk.....	990
Falls.....	1,234
Nicetown.....	7,388
Junction with, and various on state road.....	7,428
Philadelphia.....	125,274
Richmond, Delaware river.....	638,492
Total.....	814,279

Engineer's Report to the President and Managers.

Gentlemen:—The following report of the various additions and improvements, under the construction department, and of the repairs of roadway for the twelve months ending November 30th, 1845, is respectfully submitted:

With the view of giving a general statement of the work which has been done during the past year by these departments, I shall commence at the Richmond terminus, and go on regularly up the line, stating as explicitly as the limits of this report will admit, for what items this expenditure has been made.

Construction.—The amount of money issued from the engineer's office at Pottstown, and properly chargeable to construction is, \$346,965 45, and embraces the following works, viz:—

Richmond Wharves.—On the Richmond wharves there has been expended \$148,039 15. This amount includes the completion of the wharves, trestlings, planking shutes, weigh scales, counting houses, timber and iron for all these purposes, filling of the wharves, excavating and dredging docks, an additional wharf on front of the company's engine house, with a double track trestling upon it, 226 feet long, an extra double track trestling upon the 3d of the new wharves, 506 1-2 feet long, a small wharf at the southern tier for the accommodation of the company in supplying themselves with wood, etc. These, with the old wharves, have good accommodation for 80 ships, brigs and schooners, all of which can be taking in their cargo at the same time; 55 can be loaded directly from the cars, through shutes, and the balance by barrows from the yards.

These wharves are now complete in every particular, and require only a small outlay for many years to come to keep them in a perfect state of repair.

Track.—It having been found necessary for the accommodation of the business of the road, to lay down additional tracks, the following have been constructed: A sideling at Richmond for empty cars.

Another at Phoenixville, which connects with the iron works at that place.

A third at Pottstown, to accommodate the increased freighting and coal business.

Two at Schuylkill Haven, and one at Mount Carbon; these points requiring an additional track to enable the trains to be despatched with expedition, and the cars to be sent off immediately on their arrival, to the mines. This head includes also the following: A series of shutes at Phoenixville, into which the coal is deposited from the company's cars, and from thence falls into smaller cars, which are taken across the French creek, on a road constructed by others for the purpose, and will supply the extensive furnaces at that point. This work is now nearly completed, and will go into operation in a few days. A connection has been made, by means of a bridge across the canal, with the nail factory, located on the Schuylkill.

There have also been connections made during the past year, with the road at the following points:

At the summit level, between the falls and Richmond. By this means a large quantity of coal is now taken to Germantown.

A coal yard has been opened about a mile below the village of Bridgeport.

One at Royersford, a few miles above Phoenixville.

The extensive iron works adjacent to the road at Reading, are now supplied by means of shutes, the coal being deposited in them from the company's cars.

A sideling has been put in at Hamburg, with shutes, etc. Some of these points require at this time a large amount of coal, and no doubt ere long the increasing demand for this article along the line of the road will make

all of them of great importance, not only to the company, but to those who have had the enterprize to establish them.

The total amount chargeable under this head, is \$54,235 06. But beside the above work, a considerable sum has been expended in settling the balances due contractors for laying the second track last year, included in the above amount. In flat bar iron, sills, chairs and other articles for new works on the permanent way.

Water Stations.—There have been many improvements and facilities afforded during the year for obtaining a full and sufficient supply of water. This has been in a great measure accomplished. There are now 17 stations on the road, some of them capable of meeting any demand that may be made on them, and all of them capable of accommodating a heavy business. All of these stations, with one exception, have either the water led through pipes from an adjoining eminence, or are supplied by water or other power. Of the former are those at Spring Mills, Hamburg and Port Clinton, which have been erected during the last year. Of the latter, at Bridgeport and Port Kennedy, the water being forced through pipes to the cisterns by a small water wheel. A second tank has been added at the falls, and arrangements are in progress for securing a still further supply at that important point. This head also includes a large amount of cast iron pipe, and other work connected with the above. The amount of money expended is \$19,772 73.

Bridges.—Two new timber bridges have been built during the year, chargeable to the construction department. One of them at Phoenixville to connect with the nail factory on the river side. The second at Port Clinton, making the connection between the Reading road and the Little Schuylkill railroad, which has its terminus at that point. These bridges are permanent structures, well framed, and protected from the action of the weather. and cost \$9,587 71.

It has been deemed advisable to put extra stone piers under the long bridge, which crosses the Schuylkill above Reading. Two therefore have been erected under the longest spans, at a cost of \$10,796 20. This amount has been considered a proper construction charge, as the superstructure itself was in excellent condition, and fully capable of bearing the weight of engines, for which it was originally intended, but it was thought prudent to strengthen it for the large engines now in use.

The original intention of converting the small bridges into durable structures, has been carried into effect the past year in the case of five of them, of which four have been changed into stone, and one into iron, at a cost of \$12,489 20, of which \$10,176 is charged to construction, and \$2,313 20 to repairs of roadway, which would have been the cost of rebuilding the original structures.

The sum of \$3,084 84 has been expended in lengthening out the abutments of bridges, to admit of a third track being laid at the Phoenixville station. There are also several small and unimportant items included in the above.

The aggregate of the expenditures under this head, \$33,644 75.

Vertical Walling.—At two points below Pottstown, the vertical walls were considered too light for the large engines now in use. At one of these places the second track though laid, was not used till the wall was strengthened, and at the other, although the engines passed over it for a few days, it was deemed

prudent to build another wall outside of the original one. The expense of these two new walls was \$42,209 81, and as it was an outlay consequent upon laying the second track, it is deemed a proper charge to construction account. If, however, it were placed to roadway repairs, the amount of that account for the year would form no criterion of repairs, as it would merely show a very large amount for the year, for an expense which would probably never occur again.

Sundry Smith and Carpentry Work.—This head comprehends the carpentry work of woodsheds which have been placed at the principal stations along the line of the road, centring for new stone bridges, a new house at the falls, several small offices for clerks, and houses for watchmen, other than at bridges, boxes to protect water columns from frost, switch frames and laying down switches for new turnouts, trestlings for water stations, fencing in of lots, new tanks for containing water, and a variety of other miscellaneous items. The total cost of all this work is \$13,025 84.

Hardware and Lumber.—This head includes lumber for all of the above mentioned work. Hauling, loading and unloading of sundry articles used by the construction department; oils, leads, iron for new switch connecting rods, nails, spikes, etc., used in the construction of the new bridges.

Total expenditure under this head, \$10,177 27.

Sundries.—The sum of \$651 47 has been expended for stationery for engineers office, renewing and mounting of cars for transportation of earth, and a variety of minor matters. Transportation of materials for use of road and laying of second track and sidelings, (including earth for filling in of Richmond wharves,) railroad iron, sills, stone, timber, castings, etc., etc., in all 234,958 tons, at a cost of \$25,209 37, of which the sum of \$15,619 64 is for settlement of work done in 1844, and \$9,589 73 for work done in 1845.

Making an aggregate of construction expenditures for the past year of \$346,965 45, viz:

Richmond wharves, - - - -	\$148,039 15
Track, - - - - -	54,235 06
Water stations, - - - - -	19,772 73
Bridges, - - - - -	33,644 75
Vertical walling, - - - - -	42,209 81
Sundry carpentry work, - - - -	13,025 84
Lumber, - - - - -	4,987 11
Hardware, - - - - -	5,190 16
Sundries, - - - - -	651 47
Transportation of construction materials, - - - - -	25,209 37
	\$346,965 45

Repairs.—The following statement exhibits the cost of maintenance of way for the year ending November 30, 1845. And includes all repairs to track, bridges, Richmond wharves, depots, water stations, etc., and is as follows, viz:

Wages of laborers, including pay of foremen, - - - - -	\$38,870 50
Wages of mechanics, - - - - -	24,636 77
Iron, steel, tools, etc., - - - - -	9,643 20
Timber for renewals and repairs, - - - - -	14,662 25
Clearing snow and land slides, - - - - -	796 02
Masonry, - - - - -	1,815 53
Watchmen in tunnels, - - - - -	513 00
Richmond wharves, - - - - -	4,832 79
Superintendence and other sundry items, - - - - -	9,534 97
	\$105,295 03

Materials on hand, Nov. 30, 1845, \$14,133 10	}	8,763 58
Do do Nov. 30, '44, 5,369 52		
		\$96,531 45

To this must be added what would have been the cost of wooden superstructure for 5 bridges, 4 of which have been renewed with stone, and one with iron, the difference being charged to construction,

	2,313 20
	\$98,844 65

or for 94 miles of double track = to \$1051 54 per mile. This is \$51 54 over the estimated cost of repairs for 1845. It will be remembered that the bridges were constructed for twelve ton engines. Every bridge has been strengthened or rebuilt, which has increased the repairs of roadway materially. And this expense might, perhaps with propriety, be charged to construction, but has all been charged to roadway. I estimate the cost of keeping the track, bridges, wharves, water stations, depots, engine houses, etc., etc., in complete repair for the ensuing year, with a business of 1,250,000 tons of coal, at \$112,000, which is about \$1,200 per mile of double track, including sidelings.

It may prove satisfactory to the board of managers, whilst looking forward to a great increase of tonnage being transported over their road, to be aware of the actual cost of keeping up the track.

It is indisputable that the outlay of this department will increase in a comparatively unimportant ratio to the tons carried. The character of the superstructure is so excellent, its adjustment and repair so easy, that I think it may be considered as decided, that when many of the bridges shall have been converted into stone and iron, which can be done at something over double the cost of wooden structures, \$1200 per mile would be too much as an average, for any given number of years, including the wear of the iron rails.

In making a comparison with the expense of repairs of track for this year and last, it will stand thus:

	1844.	1845.
Labor on tracks, \$25,269 38	\$29,301 39	
do. ditches, - 2,340 02	3,744 33	
do. land slides, 1,367 32	1,915 49	
Clearing snow and horsework, - - - 456 18	690 54	
Cost of materials, including new rails, - 5,283 79	10,598 67	
Cost of tools, - - - 351 66	365 61	
do. trucks, etc., - 480 28	1,157 00	
Sundry items, - - - 858 55	2,704 46	
Carpentry work, - - 114 35	392 30	
Frogs, - - - - - 1,703 32	1,562 13	
	\$38,224 85	
	\$52,431 92	

It thus appears, that whilst the tonnage of the road has increased from 659,000 tons in '44, to over 1,046,000 tons in '45, and the miles run by engines from 600,000 to over 800,000, the expense of keeping up the track, in labor, has been only about \$6,300, and in materials and all other expenses, about \$8,000 over that of 1844,—making a total of about \$14,300.

This statement, too, of repairs in 1845, includes an extraordinary one of a mile of track, relaid at a cost of \$1,078 35 for workmanship. The materials, all of which were new except the iron rails, cost \$982 00, making together \$2,060 35. Thus, the aggregate for materials and labor of 1845 over that of 1844, ought, as far as ordinary repairs are concerned, to be only \$12,000, instead of \$14,000 as before

mentioned. In regard to the mile of track, the object in relaying it was this: The contractors who laid this track in 1839, instead of taking the rock (of which there was a large amount) down to grade, laid the sills on it, and by this means raised the grade considerably. It was deemed fit to make this uniform with the other portion of the road, which could not be done without removing it. Independent of this, many of the bars were bent on the inside of the curve, owing to the sills resting on the rock, which caused a very uneven and rough surface. New chairs and sills were used, though not a single bar of new iron. Some few rails, of this kind of iron, were taken from adjoining sidelings to replace those which had been injured, till time would admit of their being straightened, and again placed in the main track.

Taking, therefore, the cost for the two last years of labour in keeping up the track, opening ditches, etc., we shall find it to be \$29,433 for 1844, and \$35,651 75 for 1845, or about \$66 per mile of double track, for an additional 387,000 tons transported in 1845.

Bridges.—A large amount of money has been expended during the past year on the bridges. They are in better condition than at any time heretofore.

The following statement exhibits the cost of materials, workmanship, etc.

Iron.....	\$7,918 15
Timber.....	6,277 90
Workmanship.....	8,810 25
Coal.....	235 25
Oil.....	157 46
Lime.....	46 87
Masonry.....	1,732 51
Painting.....	778 69
Sundries.....	1,155 50
To which add what would have been the cost of a wooden superstructure for five bridges, four of which are stone, and one iron.....	2,213 20
Total.....	\$30,426 68

Deduct renewals and repairing of small bridges..... 12,938 59

Leaving the total repairs to large bridges, \$17,487 19

Or, \$2 81 per lineal foot of superstructure.

During the ensuing year it is my wish to continue to change some more of the bridges from wood to stone and iron.

The repairs to small bridges, varying in span from fourteen to forty feet, have been, as appears by the foregoing statement, \$12,938 59. This sum includes the entire cost of rebuilding sixteen of timber; and also, what would have been the cost of renewing with wood the bridges which were constructed with stone and iron.

The iron bridge was erected last June, and has equalled my most sanguine expectations. The cost is less than that of a stone structure. But the system of iron bridges will only be adopted where it is not practicable to construct them of stone.

Richmond Wharves.—The following have been the repairs to Richmond wharves.

Wages of mechanics - - - - -	\$2,190 82
Cost of timber - - - - -	592 08
" iron, steel, and tools - - - - -	900 02
Dredging, repairs of machinery - - - - -	612 13
Sundry materials - - - - -	537 73
	\$4,832 79

Which for 638,492 tons of coal shipped at Richmond, is equal to about 7 mills per ton.

The expenditures for the following items have been as follows, viz:

Expense of transporting materials for repairs of road, including wages of men, repairs of engines and cars, etc. - - - - -	\$3,784 33
Stationary engine and saw mill accounts, including all expenses and repairs. - - - - -	2,461 14

Office account, including salaries of officers. 2,198 00
 Sundry miscellaneous expenditures. 1,710 69
 The following are not included in the foregoing:

Watchmen on Bridges.

The expense for watchmen has been 9,269 36
 " of clearing snow on lateral roads, etc. \$869 74
 Credit by articles sold, year ending November 30th. 338 16
 531 58

Railroad Iron.—The question of the wear of railroad iron has of late years attracted much attention. Our former opinions on the subject are confirmed. The entire number of bars removed from the two tracks during the year has been 406.

Of these the number of the 60 lbs., or new rail, is 295
 And of the light, or old rail. 111
 The causes of removing the 295 bars of 60 lbs. rail, were—

1 was bent by a land slide, and will be used again in the main track.

285 have split, showing an imperfection in the manufacture, these will be used in sidelings.

9 have been crushed, and are unfit even for this purpose.

Every one of these 294 bars were more or less defective originally. Most of them showed the imperfection very shortly after they were used, and many before they had been in the track for a week.

Of the 111 bars of light rails—
 3 have been rendered useless.

47 have been bent by land slides and accidents, and will all be put back in the main track when straightened.

61 were unfit for the main line, but can be used in the sidelings—38 of them were switch rails.

But even supposing that all of these 406 bars have been rendered worthless, except for old iron, the loss would be as follows:

406 bars, weighing 126,672 lbs., at \$70 per ton, \$3,920
 Deduct value as old iron, at least 50 per cent. or \$35 per ton, 1,960
 Loss, \$1,960

The cost of the rails in the two tracks, at \$70 per ton, is about \$1,075,000. Therefore the rails removed from the track during the year, even supposing them all unfit for any railroad purposes, is less than one-fifth of one per cent. of the value of the iron on the road. Last year it was less than one-sixth of one per cent. Our experience proves that the depreciation of the rails is a very trifling item in the expense of transporting coal.

All of which is respectfully submitted,
 JNO. H. OSBORNE.
 Pottstown, Nov. 30th, 1845.

Central Railroad, Michigan.—The following are said to be the names incorporated in the bill for the sale of the Michigan Central railroad:—

William Sturgess, John E. Thayer, Alexander Duncan, William F. Weld, Josiah Quincy, Jr., David A. Neal, John Bryant, Jas. H. Mills, Erastue Corning, Thomas H. Perkins, Jahn P. Cushing, George Griswold, John M. Forbes, R. B. Forbes, Dudley L. Pickman, J., W. Brooks, Cyrus Butler, Moses B. Ives, Robert H. Ives, Edward King, John C. Brown, Thos. H. Perkins, Jr., Marcus T. Reynolds, Gerritt Y. Lansing, John Townsend, and Rufus H. King.

We will be responsible for the construction of a good road if these gentlemen obtain a liberal charter,

RAILROAD IRON. 500 TONS HEAVY
 T Rails, of an approved pattern, expected to arrive here during March, or early in April.
 Apply to DAVIS, BROOKS & CO.
 March 5, if 30 Wall street.



No 23 Pear street, below Walnut, near Third, Philadelphia.

NOTICE TO CONTRACTORS. Proposals will be received at Bridgeport, until the 20th of March next, for re-laying the Housatonic railroad with an H rail.

Specifications will be furnished at the office of the undersigned, in Bridgeport, on and after the 20th February. R. B. MASON, Engineer.
 Bridgeport, February 14, 1846. 8 5t

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.

PETER COOPER, 17 Burling Slip.
 New York, January 23d, 1846. 1y 10

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,
 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

KITE'S PATENT SAFETY BEAM.

MESRS. EDITORS.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheel passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.

Wilmington, Del., Sept. 28, 1840.

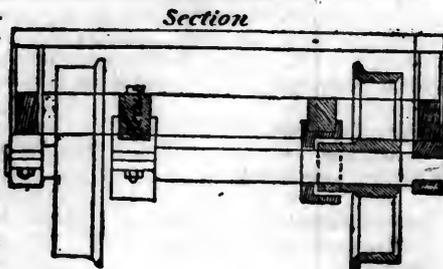
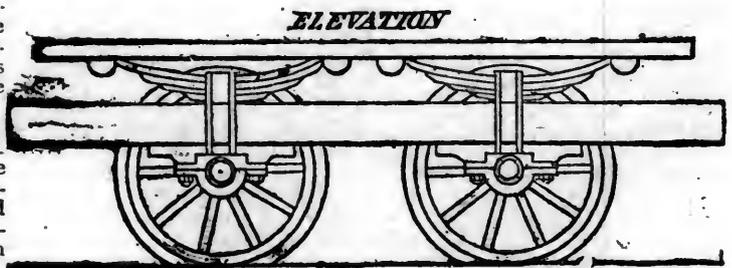
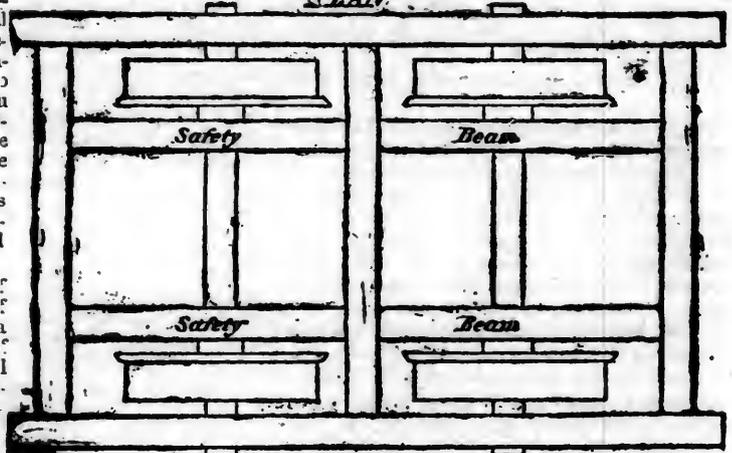
The undersigned takes pleasure in attesting to the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.

In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.

JOHN FRAZER, Agent,
 GEORGE CRAIG, Superintendent,

JAMES ELLIOTT, Snp. Motive Power,
 W. L. ASHMEAD, Agent.

A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 1 Hanover st., N. York. ja6



PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. **JOHN F. WINSLOW, Agent.**

Albany Iron and Nail Works, Troy, N. Y.
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.
Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.
ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

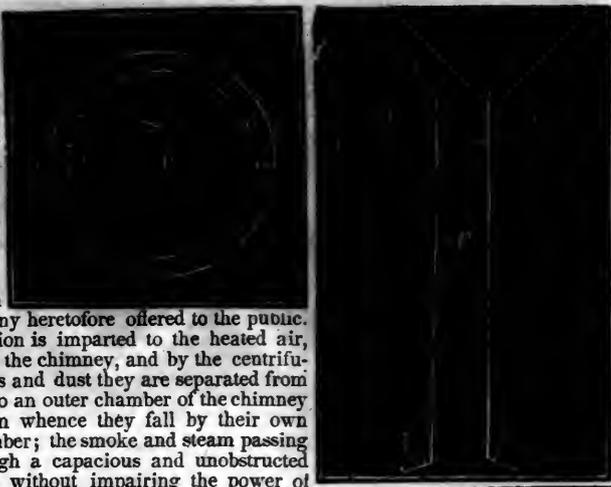
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norris-town Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabeth-town and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, or to Messrs. Baldwin & Whitney, of this city, will be promptly executed.

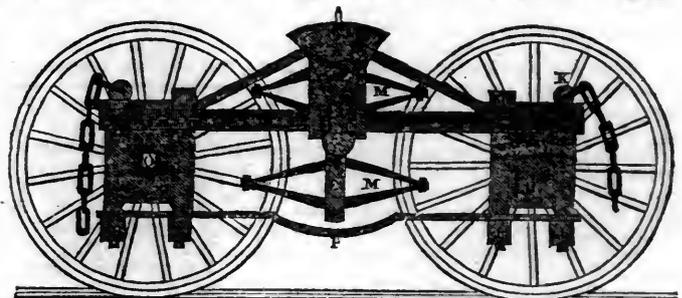
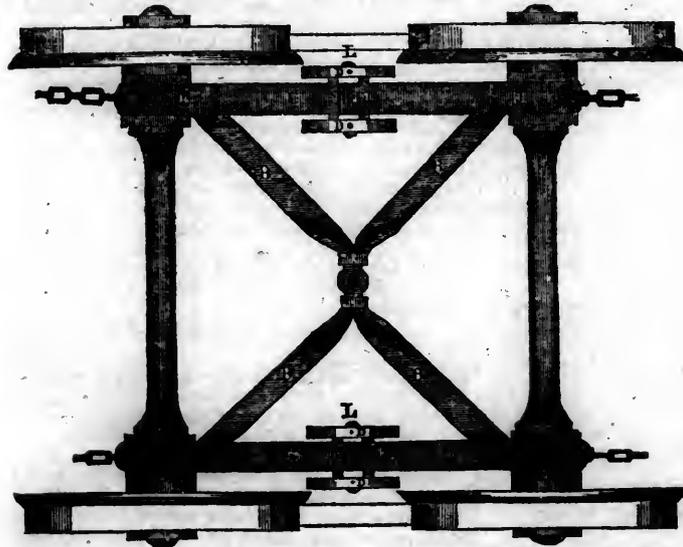
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.
Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45



BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' PATENT CAR AND TRUCK.



DAVENPORT & BRIDGES' IMPROVED PATENT IRON TRUCK FOR RAILROAD CARS, is presented above, and the attention of Railroad Companies is respectfully invited to the following description of their just-celebrated invention.

These Trucks are adapted as well for eight-wheeled passenger cars as for baggage and freight cars, giving to each a more agreeable and easy motion than any other Truck heretofore constructed or in use. They are simple in their construction, combining strength and great durability, although weighing at least twelve hundred pounds less than the common Trucks. Besides these excellences, by reason of the elasticity of the braces, B, B, B, B, as seen in the drawing, and the other peculiarities of construction, made for inside or outside bearing, the weight is equalized upon all the wheels, and yet any one

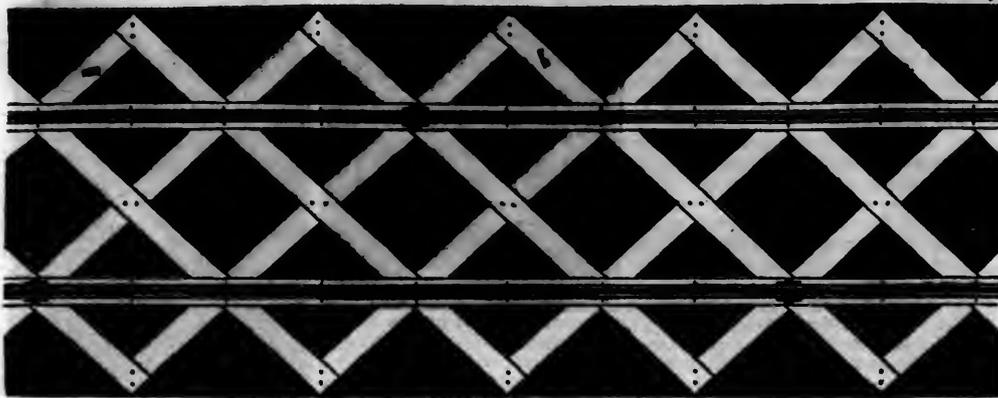
may be raised so as to pass any inequality on the rails without lifting either of the other wheels from the track, thus rendering it almost impossible to run a car off. Being bound, and having as it were but four joinings, they are protected from injury by lateral strains, and in case of damage are easily repaired.

These excellences have been fully tested by use, for a long time, on the Eastern, the Fitchburg and Long Island railroads; and for proof of the above stated superiority of these Trucks over all others, we refer to the experience of those who have used and run them.

CAMBRIDGEPORT, April 1, 1845.

DAVENPORT & BRIDGES.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON,
Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made. 1y1

W. R. CASEY, CIVIL ENGINEER, NO. 23 Chambers street, New York, will make survey estimates of cost and reports for railways, canals, roads, docks, wharves, dams and bridges of every description. He will also act as agent for the sale of machinery, and of patent rights for improvements to public works.

TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 11f

C. J. F. BINNEY,

GENERAL COMMISSION MERCHANT and Agent for Coal, and also Iron Manufactures, etc.

No. 1 CITY WHARF, Boston.

Advances made on Consignments.

Refer to Amos Binney, Boston.

Grant & Stone,

Brown, Earl & Erringer, } Philadelphia.

Weld & Seaver, Baltimore.

December 8, 1845.

1m 50

SCRIBNER'S ENGINEERS' AND MECHANICS' COMPANION. For sale at this office. Price \$1-50.]

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/4 x 1/2 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/4 x 1/2 " Flange Iron Rails. 75 " 1 x 1/2 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/4 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,
Albany Iron and Nail Works,
Troy, N. Y.

11y

RAILROAD IRON WANTED. Wanted, 50 tons of Light Flat Bar Railroad Iron. The advertisers would prefer second-hand iron, if not too much worn. Address Box 384 Philadelphia P. O.—Post paid. 8 4t

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING:

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum...	5 00

ENGINEERS and MACHINISTS.

- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM AND GROSVENOR, Paterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- H. R. DUNHAM & Co., N. Y.
- WEST POINT FOUNDRY, N. Y.
- PHENIX FOUNDRY, N. Y.
- R. HOE & Co., N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.
- BALDWIN & WHITNEY, Philadelphia, Pa.
- THOMAS & EDMUND GEORGE, Philadelphia. (See Adv.)

PROVIDENCE AND WORCESTER Railroad.—Notice to Contractors.

The Route of this Road will be prepared for Examination by Contractors on the 16th of February, and Proposals for the Graduation, Masonry, Bridges, Timber, Spikes, Chains, etc., will be received after that date, until the 25th of February.

Blank Proposals, with Specifications attached, may be obtained, and the Profiles examined, at the offices in Worcester and Providence, after the 16th of February.

T. WILLIS PRATT,
Engineer.

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

AMERICAN RAILROAD JOURNAL,

AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 12.]

SATURDAY, MARCH 21, 1846.

[WHOLE No. 508, VOL. XIX.

BOSTON AND MAINE RAILROAD.
Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Spring Arrangement, 1846.

On and after March 2, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:
Boston for Portland at 7½ a.m. and 2½ p.m.
Boston for Great Falls at 7½ a.m., 2½ and 3½ p.m.
Boston for Haverhill at 7½ and 11½ a.m., 2½, 3½ and 6 p.m.

Portland for Boston at 7½ a.m., and 3 p.m.
Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.
Haverhill for Boston at 6½, 8½, and 11 a.m., and 3 and 6½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value. CHAS. MINOT, February 23, 1846. 1y Super't.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Winter Arrangement. On and after Monday, Nov. 3, the Passenger Trains will run as follows:

For New York—night line, via Stonington.—Leaves Boston every day, but Sunday, at 4½ p.m. Accommodation trains, leave Boston at 8 a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m.

Dedham trains, leave Boston at 9 a.m., 3, 5½ and 10 p.m. Leave Dedham at 8 and 10½ a.m., and 4½ and 7 p.m.

Stoughton trains, leave Boston at 12 m. and 4 p.m. Leave Stoughton at 8-20 a.m. and 2½ p.m. All baggage at the risk of the owners thereof.

N.B. The last train to and from Boston and Dedham, will be omitted in case of a severe snow storm. W. RAYMOND LEE, Sup't. 31ly

BRANCH RAILROAD AND STAGES CONNECTING with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents. 43 1y

Corner of Cedar and Greenwich Sts.

NORWICH AND WORCESTER RAILROAD. On and after May 22, 1845, Trains will leave as follows, viz:—

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m. The morning train from Norwich, and the morning and evening trains from Worcester, connect with the Boston, Western, and Hartford and Springfield railroads.

New York Train, via Steamboat. Leaves Norwich for Worcester and Boston, every morning except Monday, upon the arrival of the boat from New York, about 2 a.m. Leaves Worcester for Norwich and New York, at 5½ p.m., daily, except Sunday.

New York Train, via Long Island Railroad.—Leaves Norwich about 3 p.m., for Worcester and Boston, daily, except Sunday. Leaves Worcester for Norwich and New York, at 7½ a.m., daily, except Sunday, and arrives in Norwich at 9½.

Freight Trains. Daily, except Sunday. Fares are less when paid for Tickets, than when paid in the cars.

EMERSON FOOTE, Superintendent. 32 1y

NEW YORK AND HARLEM RAILROAD Company.—Winter Arrangement.

On and after November 3d, 1845, the cars will run as follows:

Leave City Hall for Yorkville, Harlem, Morrisiana, and Williams' Bridge,

7 30 A.M. This train leaves 27th st.
7 30 " Does not stop this side of Harlem.
10 30 " Does not stop this side of Harlem.
11 30 " "
1 P.M. Does not stop this side of Harlem.
2 30 " "
3 30 " Does not stop this side of Harlem.
4 30 " "

Leave White Plains for City Hall—8-10, 11-10 a.m., and 1-45, 4-10 p.m.

Leave Tuckahoe for City Hall—8-20, 11-20 a.m., and 1-55, 4-20 p.m.

Leave Williams' Bridge for City Hall—8-45, 11-45 a.m. and 12-45, 2-15, 3-45, 4-45, and 5-45 p.m.

Leave Morisiana for City Hall—8, and 9-10 a.m., and 12-10, 1-10, 2-40, 4-10, 5-10, and 6-10 p.m.

The freight train will leave City Hall at 12-45 p.m. and leave White Plains at 11-10 a.m. All freight must be at the City Hall between the hours of 10-30 a.m. and 12-30 p.m. The White Plain trains will stop, after leaving the City Hall, only at the corner of Broome street and the Bowery, Vauxhall Garden and 27th street.

The City Hall and 27th street line will run every 6 minutes from 7-30 a.m. to 8 p.m.

The City Hall and 27th street night line will run every 20 minutes from 8 to 12 o'clock.

On Sundays the trains will be regulated according to the state of the weather. 1y 46

NEW YORK AND ERIE RAILROAD LINE. For Middletown, Goshen, and intermediate places. Two daily lines each way, as follows:

For passengers, the new, and commodious steamboat St. Nicholas, Capt. Alex. H. Shultz, will leave the foot of Duane street daily, [Sundays excepted,] at 7½ o'clock, A.M., and 5 o'clock, P.M., through in five hours. Returning, the cars will leave Middletown at 6, A.M., and 4½, P.M. For further particulars inquire of J. Van Rensselaer, Agent, corner of Duane and West streets.

H. C. SEYMOUR, Superintendent. Stages run from Middletown daily, in connection with the afternoon line, to Bloomingburg, Whitesboro, Monticello, Mt. Pleasant, Binghamton, Owego, Port Jervis, Honesdale, Carbondale, etc.

On Monday, Wednesday, and Friday, to Dundaff, Montrose, Friendsville, Lenox, Brooklyn, etc. 31 1y

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and

Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH. Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13 1y

DAVIS, BROOKS & Co., 30 WALL ST. Have now on hand and for sale, 200 tons 2½ x ½ inch Flat punched Rails, Bars 18 feet each. 100 tons Heavy Edge Rails, 90 tons per mile. 30 tons 2½ x ½ inch Flat Rails. ALSO—A STEAM FILE DRIVER, built by "Dunham & Co." which has never been used, and cost originally \$5000. s20

BALTIMORE AND SUSQUEHANNA
Railroad. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a.m., and arrives at 6 1/2 p.m. Arrives at York at 12 1/2 p.m., and leaves for Columbia at 1 1/2 p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62 1/2. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3 1/2 p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc.

Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day any passenger train.

D. C. H. BORDLEY, Supt.
Ticket Office, 63 North st.

31 ly

CENTRAL RAILROAD-FROM SAVANNAH
to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$3 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods... 13 cts. per cubic ft.

On brls. wet (except molasses and oil)... \$1 50 per barrel.
On brls. dry (except lime)... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery... 40 cts. per hundred.
On hhd. and pipes of liquor, not over 120 gallons... \$5 00 per hhd.
On molasses and oil... \$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, 40 Gen'l. Supt. Transportation.

GEORGIA RAILROAD. FROM AUGUSTA
to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHICALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothicaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothicaloga.

On Boxes of Hats, Bonnets, and Furniture per foot... 16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs... 95 "
" Sugar, coffee, iron, hardware, etc... 65 "
" Flour, bacon, mill machinery, grindstones, etc... 33 1/2 "
" Molasses, per hoghead \$9 50; salt per bus. 20 "
" Ploughs and cornshellers, each... 75 "
Passengers \$10 50; children under 12 years of age half price.

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothicaloga.

J. EDGAR THOMSON,
Ch. Eng. and Gen. Agent.

Augusta, Oct. 21 1845.

*44 ly

WHARF BOLTS. THE SUBSCRIBERS
are now ready to Contract to deliver Wharf Bolts, at a reduction of 10 per cent. on last year's prices.

SAML KIMBER & CO.

8 ft

59 North Wharves, Philadelphia.

WESTERN AND ATLANTIC RAILROAD.
The Western and Atlantic Railroad is now in operation to Marietta, and will be opened to Cartersville, in Cass county, on the 20th of October—and to Coosa Depot, (formerly known as Borough's,) on the 20th of November.

The passenger train will continue, as at present to connect daily (Sundays excepted) with the train from Augusta, and the stage from Griffin.

CHAS. F. M. GARNETT,
Chief Engineer.

43

LITTLE MIAMI RAILROAD. — DISTANCE
65 1/2 Miles. Fare, \$1 50. From 1st November to 1st March Passenger Trains leave Cincinnati for:

Xenia at 11 o'clock, A.M. Returning, leaves Xenia at 8 1/2 o'clock, A.M. Freight Trains run daily, Sundays excepted.

At Xenia, Passenger Trains connect with daily lines of stages to Columbus, Wheeling, Cleveland and Sandusky city.

W. H. CLEMENT,
Supt. and Engineer.

ly 1

LEXINGTON AND OHIO RAILROAD.
Trains leave Lexington for Frankfort, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above.

35 ly

NICOLL'S PATENT SAFETY SWITCH
for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. G. A. NICOLLS, Reading, Pa.

ja45

KEARNEY FIRE BRICK. F. W. BRINLEY,
Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, Peter Cooper, Murdock, Leavirt & Co. } New York.
J. Triplett & Son, Richmond, Va.
J. R. Anderson, Tredegar Iron Works, Richmond, Va.

J. Patton, Jr. } Philadelphia, Pa.
Colwell & Co. }
J. M. L. & W. H. Scovill, Waterbury, Con.
N. E. Screw Co. } Providence, R. I.
Eagle Screw Co. }

William Parker, Supt. Bost. and Worc. R. R.
New Jersey Malleable Iron Co., Newark, N. J.
Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly. 35 ly

DAVIS, BROOKS & CO., 30 WALL ST.,
have on hand for sale,

Railway Iron of different sizes—heavy and flat bars.

A Steam Pile Dryer—built by "Dunham & Co."—in complete order; has never been used, and for sale a bargain. Cost originally \$5,000. Also 12 Railway Passenger Cars, that have never been used, which will be sold a bargain. 8 ft

PROVIDENCE & WORCESTER R. R.
Notice to Contractors. The time for receiving proposals has been extended to the 11th March. The route is ready for examination, and blank proposals and specifications may be had at Worcester and Providence. All proposals must be sealed, accompanied by names of references and sureties, and directed to the engineer, at Providence, prior to the above date.

84 t T. WILLIS PRATT, Engineer.

MACHINE WORKS OF ROGERS,
Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.

TO RAILROAD COMPANIES AND MANUFACTURERS
of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.

THE SUBSCRIBERS, SOLE AGENTS
for the sale of

Codorus, Glendon, Spring Mill, and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAML. KIMBER, & CO., 59 North Wharves, Philadelphia, Pa.

Jan. 14, 1846. [ly4] Philadelphia, Pa.

GEORGE VAIL & CO., SPEEDWELL IRON
Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. ja45 ly

RAILROAD IRON AND LOCOMOTIVE
Tyres imported to order and constantly on hand
by **A. & G. RALSTON**
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS.
etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc. —respectfully offers to dispose of Company, State Rights, etc., under the privileges of *letters patent* to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of *improving* their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

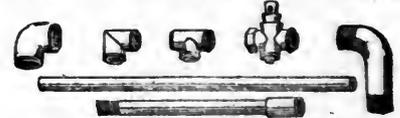
W. Mc. C. CUSHMAN, Civil Engineer,
Albany, N. Y.
Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

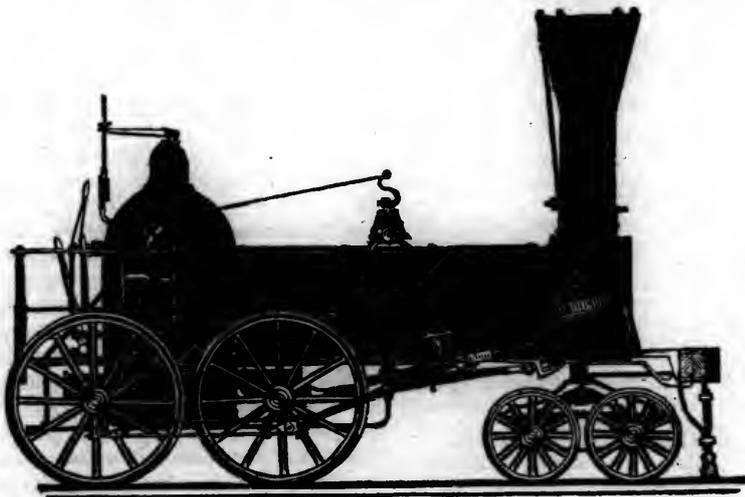
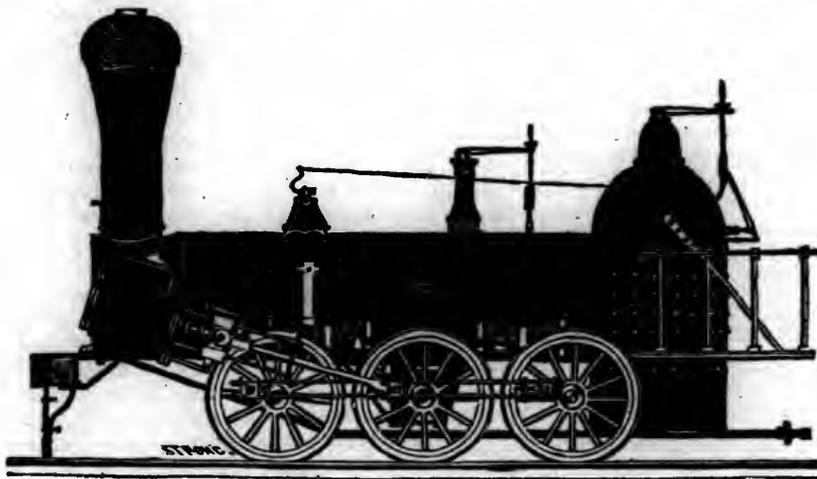
WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L. and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of	Cylinder,	×	20 inches	Stroke.
" 2,	14	"	"	×	24	"
" 3,	14 1/2	"	"	×	20	"
" 4,	12 1/2	"	"	×	20	"
" 5,	11 1/2	"	"	×	20	"
" 6,	10 1/2	"	"	×	18	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels or the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

RAILROAD IRON.—THE MARYLAND AND NEW YORK IRON AND Coal Company are now prepared to make contracts for Rails of all kinds. Address the Subscriber, at Jennon's Run, Alleghany County, Maryland.

WILLIAM YOUNG,
President.

TO IRON MASTERS.—FOR SALE.—MILL SITES in the immediate neighborhood of *Bituminous Coal and Iron Ore*, of the first quality, at Ralston, Lyoming Co., Pa. This is the nearest point to tide water where such coal and ore are found together, and the communication is complete with Philadelphia and Baltimore by canals and railways. The interest on the cost of water power and lot is all that will be required for many years the coal will not cost more than \$1 to \$1 25 at the mill sites, without any trouble on the part of the manufacturer; rich iron ore may be laid down still more cheaply at the works; and, taken together these sites offer remarkable advantages to practical manufacturers with small capital. For pamphlets, descriptive of the property, and further information, apply to Archibald McIntyre, Albany, to Archibald Robertson, Philadelphia, or to the undersigned, at No. 23 Chambers street, New York, where may be seen specimens of the coal and ore.

W. R. CASEY, Civil Engineer,

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 feet, with lathes, work benches, &c.

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 1/2 feet two stories high, with a shed part 45 1/2 x 20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS, 48 State st.,** or to **CURTIS, LEAVENS & CO., 106 State st., Boston,** or to **A. & G. RALSTON & Co., Philadelphia.** ja45

CYRUS ALGER & CO., South Boston Iron Company.

PROPOSED CHARTER OF 1846.

We have re-printed from the Journal of Commerce of Wednesday the eighteenth of February, the draft of a bill which has been approved by the board of aldermen for amending the city charter. We have not re-printed the editorial commendation of the bill which accompanied its publication, inasmuch as we think the worthy editors of that valuable public journal have greatly erred in the commendatory notice, and we hope to be able to convince them of this in our review of the provisions of the bill in detail.

It was formerly the custom to legislate enactments to accompany the bill with a preamble reciting the mischiefs its provisions were intended to remedy—it was a good custom and should not have been discontinued.

Had that been done in this case, the bill would demonstrate an absurdity, for the mischief is in the departments, and not with the newly elected aldermen.

Abuses of an aggravated and alarming character have been committed, and the great inquiry is—by whom?

Here is the foundation to begin at. The departments of the city government have been wretchedly administered. Corruption and abuses of an aggravated character have existed in the departments to such an alarming extent that if a scrutiny was to be had and the abuses fully exposed, the citizens would raise *en masse* and demand their abolition.

Take up any particular act of the corporation that is complained of, and begin with its commencement in the common council, and follow its details to its final consummation through the departments, and it will be readily seen where the mischief attached, and in which department of the city government the fault lies, and what particular officer the blame attaches to.

Much is said about the inexperience of members of the common council, and this it is suggested in the bill, can be remedied by making the term of aldermen of three years duration in place of one year.

Experience is universally acknowledged to be the best schoolmaster, and we have this developed most satisfactorily in the records of the common council since the adoption of the amended charter in 1830, and before that change. Many of the members of the common council have been re-elected for years in succession, and there are now in that board gentlemen who have for several years been members of the common council. Contrasting these gentlemen with their associates of lesser experience, and thus obtain the sought for *desideratum*, if attainable by means of extended terms of office. We forbear any comparison which may be deemed personal, but state the case as a matter of general application. Our conclusion is that the experiment has been tried and found a failure.

The advocates of the bill in hand, are warm in their expressions of admiration of the general frame of our state fundamental law, and claim in this bill to copy after it, but section two repudiates the very doctrines they advocate, for by the constitution, members of the legislature cannot at the same time hold or fill any other civil office, but this section of the bill provides that all the powers given to the mayor, aldermen and commonalty shall continue to be vested in that body. Thus a member of the board of aldermen is by virtue of his office of alderman, judge of the court of oyer and terminer, judge of the court of general sessions, judge of the court of special sessions, judge of the county court, commissioner of excise, health commissioner, supervisor of the county, commissioner of highways, magistrate in his ward, and if made president of the board, acting mayor of the city. Now then where is the great regard for great principles contained in the constitution?

An alderman cannot discharge the duties of all these ex-officio offices, and besides all of them are incompatible with the office of a member of the common council possessing the legislative powers of the corporation.

The first section of the bill is a needless provision which will be readily seen when compared with section one of chapter 122 of the laws of 1830.

Section 2, is a dangerous and ruinous provision. Whatever powers are intended to be given to the common council, should be plainly and distinctly

stated, and all not intended to be given should be interdicted.

Section 3, provides for 18 aldermen. Since 1836, application was made to the legislature to increase the number from 16 to 17, for the reason that in 1836, the number of whig aldermen were 8, and the democratic aldermen 8, which made a tie vote, and two months time was consumed in organizing the board, during which time no public business could be transacted by the board.

Section 4, provides for a longer term of office. We have discussed that point in our prefatory remarks.

Section 5, increases the number of assistants, and inasmuch as the members are to be paid \$750 per year, by ordinance to be passed by themselves, the increased expenditures in this will be near \$30,000 per annum for assistants, and more than \$13,000 for the aldermen, besides gold pencil cases, stationery, maps, sets of volumes of natural history, etc., etc.

Section 7, is a substitute for the same section in chap. 122 of 1830, and is intended to defeat the restraints upon that necessary provision of that act, which was more dwelt upon as to its importance in the convention which framed it than any other.

The 8th section is unnecessary, as by the act of 1830 the common council can fix the session in any way they shall see fit to determine by a joint rule of the two boards, and the same remark will apply to section 9.

Section 10 does not reinforce the mayor's veto, but leaves it as it is, with one qualification growing out of periodical sessions of less frequency than now held, but that same provision is contained substantially in chapter 122 of the laws of 1830.

Section 11 is an absurdity. The state constitution provides for the election of the mayor annually, and an attempt to dictate to the state convention to assemble in 1846, as to extending the term to two years is improper.

If the members of the common council were all allowed to serve two years, it would be well, but electing only a part, does not lessen the frequency of charter elections.

Section 12 treats of executive power. The supreme court say, some of the powers of the corporation are in part executive, judiciary and legislative, and we add, others are administrative and others ministerial. The act should define the powers by express provision. The nomination of officers by the mayor to the board of aldermen is a good provision, but he should have power to suspend an officer for misconduct, and the board which consents to his appointment should have the power of prompt removal from office for good cause. These remarks are also applicable to section 13 and 14.

Section 15 provides for compensation to members of the common council. These officers should be paid compensation for each day's session in the day time, but it should be in lieu of all other pay, and they should hold but the one office. This last remark applies to section 16.

§ 17, is well enough, but it should provide for a record, which record should be approved by the mayor, and be open for inspection.

§ 18, is a deliberate wrong of untold and incalculable magnitude. Those who have adopted it, have been deceived as to its import.

The business of the corporation should be managed by departments suitably organized, and under proper and salutary restrictions, and each should be independent of the other. Most of the duties that pertain to departments are administrative, or ministerial. The heads of the departments should be elected by the people. This remark is applicable to the remaining sections of the bill, all of which are badly framed, and not calculated to meet the expectations of those who are desirous of reform and retrenchment in city expenditures.

This bill was not published until it was passed by the board of aldermen and was in three days after concurred in by the board of assistants, and hurried off to the legislature to be passed into a law, and then to be submitted to be people the second week in March. *Why this great haste?* The submission to the people should be made at a general election, and full publicity should be given to the bill.

The great majority of the citizens are in favor of restricting the powers of both the officers of the corporation and of the members of the common council.

The provisions of this bill will not accomplish that end.

In 1824 an act was passed entitled an act to alter the organization of the common council. See *session laws of 1824*. A similar act was passed in 1828. See *session laws of that year*. Both these acts were rejected by the people. In 1830, a convention was called to frame a bill for the legislature to pass into a law. This was accepted by the people and subsequently enacted by the legislature, and is now the law, and the difficulty is that the corporation officers, as well as the common council, disregard its provisions.

Chief justice Bronson, in an opinion recently given by him, touching the seventh section of the amended charter, said: "The language is imperative—the ayes and noes shall be called. When the particular mode in which the corporation is to act is thus specially declared by its charter, I think it can only be in the prescribed form. The contrary doctrine wants the sanction of legal authority, and is fraught with the most dangerous consequences.—It would place corporations above the laws, and there is reason to fear that they would soon become an intolerable nuisance."—*Examiner*.

INDEPENDENCE OF EUROPEAN COURTS.

The following anecdote we cut from the columns of the Albany Daily Advertiser.—It belongs to go along side of the assessment matters, showing a contrast in the Judicial proceedings of the courts of our state, compared with that of a kingly government.

"We have much pleasure in laying before our readers an interesting anecdote, which has been communicated to us by a gentleman recently from Berlin. Some time since an effort was made to get rid of a windmill, the close approximation of which to the royal palace rendered it in some degree a nuisance, and certainly an eye-sore. Overtures were accordingly made to the sturdy yeoman for the purchase of the obnoxious property; but whether it was that the man was possessed of a strong spirit of obstinacy, or was really deeply attached to his old family habitation, the result was that the offers, tho' tempting, were again and again refused. There are very generally some individuals attached to a court who are ready to suggest remedies, direct or indirect, for inconveniences or annoyances offered to royalty. Accordingly, upon a hint from some minion, a lawsuit was commenced against the obstinate miller for the recovery of certain sums alledged to be due for arrears of an impost on that portion of crown land which it was suggested was occupied by the mill in question. The sturdy holder of the "toll dish" was not altogether without friends or funds, and he prepared vigorously to take his stand in defence of his rights. The question came in due time before the courts of law, and the plaintiff having completely failed to establish any right on behalf of the crown, the miller obtained a verdict in his favor, with a declaration for payment of his costs in suit. This was certainly no small triumph, and merrily went round the unfurled sails for the old mill, and well pleased no doubt, was the owner with the sound, as they went whirling and whizzing under the influence of the gale, which certainly seemed to blow strongly in his favor. But he was not the first who has found that when drawn into a lawsuit, particularly with so formidable an opponent, a man is more likely to "gain a loss" than escape scot free. What with extra expenses, interrupting of business, and

rejoicings after the victory, the miller found himself pressed by considerable difficulties, and after in vain struggling a few months against the pressure, he at length formed a manly resolution, gained access to the monarch, and, after roughly apologizing for his having thwarted his majesty's wishes, frankly admitted that his wants alone had rendered him compliant, but that he was prepared to accept the sum originally offered for the property. The king, after conversing with the miller a few minutes, handed him a draught for a considerable amount, saying, "I think, my honest friend, you will find that sufficient to meet the emergency; if not, come and talk to me again on the subject. As to the mill, I assure you that I will have none of it. The sight of it now gives me more pleasure than it ever occasioned pain: for I see in it an object that assures me of a guaranty for the safety of my people, and a pledge for my own happiness by its demonstration of the existence of a power and a principle higher than the authority of the crown, and more valuable than all the privileges of royalty."—London Paper.

Ocean Steam Navigation.

We find the following communication in the Journal of Commerce, and we give it a place in the Journal, as containing information both useful and interesting.

I have read objections urged by you and one or two of your correspondents, in reference to the route selected by the government for the transportation of the United States foreign mail in American steam ships. The route from New York to Cowes, Bremen, and alternating with Havre, was fixed upon after extensive inquiries and investigations instituted by the post office department at Washington. Letters were addressed to American consuls, and commercial gentlemen of great intelligence and respectability, resident at Cowes, Bremen, Hamburg, and other continental ports, and replies were obtained which shed a flood of light on the subject, proving conclusively, so far as our mail service and commercial interests was concerned, that the Cowes station, on the isle of Wight, was better than any other. Those who have taken the liberty of objecting to the route in advance, have probably not read the correspondence of the government on this important subject.

After all, the matter is a very simple one. The government advertises for a mail contract by ocean steamers, from New York to Cowes and Bremen, and a responsible company of capitalists step forward and obtain the contract by being the lowest bidders.—Their taking the contract under bonds, is a proof of their confidence in the future profitability of the route. If they are willing to embark their capital in a line of steamers to run on the route designed, I cannot see any cause of complaint on the part of disinterested persons.

In running to Liverpool, they would have come in competition with the Great Western and Cunard lines of steamers, both of which, it is expected, will be strengthened by the multiplication of additional steamers.

Our trade with the continental ports is every year on the increase. A great revolution is in progress on the continent by the construction of railroads, intersecting every part of the populous and central portions of Europe.

Mr. A. D. Mann, for some time our intelligent consul at Bremen, says in his letter published in the Washington Union of the 3d Oct., 1845, that Cowes is the most favorable point for touching at, between New York and Bremen. He further remarks, that from "Cowes to London, I performed the journey in 3 hours. From Cowes to Havre the voyage has been made in 7 hours, and from the latter to Paris by railroad will only consume about 5 hours. It is therefore perfectly apparent, that a line of well conducted steamers may be made to answer the purpose of communicating with Great Britain, France, Germany, and indeed with all the continental powers and states of Europe, as effectually as could be desired."

"A continuous railway track will be completed between Bremen and Trieste before the expiration of two years. I ascertained before I left Germany, that, in order to expedite the overland mail from London to the East Indies and China, it was to be embarked at Trieste, instead of Marseilles."

In a second letter published at the same time, Mr. Mann remarks as follows, as to the enormous cost of letters transmitted by the English mail steamers and carried across England to residents on the continent.

"The postage on letters mailed at Boston, where the weight does not exceed half an ounce, *via* Liverpool per British steamers, amounts to 40 groats, equal to 43½ cents at the true par of exchange, when they reach this place. Newspapers, such as those published daily at Washington, by the same conveyance and route, are charged 56 groats each, equal to 61 cents!" This extravagant postage on American papers is so enormous, as to exclude them from the continent. Mr. Mann further observes, that "in less than 3 years from this time, such will be the improvements on the continent in the way of railroads, that the mail will be conveyed to Hanover in 2½ hours from Bremen: to Berlin in 14 hours; to Vienna in 36 hours; to Dresden in 14 hours; to Prague in 22 hours; to Munich in 30 hours; to Strasburg France, in 24 hours, and from thence to Basle, in Switzerland, in 4 hours; to Copenhagen in 36 hours; to Stockholm in 56 hours; to St. Petersburg in 68 hours, and from thence to Moscow in 30 hours."

Mr. Mann states that *Bremerhaven* is never obstructed by ice, and is open the year round. And I would observe, what I knew to be the fact, that the contract with the post-master general only binds the steamers to go to *Bremerhaven*. The port of Bremen is a free port, and a republic on a small scale.

Good bituminous coal, as it is landed free of duty, can be had in abundance at the low rate of \$4 per ton.

Antwerp is not a free town; and to reach Hamburg subjects vessels to charges of va-

rious kinds in passing the Elbe, which is closed by ice in winter.

In opening a direct steam communication with France, Germany, etc., we invite more enlarged trade, intercourse, and commerce, with a vast country of from 65 to 70 millions of ingenious, industrious and civilized people.

We would by this means enlarge our markets for our agricultural products, and receive in exchange many valuable articles on cheaper terms than they could probably be purchased elsewhere.

Mr. McCroskey, our consul at Cowes, in his letter to the post master general, states that "the travel to and from the channel islands, amounted to 12,000 passengers last year going and returning. And to, and from Havre to 15,000 passengers!!"

Taking all the facts I have adduced, backed by the best informed men on the subject, it would seem to leave not a doubt as to the wisdom of the route to Cowes and Bremen, selected by our excellent post master general.

FULTON.

New York, March 13th, 1846.

Value of Railways as a means of defence, and the importance of a uniformity of gauge.

We find the following article on this subject in the Railway Record, of December 17th. The views therein are so correct and so important, that we give them place in the Journal; and would say, to those who have it in view to vary materially the width of track, consider well the importance of uniformity of gauge before you deviate on any important line.

THE BATTLE OF THE GAUGES.

The following appears in the *Times*, from a correspondent who signs himself E.:

The facilities which the introduction of steam navigation gives to the invasion of this country is necessarily engaging the very general attention of us islanders; it must, therefore, be a matter of even greater interest both to civilians and soldiers to see how far the introduction of railways, or in other words the application of steam to land travelling, will be adequate to afford the means of repelling successfully invasion whenever it may threaten us.

It is clear that we are bound to develop this defensive power, which railways and the electric telegraph put us in possession of, to the utmost, so that we may both be and be known to be a very torpedo, to be touched at no point without such a shock being conveyed to the rash disturber of our peace as will deter him from making the attempt more than once. This is the true way to preserve peace and keep off intruders.

The evidence of Sir W. Gordon and Sir John Burgoyne, officers of high distinction and great experience, as given before the railway gauge commissioners, is therefore at the present moment most useful and interesting.

We learn from these officers—

1. That the railway companies have afforded the Horse Guards as much accommodation as if the railways were under the immediate control of that department of the public service.

2. That the railways are found to be the safest of all modes of conveyance for troops.

That the rapidity of communication afforded by railways is such that, in case of war, as much would be done with a small army as, without the aid of railways, could be done with a large one.

3. That travelling by railway for troops is cheaper than marching, and that in six hours by railway, as great a distance as by 10 marches of twelve miles a day would be effected.

4. That railways would afford the means of concentrating the whole force of the kingdom upon any one point before the enemy could land 20,000 men.

5. That one of the principal difficulties attending the conveyance of troops in large numbers by railways, would consist in collecting together carriages enough for the purpose.

6. That the most judicious mode of disposing the forces to resist invasion would now be by concentrating them at a central point or points in the interior, and bringing them by focal lines of railway to the point of attack.

7. That they believe the safety of the country depends on railways.

Such, we are told by these competent witnesses, is the aid which railways are calculated to afford to the expulsion of invaders and the defence of the soil—assistance, it seems, the most important in the most important of national objects.

But, in England, Sir W. Gordon and Sir J. Burgoyne go on to say (in reply to questions put to them), all the statements regarding uses of railways for the purposes of national defence must be qualified, for they apply only to continuous and unbroken lines of railway communication extending either, as they recommend, from the central point of reserve to or near the point of attack, or, as was the case in the last war, along the threatened line of attack; whereas in this country (and, in Europe, in this country alone), the legislature has permitted railways to be constructed of two different widths of gauge, so that the most important lines of military communication by railway throughout the country must be at many points interrupted and broken, since the engines and carriages of one gauge cannot run forward on to the other gauge, but must there be exchanged for engines and carriages of a different construction.

Government, it seems, instead of guiding private enterprise so far as to make the different lines undertaken by different companies capable of forming parts of one great system, have had so little foresight as to allow the germs of two systems to take root, which two systems it is physically impossible to unite into one, and the frequent changes or break of gauge (as they are technically termed) which the co-existence of these two systems entail, and the consequent necessity of the embarkation and re-embarkation (as it may be termed) of all the men, horses, stores, guns, ammunition, etc., at such points, we find materially impairs, and in many cases will completely "nullify" the military uses of a railway, especially in so small a country

as this, where the distance which the troops have to travel from the central point of reserve to the point of attack could never much exceed 100 miles, and often would be much less.

To satisfy ourselves that this must be the consequence of the impediment we are considering, that is, the existence of diversity of gauge, let us examine the effects of the break of gauge on the various points of advantage which railways are calculated to afford, and which are so well brought out in the evidence we have been considering.

In the first place, then, as to the rapidity of the communication, which is, of course, the characteristic of railways, and the consequent power which this rapidity of conveyance confers of concentrating your forces on any one point of the coast before an enemy can land in sufficient force to resist you.—The change of gauge will involve a precisely analogous operation to disembarkation of the troops (the very operation on the part of the enemy which you propose to defeat by the superior rapidity of your movements.) I do not of course, mean to say that to change the conveyance upon a railway is the same thing as landing in boats, but it is the same sort of thing; with some thousand men, accompanied by luggage, horses, and guns, many hours will be spent in doing it; at an inconvenient road station it is difficult to say how many.

To make this plain, the trains in such a case as the necessity of concentration of forces upon the point of attack from the central depot would have to be started from that central depot at certain intervals of time, say a quarter of an hour between each departure. If one train caught another on the journey, the two trains would go on in company, the engines mutually assisting each other, and so would arrive together at the point of attack. But if you come to a change of gauge, only one train at most (*i. e.* about 350 men) could disembark and embark at one time, all the rest of the chain of trains must wait till this train has cleared out of the station, for if two trains were to disembark at the same time, no station would hold them, the men would become mixed, and there would be utter confusion. As each train then cannot commence until after the preceding train has started, the original quarter of an hour interval between the trains would be increased to one or two hours, and the last train of the ten (which number of trains is necessary, according to Sir John Burgoyne, in order to convey 3,600 men) would thus be from 10 to 20 hours behind the first train conveying the first section of the 3,600 men.

It must be remembered, too, that in one respect, as regards delay, a change of gauge is even worse than a disembarkation by boats, for at a change of gauge, every man and article to be changed must pass through one door, as it were, one by one, that door being the point where one gauge ceases and the other commences, which is not the case with boats.

The adaptation of railways to enable us to concentrate forces with great rapidity thus, it

seems, actually ceases when a break of gauge is interposed.

Again, we are told, by Sir John Burgoyne that inasmuch as 150 carriages are required for the conveyance of even 3,600 troops, one great difficulty in calling into use railways of a larger scale at an emergency as military aids will consist in collecting, at a short notice, a sufficient number of carriages for the conveyance of forces, and he judiciously recommends that means be devised to make the ordinary railway vehicles available for the conveyance of troops, which indeed they already are.

Now, how enormously the chance of delay from this cause is increased by having two systems of railway, *i. e.* one of each gauge. You get together a sufficient force of carriages of one gauge, we will say at your central depot, but when you arrive at the point of change of gauge, you find that there are not carriages enough to take your men on; the message has been intercepted, or misdelivered, or the same exertions have not been made on each of the two systems, or each of the two systems have not the same reserve of vehicles at command, or the enemy have got possession of the terminal station of the second system. The result of any one of these casualties may easily be fatal to the expedition.

Again, how much greater a reserve of carriages and engines you could have at command if all the railways were at one gauge, and under one system instead of two, and how much a greater certainty of commanding this reserve quickly you would then possess.

Again, if there were only one system, you could, as Sir John Burgoyne suggests, retreat with your engines and carriages; the railways in your rear would be of use to you, because you would have engines and carriages upon them; they would be of no use to the advancing enemy, who would have no engines and carriages. Not so, however, if you have one railway system in the south and another in the north; in this case you cannot take your engines and carriages beyond the change of gauge—there you must destroy them, or the enemy, as would most likely be the case, would get hold of them.

Observe too, how completely at variance a break of gauge is with the disposition of the forces recommended by the officers whose evidence we refer to, namely—

By establishing a central depot and point of reserve with focal lines of railway to the coast.

For where is the likely place of attack? Why, the south coast.

And where must the central depot be?—Why, if central, it must be somewhere north of the latitude of Birmingham; if so, there is the Great Western (if that railway is to remain of a peculiar gauge) intercepting every focal line from the central depot to the most exposed portion of the English coast.

Again, if, as was the case in the last war, troops are stationed along the coast, as Sir Willoughby Gordon described it, from Kent to Devonshire, the break of gauge at Southampton or Dorchester, or wherever it may be, cuts off the communication with each other,

and precludes the possibility of a rapid literal movement, if such should be necessary.

Therefore, dispose your forces how you may, the change of gauge mars your plans.

The evils of this change of gauge, which I have endeavored to set forth, are, be it remarked, fully admitted both by Sir Willoughby Gordon and Sir John Burgoyne.

They say, "that a brake of gauge would be attended with danger, if not disaster; that great inconvenience would result from the possible want of carriages at a point of change of gauge; great inconvenience from the delay it would occasion, and from the packing and unpacking of luggage and ammunition after they have been once stowed away; that the practical inconvenience would be similar to that of a ferry."

Now, sir, on this delay and this inconvenience, "similar to that of a ferry" (and what a world of meaning does not that convey to a soldier,) may, and very probably will, depend the success of our first effort to repel foreign invasion; whether or not this country shall be the seat of war for years, whether or not this country shall be submitted to lasting humiliation (it is no exaggeration to say) may depend on this.

I say then let every lover of his country and of peace, when parliament meets, insist that whatever may be done with new lines or old lines, competition or monopoly, broad or narrow gauge, one uniform gauge on existing and on future railways be in the first place determined upon.

Never mind which gauge; both, we are told by the officers we have been quoting, answer perfectly well, "they can see no difference between them" for military purposes, but let the railway system be uniform, and let railway communication be unbroken.

Tolls on the Monongahela Slack Water.

The board of directors have adopted a new list of tolls which took effect on Monday, the 16th instant. Not having last year's list by us, we are unable to state exactly what difference may exist, but a synopsis of the leading items of the new rates will be of interest. Freight is divided into four classes.

No. 1—Includes copper, drugs, furniture, feathers, furs and skins, glassware, leather, manufactured lead, mdse., oils, paper, machinery, manufactured tobacco, wool, etc., on which the tolls through [55 miles and four locks,] is 40 cents per 1000 pounds. Way freight 11 cents per 1000 lbs per lock.

No. 2—Iron and castings, blooms and metal, coffee, cheese, cotton, dried fruit, fish, seeds, groceries generally, ginseng, hemp, powder, naval stores, leaf tobacco, rags, marble, lard and lard oil, tallow, nails, etc., 30 cents per 1000 lbs. through. Way freight, 11 cents per 1000 lbs. per lock.

No. 3—Ashes, lead, plaster, grain, gsrman clay, etc., 20c. through. Way freight, 6c. per 1000 lbs. per lock.

Miscellaneous, comprises a variety of articles.—The following are some of the principal items:

	Through,	Per lock,
	5 cts.	1 1/2 cts.
Flour, per bbl.	3	1/2
Apples "	3	1/2
Whiskey "	8	2
Molasses "	14	4
Salt, (nominal)	7	2
Window glass per box	2 1/2	1/2
Empty bbls.	1 a 2	1/2 a 1
Hay, (ton)	40	10
Potatoes and turnips, per bushel. . .	1	1/2
Horses and horned cattle, each.	25	7
Hogs, sheep and calves, each.	6	1 1/2
Passengers	25	7

On each 1000 bushels of coke, coal and sand descending, the charge is:

Pool No.	Distance.	Per mile.	Lock No.	Lockage.
4	16	0	4	20
"	3	15	"	3
"	2	14	"	2
"	1	10	"	1

No additional toll on the boats. When flats or flat floats descend from the Youghiogheny more than five miles above the influence of slack water, the collector is to make a deduction of 50 per cent. The tolls on steamboats, keels, flats, and flat boats is \$1 50 through, or 50c. per lock.

The rules and regulations, we believe, are much the same as last year; but the penalty for obstructing a lock, or coming within, or lying by, and detaining within 200 yards of one, without permission of the keeper, has been increased from \$5 to \$50.—*Pittsburg Gazette.*

New York and Erie Railway.—The Pennsylvania senate on Monday passed through committee of the whole the bill from the house granting the right of way through Wayne and Pike counties.

A bill authorizing the Baltimore and Ohio railroad company to borrow money on the stock of said company, for the purpose of renewing the track between Baltimore city and Harpers Ferry, has passed the Maryland house of delegates.

Troy and Greenbush Railroad.

The following is the annual report of this company, and it shows a fair business for so short a road.

Report of the Troy and Greenbush Railroad Association, made to the Secretary of State, January 31st, 1846.

Hon. N. S. BENTON, sec'y. of state.

SIR: In compliance with a resolution of the assembly, passed February 2d, 1843, the Troy and Greenbush railroad association make an annual report as follows:—The Troy and Greenbush railroad extending from the city of Troy to Greenbush, opposite the city of Albany, is 6 miles long.

The cost of construction to January 1st, 1846, is \$233,371 39
The receipts of the company from June 13th, when the road was partially opened for travel, to December 31st, 1845, both days included, are as follows, viz:—

FROM PASSENGERS.		
June, (from 13th)	3,429 passengers	\$425 62 1-2
July,	15,811 "	1,968 37 1-2
August,	16,191 "	1,994 04 1-2
September,	18,434 "	2,271 26
October,	18,270 "	2,249 84
November,	17,215 "	2,124 11 1-2
December,	9,361 "	1,167 60

Total No. 98,711 total amt \$12,200 86
"Way" passengers included in "through" fare being the same.

FROM FREIGHT AS FOLLOWS.		
June,	\$37 98	1-2
July,	218 80	1-2
August,	290 83	
September,	545 35	
October,	577 40	
November,	617 51	
December,	1,359 44	
3,647 32		

THE EXPENDITURES FOR THE SAME PERIOD ARE:
For repairing and running road, \$5,981 21
" dividend, 7,843 62

The number of locomotives is, 3
" " passenger cars, 2
" " freight cars (made 4 wheels each) is, 19
" " machine shops, 1
" average " men per day in employ of Company, 16

" number of miles run by engine with passenger trains is, 13,636
" number of miles run by engine with freight trains is, 500

Rensselaer County, ss: Day O. Kellogg & Jonas C. Heartt, being duly sworn, depose and say that they are directors of the Troy and Greenbush railroad association, and that the above report is just and true, according to the best of their knowledge and belief.

DAY O. KELLOGG,
JONAS C. HEARTT.

Sworn before me, this 31st day of January, 1846.

J. L. LANE, com. of deeds
for the city of Troy.

The Paris correspondent of the Boston Atlas says that:

"Railroad speculations have been checked by the giving way of an immense viaduct on the Rouen and Havre line, which was to have been opened in May: It was a colossal structure, 500 yards in length, formed upon 27 arches of 150 feet span, which sprang from pillars nearly 100 feet high—all built of brick work. Upwards of 400 men had been employed upon it since its contract in 1844, and it was nearly completed when it fell with a tremendous rumbling sound, early in the morning, without any assignable cause, and is now a vast pile of ruins. It has cost over half a million of dollars, and been built by Englishmen, under the direction of an English engineer. Suspicions are entertained of the solidity of other portions of the line, and government have sent officers to survey it."

Canal Navigation by Steam.—The Alexandria Gazette states that last week the steamboat S. R. Cole, man went up, from the river, the Alexandria canal to Georgetown, making the trip in excellent time, and causing very little or no abrasion to the banks of the canal.

Great Southern Railroad.—By the passage through both houses of the Mississippi legislature, of a bill for the construction of a railroad from Jackson eastward, to meet that portion of the Southern railroad which passes through Alabama, all legislation necessary for this great work to proceed to its consummation is completed. The Mississippi bill appropriates the two per cent. fund of Mississippi, which is about \$300,000, given by congress to this road. Of the same fund in Alabama. 112,000 have been loaned to complete the interval between Montgomery and West Point. There is also a bill now before congress, to grant the alternate sections of public land, for five miles on each side of the road.

It is said in some of the Boston papers that, Mr. Gilmore, the newly elected president of the Western railroad co., came to Boston 20 years ago as a common laborer, and was for some time porter to the store of Whitewell and Bond, and labored with his hand-cart with the same industry and fidelity that he has since manifested in other avocations. Since that time, he has been in business on his own account, and, it is said, has accumulated a handsome fortune. At this time it is understood, that he has the offer of five other situations, beside that which he has accepted, in either of which he might have a salary of five thousand dollars a year.

The Concord and Montreal railroad.—The St. Johnsbury Caledonian says of the section of this road in its vicinity: "In the towns from which we have heard on the proposed route of the Connecticut and Passumpsic rivers railroad, the subscribers are paying up their first assessment on their shares just as if they meant to have a railroad, and that, too, shortly. The prospect now is, that more funds will be raised in the country than was anticipated."

This is what we expect of the people in that region.

Railway Traffic Returns in the United Kingdom for Four Years to December 26, 1845.

We find in Herapath's Journal, of 10th January, a tabular statement, showing the number of miles of railroad in use, over which traffic was carried, at the end of each week—the average traffic per mile per week—and the total receipts per week, on all the railways in use in the kingdom, during the years 1842, 1843, 1844 and 1845; showing the total for each quarter of each year, and for each year separately. It would seem to have been prepared with great labor and care; and is an exceedingly interesting and valuable document; and is accompanied by some very appropriate remarks by Mr. J. T. Hackett, the compiler, who has very just views of the effects, influences and operations of railroads; and his remarks are so appropriate that we give them with the table entire, for the purpose of showing the results of liberal and untrammelled legislation, and of enabling our own law givers to learn wisdom from it, that their constituents, the people, may derive the full benefit which good railways are susceptible of affording.

Statistics of Railway Traffic Returns in the United Kingdom, for four years, ending 28th December, 1845. Prepared by Mr. J. T. Hackett, for "Herapath's Journal."

1845.	Total receipts.				Average traffic per mile per week.				Miles of railway over which traffic was carried in				
	1845.	1844.	1843.	1842.	1845	1844	1843	1842	1845	1844	1843	1842	
January	4	99,113	78,069	70,419	58,878	55½	49½	46½	51½	1780	1586	1520	1182
"	11	94,169	80,355	69,052	60,890	53	50½	45½	50½	1780	1586	1520	1205
"	18	97,219	80,492	72,206	64,673	54½	50½	47½	51	1780	1586	1520	1270
"	25	97,946	81,478	73,884	63,974	55	51½	48½	52	1780	1586	1520	1230
February	1	97,371	83,246	75,779	69,315	54	52½	49	54½	1805	1592	1520	1270
"	8	99,252	80,507	70,908	57,560	55	50½	46½	50½	1805	1598	1520	1140
"	15	94,118	82,144	68,931	63,539	52½	51	45½	50½	1805	1612	1520	1255
"	22	95,919	77,746	69,199	66,939	53½	48½	45½	52	1805	1612	1520	1316
March	1	97,630	79,891	73,048	68,702	54	49½	48	50½	1805	1612	1520	1358
"	8	97,037	82,233	74,730	70,194	53½	51	49½	50½	1805	1612	1520	1390
"	15	100,261	90,081	76,282	72,857	55½	49½	50½	53	1812	1612	1520	1366
"	22	102,835	84,533	78,247	75,993	56½	52½	51½	54½	1812	1612	1520	1391
"	29	110,012	92,152	79,838	78,874	60½	57½	51	56½	1812	1612	1564	1391
First quarter		1,282,882	1,062,925	952,523	871,888								
April	5	116,790	99,720	86,741	84,004	64½	61½	55½	60½	1812	1612	1564	1391
"	12	116,287	102,651	89,540	81,875	64	62½	57½	58½	1815	1612	1564	1391
"	19	116,685	104,721	91,359	81,441	64	65	58½	58½	1815	1612	1564	1391
"	26	120,115	103,162	98,330	84,392	66½	64	62½	60½	1815	1612	1573	1391
May	3	123,222	105,167	95,056	87,176	67½	66½	62½	62½	1815	1612	1573	1391
"	10	128,995	101,990	93,311	89,707	71	61½	59½	64½	1815	1654	1573	1391
"	17	149,794	102,816	91,226	89,502	82½	62	58	66½	1815	1654	1573	1345
"	24	130,631	110,992	89,676	97,666	72	67	57	71½	1815	1654	1573	1368
"	31	127,360	120,926	99,234	80,232	70½	71½	63	63	1815	1686	1573	1271
June	7	129,368	115,946	99,111	91,150	71½	68½	66	63½	1815	1686	1573	1431
"	14	140,290	114,329	102,368	92,765	77	67½	65	64½	1825	1686	1573	1431
"	21	142,493	118,477	103,064	81,773	78	70	65½	63½	1825	1696	1573	1292
"	28	137,600	117,726	103,079	92,427	70½	69½	65	63½	1834	1696	1586	1450
Second quarter		1,679,630	1,418,613	1,242,095	1,134,110								
July	5	139,936	118,343	107,455	84,217	76½	70	67½	63	1834	1716	1586	1337
"	12	143,912	124,388	112,145	103,542	76	69½	70½	71½	1890	1794	1586	1450
"	19	153,734	130,307	112,404	100,081	79½	72½	71	70	1935	1794	1586	1431
"	26	158,209	140,054	116,864	101,708	80½	78	70	71	1935	1794	1586	1431
August	2	158,335	138,550	112,559	109,440	81	77½	71	76½	1954	1794	1586	1431
"	9	162,033	141,559	116,644	103,001	80½	79	73½	72½	1969	1794	1586	1431
"	16	152,284	132,620	112,317	94,131	79½	74	70½	68½	1969	1794	1586	1370
"	23	154,886	134,596	110,935	90,590	76½	75	70	66	2033	1794	1586	1370
"	30	149,041	136,454	110,385	96,247	73½	75½	69½	74½	2033	1770	1586	1300
September	6	156,028	133,936	108,393	95,351	76½	75½	68½	66½	2033	1770	1586	1440
"	13	153,068	128,158	111,832	103,403	75½	73½	70½	69	2033	1770	1586	1500
"	20	152,679	127,665	109,417	95,528	75	72½	69	63½	2033	1770	1586	1500
"	27	148,640	130,676	109,445	96,778	73	73½	69	65½	2033	1770	1586	1477
Third quarter		1,982,805	1,714,405	1,444,795	1,274,017								
October	4	144,876	127,864	106,310	96,179	71½	72	67	64½	2033	1790	1586	1510
"	11	145,251	127,635	107,892	94,740	71½	71½	68	63½	2038	1790	1586	1498
"	18	148,109	118,033	103,642	90,379	72½	66½	65½	60	2038	1790	1586	1504
"	25	143,130	113,477	98,159	84,217	70½	63½	62	55½	2038	1790	1586	1510
November	1	142,546	108,647	93,603	86,776	70	61	59	56½	2038	1790	1586	1532
"	8	131,623	100,808	86,649	77,861	64½	56½	54½	51	2038	1790	1586	1530
"	15	124,562	98,612	84,340	76,827	61½	55½	53½	51	2038	1790	1586	1510
"	22	119,834	96,730	80,834	73,058	54	54½	51	48½	2038	1790	1586	1504
"	29	122,318	96,823	76,807	76,028	60	54½	48½	47½	2038	1790	1586	1530
December	6	117,140	93,894	81,473	74,455	57½	53½	51½	48½	2040	1790	1586	1530
"	13	116,623	95,196	84,677	76,783	57	53½	53½	50½	2043	1790	1586	1510
"	20	123,657	107,544	102,310	87,188	60½	60½	64½	57½	2043	1790	1586	1510
"	27	124,238	103,776	81,346	70,919	60½	58½	51½	47½	2043	1790	1586	1488
Fourth quarter		1,703,907	1,389,039	1,188,242	1,061,766								
Total		6,649,224	5,584,982	4,827,655	4,341,781								

Few are prepared to say at what point the railway traffic of the united kingdom will cease to increase, or to how many millions per annum the revenue derived therefrom will ultimately reach. Judging from the facts before us, it would seem that the annual amount of railway traffic would go on for many years increasing in amount every year.

The increase during the past three years has been very considerable; in 1843 the traffic increased 11.2 per cent.; in 1844, 15.7 per cent.; and in 1845, 19.1 per cent. over each preceding year; while the outlay of capital during the same period was, in 1843, 10 per cent.; in 1844, 10.2 per cent.; and in 1845, 12.0 per cent.; so that in those years the increase was on the traffic as much as 53.1 per cent., while on the capital it was but 36.6 per cent. It may, therefore, be safely presumed, that, as long as the traffic returns increase more rapidly in proportion than the outlay of capital expended in constructing the lines opened, it is most probable that the best of the traffic is yet to come; and, as a general rule, as long as the railway system continues to be judiciously extended, so long will railway shareholders continue to receive handsome dividends on the capital invested.

It also appears that up to July, 1842, capital to the amount of 52,380,000. had been expended on railways, and that the traffic returns were in that year, 4,341,781. ; and that capital to the extent of 71,646,105. was expended up to July, 1845, while the traffic in this year amounted to 6,649,000., showing that the further outlay of 19,316,000. during the three years was attended with an increase in the traffic returns of 2,307,220.—being 11.94 per cent. on the extra sum expended.

During the same period, that is, between 1842 and 1845, 520 miles in length of new railways were opened for traffic, and we find that at the former period the earnings were 2,656. per mile per annum; and at the latter period 43,255 per mile per annum; being an increase of 14 per cent. In both cases the result is very favorable. Here we have the result and the best reason that can possibly be adduced in favor of the safety of railway investments, and the judicious extension of the railway system to the utmost bounds required to facilitate trade and business in the united kingdom.

In both cases the result must be highly satisfactory to railway shareholders, together with the fact of the receipts in 1842 being capable of admitting a dividend on the total capital then expended of 4.97 per cent.; and the receipts in 1845 equally capable of producing a dividend of 6 per cent. on the total amount of capital expended.

Relative Value of Fuel in Evaporating Water.

We find the following statement in the National Intelligencer, in relation to fuel and deem it well worthy of a place in the Journal.

Should nothing more satisfactory present itself in reply to your correspondent "Oregon," relative to the substitution of oil for coal, wood, etc., for fuel in generation for steam, allow me to state the following facts, showing the relative amount of heat the following materials are capable of exciting, as applied to water.

Combustibles	Lbs. of water which a pound can raise from 32° to 212°.	Lbs. of water evaporated by one pound.
Common wood,	25.00 to 26.00	4.50 to 5.00
Dry wood,	35.00	6.36
Alcohol,	52.00	9.56
Bituminous coal,	60.00 to 65.00	10.00 to 12.00
Coke,	65.00	11.80
Anthracite,	65.00 to 66.00	12.00
Charcoal,	73.00	13.27
Coal gas,	76.00	13.81
Oil and tallow,	78.00	14.18

Your correspondent can easily perceive, at a glance, that coal must raise in price, or oil lower, previous to its preference on the score of economy, and an apparatus to consume even oil for steam generation will be

Nothing can more decidedly demonstrate the successful operation of the railway system, as far as it has yet been carried out, than the facts stated in the above table. They show that the tendency of railway traffic is to increase in a still greater proportion as the facilities of railway communication are extended.

attended with much the same difficulties the ordinary furnaces are for complete combustion, although oil is very convenient in the laboratory for small and delicate experiments.
your humble servant,
C. J.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.
Saturday, March 21, 1846.

We learn from the Middletown Constitution, that an enthusiastic railroad meeting was held in that city, on Wednesday of last week, to adopt further measures in relation to the great railroad from New York to Boston.

Massachusetts Railroads in 1845. Tabular Statements etc.

In acknowledging the favor of "Mercator," we desire to say that such favors are very acceptable: and we trust that others, in other sections of the country, will furnish similar statements; as they serve this useful purpose among many in showing the astonishing difference in the expense of working and repairing railroads.

It is not surprising that there should be a material difference in the cost of working different roads, as the circumstances under which they are worked differ so widely; yet it is surprising that there should be so great a difference as is shown in this table.—Varying from 41, 46 and 47 cents up to 102—110 and 147 cents per mile run during the year 1845! How is this? why this wide difference? Will some one familiar with the working of these roads furnish us with an explanation? We have but one object in these inquiries, and that is to make the Railroad Journal instrumental in promoting economy in the working, as well as in the construction of railroads

We have, for some time had it in view, to make out a list of questions, or a blank form, to be sent to each company, with the view and hope of ascertaining as far as possible, the cost of the various items of expense of repairing and working the railroads in the different sections of the union. If successful in obtaining full replies, we shall be able to give our readers information on this subject both useful and interesting. "Mercator" will please accept our thanks.

Boston, March 2d, 1846.

Enclosed you will find a table showing the length, cost, etc., etc., of the railroads in the commonwealth, carefully compiled from the annual reports to the legislature, its insertion in the columns of your excellent Journal, will doubtless gratify its numerous patrons, and oblige.

yours truly,
MERCATOR.

Massachusetts Railroads.
(Compiled from Annual Reports to the Legislature.)

NAMES.	Length in miles.	Cost.	Passenger receipts in 1845.	Merchandise and other receipts in 1845.	Total receipts in 1845.	Expenses.	Net income.	Number of No. of miles run by passenger trains in 1845.	Number of No. of miles run by merchant & other trains in 1845.	Total No. of miles run in 1845.	Total receipt per mile run in 1845.	Expense per mile run in 1845.	Net income per mile run in 1845.
Worcester.....	44	\$2,900,000	\$241,219	\$246,237	\$487,456	\$249,729	\$327,727	164,988	88,748	253,736	\$1.92	\$0.99	\$0.93
Western.....	156	1,999,556	356,753	446,727	803,480	470,621	442,959	202,478	327,723	530,201	\$1.53	0.69	0.84
Norwich & Worcester.*	68	2,170,492	116,202	88,106	204,308	85,765	118,543	134,964	36,266	173,230	1.18	0.49	0.69
Connecticut river.†	38	511,473	10,102	3,419	13,521	5,520	8,001	11,962	3,306	15,268	0.80	0.36	0.53
Berkshire.....	21	250,000	232,677	117,952	350,629	152,802	197,827	13,240	16,119	29,359	2.00	0.87	1.13
Providence.....	42	1,964,677	3,753	4,058	7,811	2,906	4,905	2,390	1,852	4,242	1.84	0.68	1.16
Stoughton.....	7	88,418	37,896	18,947	56,843	41,196	15,647	19,184	8,804	27,988	2.03	1.47	0.56
Taunton.....	11	250,000	52,659	26,552	79,211	29,384	48,827	34,880	13,160	48,040	1.63	0.61	1.02
New Bedford.....	21	453,623	13,279	2,518	15,797	8,206	7,591	12,340	5,460	17,800	0.89	0.46	0.43
Fall river.....	17	317,805	3,828	3,828	7,656	3,828	3,828	2,550	2,550	5,100	1.60	0.53	1.07
Old Colony.....	38	893,536	297,440	52,709	350,149	116,840	233,309	169,427	49,156	218,583	1.60	0.41	0.49
Eastern.....	55	2,471,561	143,645	99,961	243,606	110,663	132,963	190,719	77,393	268,112	0.90	0.41	0.49
Boston and Maine...‡	70	1,887,329	176,916	179,116	356,032	179,042	177,036	112,793	62,744	175,537	1.02	1.02	1.01
Lowell.....	26	1,932,508	53,007	60,674	113,681	48,010	64,671	28,560	14,505	43,065	2.61	1.11	1.50
Nashua.....	14	500,000	3,734	23,080	26,814	16,277	10,537	2,768	12,032	14,800	1.22	1.10	0.71
Charlestown Branch..	6	327,389	100,817	103,179	203,996	78,334	125,662	110,229	57,587	167,816	1.81	0.47	0.75
Fitchburg.....	49	1,477,477	\$1,853,963	\$1,461,255	\$3,325,218	\$1,495,295	\$1,836,095	1,330,436	835,054	2,165,490	\$1.56	\$0.70	\$0.86
	683	\$26,336,934											

* For eleven months, ending Nov. 29th, 1845.
† Opened to Northampton, December 13th, 1845.
‡ Let to Housatonic railroad company.
§ Opened April 7th, 1845.
|| Opened November 10th, 1845.
¶ Opened to Sherly, Dec. 30th, 1844. Through-out, March 5, 1845.

The Housatonic railroad company have declared a dividend of four dollars per share on the preferred capital stock full paid, and a proportionate dividend on that partially paid, payable on the 10th of April. The amount of business now done upon the road (to say nothing of the probable increase) renders it certain, that the stock will be a valuable investment.

OFFICE OF THE NEW YORK AND ERIE RAILROAD CO., No. 50 Wall street.—New York, March 19th, 1846.—Notice is hereby given, that proposals will be received until the 10th day of April next, for the Grading, Masonry and Bridging required to complete the Newburg Branch of the New York and Erie Railroad, extending from Chester depot in Orange county, to the village of Newburgh, a distance of about 18 miles.

The maps and profiles, estimates and specifications, are in the office of the company, in the village of Newburgh, where all necessary information will be given, either by the subscriber or by Messrs. SILAS SEYMOUR and L. J. STANDIFF, Civil Engineers.

The work will be divided into sections, averaging a mile in length, and proposals will be received either at Newburgh or in the city of New York, for grading the whole or any part.

By order of the President and Directors.
T. S. BROWN, Chief Engineer.

12 3t

Reading railroad.—Comparative statement of the business on the Philadelphia and Reading railway during the month of February, for three years, viz:—

	1844	1845	1846
Travel.....	\$4,690.82	\$5,275.93	\$6,047.32
Freight on goods.....	4,708.27	4,979.68	9,093.70
Do. coal.....	18,469.15	21,456.93	49,101.71
Miscellan's receipts.....	2.94	.....	.....
Transp. U. S. mail.....	500.00	783.38	783.33

\$23,381.18 \$32,495.87 \$65,026.26
Coal transp'd, tons. 19,254.00 22,715.16 45,899.06
Estimated tonnage for the month of Feb. '46. 40,000.00

Excess..... 5,899.06

The Battle of the Gauges.

On examining our files, after having promised to give in the next number an account of the experiment on this subject, we ascertained that some of the numbers had not come to hand, therefore we have delayed for some weeks to give what we are sure will be read with interest by all who are in any way connected with railways.

An examination of gentlemen interested in, or connected with the different gauges was had before a committee of parliament, but without any decisive result, and it was then proposed to experiment on both gauges—which has been done, with the following results, on the "Great Western," the two first days. We shall continue the subject until we give such parts of the reports as will enable the readers of the journal to understand what has been accomplished by each of the contending parties, whether they arrive at satisfactory conclusions as to the merits of the question or not.

There are two accounts of the the two first days work in the Railway Record of Dec. 24th, one from the London Morning Herald, in which the time of performing each mile is set forth, and the other from the Railway Standard, which we give entire, together with the time table of the first day's experiment, from the Herald, that the time of running each particular mile may be seen. We shall give the experiments on the narrow gauge next week.

The starting of the train was agreed to be made from the first mile post, where it halted for about a minute after being drawn from the station. At 6½ minutes past 10 o'clock it started on its experimental trip. The following is the working of the engine, from the starting point. It is not an official return but the result of our own observation. We should premise that upon reaching the West London crossing the signals were against the Great Western train, which rendered it necessary for the guards to put on the breaks. This occasioned a loss of about half a minute.

The train started from the 1st mile post at	h. m. s.		Time in which each mile was performed.	
	h.	m.	s.	m. s.
2	0	0	0	0
3	10	11	30	4 45
4	10	13	0	1 30
5	10	14	20	1 20
6	10	15	30	1 10
7	10	16	45	1 15
8	10	17	55	1 10
9	10	19	5	1 10
10	10	20	18	1 13
11	10	21	26	1 8
12	10	22	35	1 9
13	10	23	40	1 5
14	10	24	48	1 8
15	10	25	54	1 6
16	0	0	0	0 0
17	10	28	0	2 14
18	10	29	14	1 6
19	10	30	21	1 7
20	10	31	29	1 8
21	10	32	38	1 9
22	10	33	47	1 9
23	10	34	56	1 9
24	10	36	8	1 12
25	10	37	18	1 10
26	10	38	29	1 11
27	10	39	40	1 11
28	10	40	50	1 10
29	10	42	1	1 11
30	10	43	10	1 9
31	10	44	22	1 12
32	10	45	38	1 16
33	10	46	41	1 10
34	10	47	58	1 10
35	0	0	0	0 0
36	10	50	18	2 20
37	10	51	30	1 72
38	10	52	40	1 10
39	20	53	52	1 15
40	10	55	2	1 10
41	10	56	13	1 11
42	10	57	25	1 12
43	10	58	37	1 12
44	10	59	48	1 11
45	11	1	4	1 16
46	11	2	16	1 12
47	11	3	34	1 18
48	11	4	50	1 16
49	11	6	15	1 25
50	11	7	35	1 20
51	11	8	54	1 19
52	11	10	12	1 18
Station	11	12	0	1 48

65 15

It is here seen that the broad gauge engine did the 52 miles in 1 hour 5 minutes 15 seconds; and that this experiment shows it to be equal to 80 tons at somewhat more than 48 miles per hour.

Upon arriving at Didcot, several of the party left the train, and the secretary of the company had a corresponding weight placed in the carriages, in order to keep up the fixed tonnage.

EXPERIMENT WITH THE RETURN TRAIN.

At 12h. 8m. 20s. the experimental train left the Didcot station.

	h.	m.	s.	m. s.
53	12	8	20	0 0
52	12	11	22	3 2
51	12	12	55	1 33
50	12	14	10	1 15
49	12	15	20	1 10
48	12	15	27	1 7
47	12	17	32	1 5
46	12	18	39	1 7
45	12	19	45	1 6
44	12	20	54	1 9
43	12	22	0	1 6
42	12	23	5	1 5
41	12	24	9	1 4
40	12	25	14	1 5
39	12	26	18	1 4
38	12	27	21	1 3
37	12	28	23	1 2
36	12	29	26	1 3
35	0	0	0	0 0
34	12	31	34	2 8
33	12	32	40	1 6
23	12	33	46	1 6

31	12	34	50	1 4
30	12	36	0	1 10
29	12	37	8	1 5
28	12	38	11	1 6
27	12	39	17	1 6
26	12	40	20	1 3
25	12	41	25	1 5
24	12	42	22	1 4
23	12	43	34	1 5
22	12	44	40	1 6
21	12	45	44	1 4
20	12	46	48	1 4
19	12	47	54	1 6
18	12	47	58	1 4
17	12	50	6	1 8
16	12	51	14	1 8
15	0	0	0	0 0
14	12	53	35	2 21
13	12	54	44	1 9
12	12	55	54	1 10
11	12	57	3	1 9
10	12	58	13	1 10
9	12	59	23	1 10
8	1	0	33	1 10
7	1	1	43	1 10
6	1	2	43	1 6
5	1	3	56	1 7
4	0	0	0	0 0
3	1	6	7	2 11
2	1	7	16	1 9
1	1	9	0	1 44

60 40

At the second mile from the Paddington station the breaks were put on, and the train reached the first mile post at 1h. 9m., completing the 52 miles in one hour and forty seconds, or at the rate of upwards of 51 miles per hour.

It will be seen that the maximum speed in the down trip was a mile in 65 seconds—viz: from the 12th to the 13th mile post, or about 55 miles per hour. On the up trip the maximum speed was a mile in one minute two seconds (viz., from the 38th to the 37th mile), or upwards of 58 miles per hour, and on a reference to the time table, if we may so term our figures, it will be seen that the 13 miles between the 44th and 31st mile posts were performed in 14 minutes and 56 seconds. Some little time was lost in this up trip, in consequence of the water having been very short in the down journey. This insufficiency compelled them to take in a large quantity of cold water, and there was not time, before the return trip, to start with proper steam and fire.

The Broad Gauge.—Experiments under the Commission.

We have the pleasure of laying before our readers the official report of the experiments made on Tuesday and Wednesday last, for testing, under the inspection of the gauge commissioners, the tractive power of the broad gauge locomotive. It will be recollected, upon the conclusion of the evidence before the commissioners, some objection was taken by the broad gauge party to the correctness of the evidence given by Mr. Bidder, respecting the tractive capacity of certain of the existing narrow gauge engines, and that a request was made to the commissioners to admit the conflicting testimony given on the one hand by Mr. Gooch, the superintendent of the locomotive department of the Great Western, and by Mr. Bidder, the representative of the narrow gauge party on the other hand, to be settled by a series of experiments on the respective lines. The commissioners gave their consent, and on Tuesday last the Great Western railway company made their first experiments upon the portion of their line between Paddington and Didcot. The respective weights of the trains experimented upon will be found in the very ample, and, at the same time, simple tabular statement given below.

The experiments of Tuesday were carried out under the inspection of Sir Frederick Smith and Professor Barlow, two of the commissioners, and Mr. Brunel, Mr. Gooch, Mr.

Bidder and Mr. Berkley, from the establishment of Robert Stephenson. The four last gentlemen rode upon the engine throughout the whole of the experiments. They were accompanied in their first journey to and from Didcot, by Mr. P. W. Barlow, the resident engineer of the South-Eastern railway. In the train we observed Sir John Burgoyne, General Pasley, Captain O'Brien, of the board of trade, Mr. Gower, one of the directors of the Great Western railway company, Mr. Watson, the secretary of the gauge commission, Mr. C. A. Saunders, secretary of the Great Western railway company, Mr. Wyndham Harding, etc.

The second day's experiments were made under the inspection of the three commissioners, and upon the return trip, Professor Airey took his station upon the engine for the purpose of personally observing its working.

The experiments upon the narrow gauge line take place on Tuesday next. The line chosen is that of the Manchester and Birmingham.

REMARKS UPON THE FIRST DAY'S EXPERIMENTS. TABLE SHOWING WEIGHTS AND LOADING OF CARRIAGES.

No.	Number in Carriage.	Description of Carriage.	Weight of Carriage Empty.		Weight of Passengers averaging 140 lbs. each.		Gross Weight of Carriage and Load.		No. of Passengers Carried.	No. of Passenger's Carriage will hold.
			Tons.	Cwt.	Tons.	Cwt.	Tons.	Cwt.		
1	209	2d class	7	8	2	12	10	0	41	72
2	267	1st class	7	14	2	9	10	3	39	32
3	355	Ditto	7	15	2	7	10	2	37	32
4	327	Ditto	7	18	2	5	10	3	36	32
5	213	Ditto	7	16	0	7	10	3	38	32
6	311	Ditto	7	13	3	0	10	2	14	42
7	274	2d class	7	7	2	13	10	0	1	72
8	332	Ditto	7	9	2	12	10	1	41	72
			61	2	18	3	79	5	2	376
									2	326
										50

Add 28 passengers at 140 lbs. each. T. 81 13 0

It will be seen from the above table that the loading in the carriages was 50 passengers less than they were able to carry. The weight of carriage per passenger was 3.7 cwt.; the weight, if full, would have been 3.2, made up of 216 second class, and 160 first class passengers. On the first trip down, the time occupied from the 1st to the 53d mile post, or 52 miles, was 65.5 minutes, or an average speed of 47.5 miles per hour. The time between the 4th mile and the 50th, or 48 miles, was performed in 54.5 minutes, or an average speed of 52.8 miles per hour. The maximum speed upon a rising gradient of 4 feet per mile was 52 miles per hour; and on a gradient falling 4 feet per mile, it was 55 miles per hour. The

average pressure of steam on the boiler was 75.4 lbs. on the inch. The quantity of water evaporated was 234 cube feet, or at the rate of 214 cube feet per hour.

WEATHER.—There was a stiff wind from the south-west, and, at starting, the West London signal was rung, which checked the speed a little. After reaching the 40th mile, the engine had consumed nearly all her water, and it was necessary to allow the fire to get low, and to slacken the speed so as to reduce the consumption of water. The rails were in very good condition, being dry and clean. There was no slipping.

On the first experiment up, the same load was worked, but, from the engine arriving at Didcot with no water in her tank, and very little in her boiler, also with a very low fire, there was not time before delivering again to get the engine into good condition, and she consequently started with a black fire, and cold water in her tender, and not much steam. She was, therefore, unable to recover it during the whole of the up journey, and the average pressure of steam was only 63.1 lbs. The time in running 52 miles was 62.5 minutes, or an average of 50 miles per hour. And from the 50th to the 4th mile, or 46 miles, the time was 50 minutes, or an average speed of 55.2 miles per hour. The maximum speed in a falling gradient of 4 feet per mile was 59 miles per hour, and in a rising gradient of 4 feet per mile it was 51.7 miles per hour. The consumption of water in the up-trip was 200 cube feet, or at the rate of 192 cube feet per hour.

The second experiment from London to Didcot was with 71 tons 12 cwt. 2 qrs., and there was a very heavy high wind from the south-west, the speed being increased a good deal after the first trip. The carriages were the same as before, with the exception of No. 1, which was taken off.

	Tons.	cwt.	qrs.
Making the gross load, - - -	71	12	2
Number of passengers carried, allowing 140 lbs. for each, -	0	235	0
Number of passengers the carriages were made to carry, -	0	304	0

Room to spare for - - 19 passengers. The time on the trip for the 52 miles was 65.2 minutes, or an average speed of 47.8 miles per hour; and from the 4th to the 50th mile-post, or 46 miles, the time was 55 minutes, or an average speed of 52.3 miles per hour. The maximum speed of a rising gradient of 4 feet per mile was 51.7 miles per hour; and down 4 feet per mile, it was 53.7 miles per hour. The quantity of water evaporated was 218 cube feet, or at the rate of 200 cube feet per hour. Average pressure, 77.2 lbs.

On the return journey, with the same load, the total time for the 52 miles was 57 minutes, or an average speed of 54.6 miles per hour; and between the 50th and 4th mile-posts, or 46 miles, the time was 48 minutes, or 57.5 miles per hour. The maximum speed down 4 feet per mile was 62 miles, and up 4 feet per mile 58 miles per hour. The quantity of water evaporated was 190 cube feet, or at the rate of 200 cube feet per hour. The average pressure of steam was 71.1 lbs. in the inch. Taking the general result of the day's work, it will be as follows:—

Average load—81 tons 13 cwt. + 71 tons 12 cwt. 2 qrs. × 153 tons 5 cwt. 2 qrs. + 2 = 76 tons 12 cwt. 3 qrs.
Coke consumed—67 cwt. or 7,504 lbs.—35.3 lbs. per mile. Taking the distance at 53 miles which the load was moved, this is equal to 46 lbs. per ton per mile.

Water—5,201 gals. while running
400 " while at rest
5,601
10

Gals. 56,010 = 7.4 lbs. of water to 1 lb. of coke. Total expenditure, per hour, while in motion, 201.5 cube feet.

COST.
67 cwt. of coke, at 20s. per ton, - - £3 7 0
212 miles repair at 2-17d. taking an average of 4 years' repairs, - - 1 18 4
212 miles general charges at 1-94d. = 1 14 3
Engineer and fireman's wages, - - 0 13 7

£7 13 2
Or 8-6d. per mile, or .10d. per ton, per mil., at an average speed of 49.97 miles per hour. The cost was given in evidence at .15d. per mile.

N. B. In these repairs are charged all the ordinary repairs, and in addition a new crank shaft, with a new set of tubes, expansion gear, etc.

REMARKS ON THE SECOND DAY'S EXPERIMENT.

No.	No. in carriages.	Description of carriage.	Weight of carriage empty.		Weight of passengers averaging 140 lbs.		Gross weight of carriage and load.		No. of passengers carried.	No. of passengers the carriage will hold.	
			Tons.	Cwt.	Tons.	Cwt.	Tons.	Cwt.			
1	167	1st class.	7	14	2	9	9	10	39	32	
2	355	Do.	7	15	2	7	9	10	37	32	
3	327	Do.	7	18	1	5	8	10	36	32	
4	213	Do.	7	16	2	10	6	10	24	32	
5	274	2d Class.	7	7	2	13	10	10	42	72	
6	332	Do.	7	9	2	12	10	10	41	72	
			46	1	0	13	16	0	199	272	
			Add 26 passengers at 140lbs. each						1	3	2
									61	0	0
									26	225	47

The above table will show that the loading in the carriages was 47 less than they were able to carry. The weight of carriage per passenger carried was 4.0 cwt., and the weight, if full, would have been 3.3 cwt. per passenger, consisting of 142 second class, 128 first class passengers.

The time occupied on the down trip, from the 1st to the 53d mile posts, was 59.5 minutes; and the speed was 52.4 miles per hour. From the 4th mile to the 50th mile, or 46 miles, the time was 49 minutes, or 56.3 miles. The highest speed on a gradient rising 4 feet per mile, was 59 miles per hour; on a gradient falling 4 feet per mile, 60 miles per hour. The average pressure of steam was 74 lbs. on the inch. The water consumed was 215 cube feet or 218 cube feet per hour.

The weather was mild, but dull; and on reaching the 35th mile post, a drizzling rain

came on, which made the rails in such a greasy state, that the engine would not bear the steam on account of slipping. This continued until the 46th mile. A large addition in the consumption of both water and coke was caused by this, and some little loss of time—about two minutes.

Third experiment—The same load was taken, and the distance of 52 miles was performed in 58 minutes, or an average speed of 53.8 miles per hour. The time occupied between the 50th mile and the 4th mile, a distance of 46 miles, 49.5 minutes, or an average speed of 55.7 miles per hour. The highest speed attained up a gradient of 4 feet per mile was 57 miles per hour, and down, 4 feet per mile, or 61 miles per hour. The average pressure of steam was 70.4 lbs. on the inch. The quantity of water consumed was 193 cube feet, or at the rate of 199 cube feet per hour. Taking the general result of the day's work, it will be as follows:—

Load—61 tons 0 cwt. 2 qrs.
Coke consumed—31 cwt. or 3,472 lbs., = 32.7 lbs. per mile, or 53 lbs. per ton, per mile.

WATER.
2534 gallons while in motion
200 — while in station

2734 gallons total consumption
10
2734 lbs. + 3472 = 78 lbs. of water to 1 lb. of coke.

Average evaporation per hour while in motion—205 cube feet.

COST.
31 cwt. of coke, at 20s. per ton - - £1 11 0
Repairs, 106 miles, at 2-17d. - - - 0 19 2
General charges, 106 miles at 1-94, 0 17 1
Engineer's and fireman's wages - - 0 6 10

£3 14 1
or 8-38d. per mile, and 13d. per ton per mile at an average speed of 53.1 miles per hour.

The Ixion engine, the one used on the occasion, was first started on the Great Western railway in September, 1841, and has been running regularly ever since, with the exception of two accidents a year ago, when she was under repairs for new tubes, and having the stroke altered from 18 to 20 inches. The drawings for this engine, as well as all others now at work on the Great Western railway, were put into the hands of the engine-builders six and a half years ago, when the present high speeds were not required. She must not therefore, be considered as showing the exact result the broad gauge is equal to. That, on the contrary, it is only half the power of broad gauge engines that are now being built.

The dimensions of the Ixion are—
Area of fire-box, - - - 97 square feet.
Area of tubes - - - 602 " "
Diameter of cylinder - - 50 3-4 inches.
Length of stroke - - - 20 "
Diameter of dummy-wheel, 7 feet.
Weight of engine, - - - 22 tons.
Average weight of tender, 11 "

New York Legislature.—THURSDAY, March 12.—In the house, a petition was presented from the New York and Erie railway company, for permission to run their road into Pennsylvania.

FRIDAY, March 13.—In the senate, the N. Y. and New Haven railroad bill was made the special order for Monday.

In the house, the Utica and Schenectady railroad reduction of fare bill, was debated at some length in committee by several members.

The Utica railway bill was again taken up and debated, but no question taken.

Great Western C. W. Railroad Company.

We take from the Toronto Globe of 10th Feb., a statement of the proceedings of the stockholders of this road at their annual meeting. We give the following extracts from them, with the view of showing the present position and prospects of this company—together with the circular of the eleven gentlemen in London who took the 55,000 shares.

From these statements, it appears to us that the "Great Western C. W. railway" is placed on a firm basis, and that it will certainly be carried through speedily—if the relations between the two governments remain peaceful—of which we have now not a doubt.

The annual meeting of this company was held in London, C. W., on Monday last, in the court house. George J. Tiffany, Esq., chairman of the company took the chair, and Mr. Gilkison acted as secretary.

Mr. Tiffany opened the proceedings, by explaining what the directors had done since the last meeting. He said that the charter of the Great Western company, as originally issued, provided for a board of management to be displayed by a board of directors, when a proper amount of stock was taken up; that there was some doubt in the minds of a few persons as to the legality of the appointment of the directors of the company, and that, to avoid all danger and difficulty, the board of managers, and the board of directors, had both been kept in force, and had acted concurrently with each other in every step which had been taken. He was therefore of opinion that all their proceedings were quite legal; if the directors were properly appointed so much the better; if they were not, the managers were, and they had full power to administer the affairs of the company under the charter. The directors and managers therefore proceeded to dispose of the stock, and with this view sent Sir Allan McNab and Mr. Ewart to England, with whom they associated Messrs. Buchanan and Cowan, as commissioners, to bring the stock into the English market. These gentlemen almost immediately disposed of the whole stock, in a manner satisfactory to all interested. Mr. Tiffany said it was with regret he alluded to the course pursued by the Canada company towards the Great Western railroad company, and he censured the hostile steps taken by them in severe terms. The railway panic had affected the Great Western stock as it had other stocks; but he felt confident that it would soon recover its former position in the market, and be carried triumphantly into execution. It had formerly risen to a *prem.* of £5 per share, and even yet it was quoted at from 1½ a 2½ per cent. *prem.* There was no doubt that the reports which had been industriously circulated against the company had had a serious effect in England as well as here, but there was no ground for it, and it would soon recover. In justice the directors had deemed it their duty to publish an explanation, but it had not proved satisfactory to the public, because the agreement between the English capitalists and the company's commissioners had not been published. It might easily be seen that the directors could not do this without the consent of the parties

in England; otherwise the directors would have at once laid it before the public.

Great complaints had been raised against the company, because the parties who took up the stock had sold out part of it at a premium. The company had nothing to do with this—they procured *bona fide* stockholders, who are responsible for the full capital wanted, and who had paid 15 per cent. over to them as a first instalment. It had been said that the directors and their agents were parties to the stock being brought out at a premium, but this he expressly denied—it was not so. The agreement was a proper and necessary document, and they would say so when it was read to them; it interfered in no shape with the certainty of the enterprise going on. The Great Western stock was the only Canadian railroad stock quoted in the London share lists; it was selling now at a premium, and there was no truth in the report that the capitalists in London wished to escape from their bargain. If they had wished to escape from it, they could not do so.

Mr. Gilkison read the report.

Mr. Gilkison then read the agreement—which is not under seal. It is impossible to give a correct statement of its contents from hearing it once read—but as far as we could see there was nothing in the document which made it an object on the part of the directors to keep it secret.

John Young, Esq., moved, seconded by Thos. Holcroft, Esquire.

1st. That the report be adopted, and the directors receive the thanks of this meeting.

2nd. That the agreement be approved, and the agents receive the thanks of this meeting.

3rd. That copies of these resolutions be forwarded to England.

4th. That the proceedings be published in the Hamilton, Woodstock, and London papers.

The resolutions were put and carried.

The stockholders then proceeded to ballot for seven directors—Sheriff Hamilton and Adam Hope, Esq., having been appointed scrutineers. After which the meeting broke up.

Great Western railroad company.—Election of directors.

Pursuant to public notice, a meeting of stockholders of the Great Western railroad company was held at the court house, in London, on Monday the 2d February.

George S. Tiffany, Esq., was called to the chair. Mr. J. Wilkison appointed secretary.

The secretary read directors report, and the agreement or contract between the company here and the shareholders in England.

The following resolutions were moved by John Young, Esq., of Hamilton, seconded by Thomas Holcroft, Esq., of Oxford.

Resolved, That the report of president and directors and committee of stockholders, which has just been read, be adopted, and that the thanks of the meeting are due, and are hereby given to them for the efficient manner in which they have conducted the affairs of the company.

Resolved, The agreement entered into by

our agents for the sale of the stock of the company having been read, we take this opportunity of expressing our entire and unqualified approval of the same, and to tender to them, as we hereby do, our warmest thanks for the prompt and efficient manner in which they have discharged the important trust committed to them.

Resolved, That a copy of the last resolution be forwarded to each of the agents.

Resolved, That the foregoing resolutions be published in the London, Woodstock, and Hamilton papers.

Moved by John V. Hott, Esq., seconded by James B. Ewart, Esq., and

Resolved, That Mr. Sheriff Hamilton, and Adam Hope, Esq., be requested to act as secretaries.

(Signed)

G. S. TIFFANY,
Chairman.

The secretaries declared the following gentlemen duly elected directors of the Great Western railroad company:—

Sir Allan N. Macnab, of Dundurn; James B. Ewart, Esq., of Dundas; George S. Tiffany, Esq., of Hamilton; John V. Hott, Esq., of Hamilton; Peter Carroll, Esq., of Hamilton; Robert W. Harris, Esq., of Hamilton; Henry McKinstry, Esq.

J. T. GILKISON, Secretary.

London, (Canada,) Feb. 2, 1846.

Report to the stockholders of the Great Western railroad company.

The board of directors and general committee of management appointed by the stockholders, beg leave to make a joint report of their proceedings.

In August last, agents were appointed to proceed to England, for the purpose of disposing of a portion of the capital stock of this company, which they effected in a most able and satisfactory manner, having sold 55,000 shares at £25 currency each, upon which a deposit of £3 5s. sterling was immediately paid, as will most satisfactorily appear from the contract or agreement submitted to the meeting.

The stipulations on the part of the company here have been executed, by the transmission to their secretary in England of the final certificates, to the number of 55,000, to be delivered to the shareholders in pursuance of their agreement.

The last election of directors took place under a by-law of the company, adopted under the old charter, and revised by the new, but to obviate any doubt as to their legal authority, a committee of management was also appointed, who have acted throughout, in conjunction with the board of directors in the appointment of agents and conducting the affairs of the company.

The board have placed themselves in correspondence with an eminent engineer, whose services they have temporarily engaged, and hope will be enabled permanently to secure. Two surveying parties have been engaged in taking levels, with a view to ascertain the most practicable route of ascending the hill at Hamilton, and it is gratifying to find that no obstacle presents itself in accomplishing the object.

The board of directors felt it to be their duty early in January, to contradict certain statements contained in the *Times* and other newspapers, prejudicial to the company, that report they trust proved satisfactory to the stockholders, and they are happy to say, the advices received from England since the publication of their report, fully enables them to give the most confident assurances that the work will be vigorously proceeded with, should our friendly relations with the United States not be disturbed.

By order, J. T. GILKISON, Sec'y.
GREAT WESTERN RAILROAD OFFICE, }
Hamilton, Jan. 31st, 1846. }

GREAT WESTERN RAILROAD OFFICE, }
Hamilton, Feb. 5th, 1846. }

At a meeting of the board of directors this day, Sir Allan N. Macnab was unanimously elected president, and George S. Tiffany, Esq., chairman.

W. M. Shaw, Esq., having retired from the direction, was appointed a resident engineer to the company.

J. T. GILKISON, Secretary.

The following statement is from the eleven gentlemen in London who originally took the shares of the agents who went to London to dispose of them, and is certainly does not show a disposition to back out.

To the Shareholders of the Great Western of Canada Railway Company.

The attention of the undersigned, the corresponding committee of the Great Western of Canada railway company, has been called to a report in the *Morning Chronicle*, of the 31st December, of a speech by Charles Franks, Esq., the governor of the Canada company, at a meeting of that company, in which it is stated to be doubtful whether the Great Western of Canada railway will now be made.—The committee feel that such a statement could only have proceeded from a gentlemen of the character and standing of the governor of the Canada company under a misapprehension of the real facts of the case, and as they are aware that various mis-statements regarding the company have from time to time been circulated, they consider that their duty to themselves and to the undertaking, as well as to their fellow shareholders and the directors in Canada, requires them to give an official reply.

The Great Western of Canada railway was taken up by them because, after a careful examination of the facts connected with it, they were satisfied that it was an undertaking calculated to afford a large profit to those who should embark their capital in it. The facts contained in the original statement, which were carefully scrutinized before they were put forth, speak for themselves; and the committee were convinced that a line, which forms a connecting link between railways, already paying 8 or 10 per cent., although less favorably situated and only partly developed,—which presents such uncommon facilities for execution—which commands a large existing traffic, and whose prospects of development, as forming a portion of the great highway between the rapidly rising western states of America and the Atlantic are almost unlimited;—afforded an opportunity for advantageous investment rarely equalled.

There was nothing provisional in the undertaking which was already a constituted com-

pany under an act of the most favorable description, the preliminary expenses incurred being quite inconsiderable. Under these circumstances the whole capital stock of the company, was subscribed for by responsible parties, who assumed the full liabilities of shareholders, subject to the fulfilment by the directors in Canada, of the condition stipulated for with Sir Allan Macnab and his colleagues, for ensuring protection and control to the English shareholders. The whole stock having been taken, the public were not invited to apply for shares, but a large number were disposed of to parties whom the original subscribers thought likely to be useful to the undertaking, and others were sold openly like the stock of any other established company, to parties desirous of purchasing them at prices, as the committee fully believe, below their intrinsic value.

Under these circumstances, there is no analogy whatever, between the position of the Great Western of Canada railway company and that of provisional companies, whose shareholders have not been completed. A temporary depression in the market value of the shares, owing to a panic affecting equally every other description of railway property, may possibly be a valid reason, in the latter case, for calling upon the provisional committees, to dissolve the undertakings, and return the deposits.—But in the case of the Great Western railway company of Canada, the act is obtained, the share list is complete, the payment of the three first calls provided for in advance, and the committee, who are large shareholders in the undertaking, and all far to sensible of the advantages to be derived from the possession of a charter of such an extremely favorable nature to be desirous of relinquishing them on account of a temporary depression in the money market, which has already in a great measure passed away.

As long as any doubt remains as to the aspect of our political relations with the United States, the shareholders may rest assured that the committee have much too large at stake, in the concern themselves, to proceed otherwise than with extreme caution and prudence, before they sanction the commencement of any proceedings which might involve a heavy outlay or any further calls, but with this exception, the committee are aware of nothing calculated to create a doubt that the line will be completed and in effective operation in two years from its commencement, and that it will at once assume a position as one of the best dividend paying lines in America, or elsewhere. Their confidence in the commercial capabilities of the undertaking is not only unshaken, but has been confirmed by all the information which they have subsequently received, as well as by the opinion of many gentlemen of the highest respectability intimately acquainted with Canada. There is also a strong probability that the line may be constructed for a sum very far within the amount of capital originally stated: and with a view to test this and to pave the way for an active commencement of operations at the earliest period, and in the most efficient and economical manner, the committee are making arrangements for obtaining a detailed survey and report, the result of which will be duly communicated to the shareholders.

The numerous public meetings which have been held in the colony in favor of the Great Western railway, the testimony of the colonial press, and the enthusiasm with which the intelligence of the success of Sir Allan Macnab's mission to England has been received in Ca-

nada, afford the best proof of the estimation in which the line is held in the province.

Entertaining this confidence in the goodness of the concern in which they are so largely embarked, the committee can only advise those gentlemen who hold shares to rest assured that the undertaking would never have been entered into or persevered in by the committee, unless they were satisfied that it deserved the support of the public as a safe and profitable investment for money.

William James Chaplain, Charles Devaux, Henry John Enthoven, Abel Lewis Gower, George Hudson, Samuel Laing, John Masterman, Jr., John Moss, Thomas Smith, Matthew Uzielli, Gregory Seale Walters.

London, Jan. 13th, 1846.

Baltimore and Ohio Railroad Extension.

The Virginia legislature has taken one step in the right direction; others will be sure to follow in time.

The following act has been passed by the Virginia legislature, in reference to the Baltimore and Ohio railroad company.

An act, supplementary to and amendatory of the act, entitled, "an act to authorize the Baltimore and Ohio railroad company to complete their road to the Ohio river and for other purposes," passed February 19th, 1845. Passed February 28th, 1846.

Be it enacted by the general assembly, that so much of the thirteenth section of the act of the nineteenth of February, eighteen hundred and forty-five, entitled, "an act to authorize the Baltimore and Ohio railroad company to complete their road to the Ohio river and for other purposes," as requires the said company to adopt and accept the said act on or before the tenth day of March, eighteen hundred and forty-six before they shall enjoy the benefits of that act, be and the same is hereby repealed; and the said company are hereby allowed ten years, from the tenth day of March, eighteen hundred and forty-seven, to complete their railroad to the city of Wheeling, according to the terms and conditions of the said act of the nineteenth of February eighteen hundred and forty-five, except as is provided for in this act—provided that the said company shall enter upon the construction of the extension of their said road, within three years from the passing of this act.

And be it further enacted, that with the assent and agreement of the Winchester and Potomac railroad, the said Baltimore and Ohio railroad company are hereby permitted and allowed to purchase, take and accept the Winchester and Potomac railroad, in pursuance of the seventh, eighth, ninth, tenth, eleventh and twelfth sections of the said act of the nineteenth of February, eighteen hundred and forty-five, relating to the Winchester and Potomac railroad.

And be it further enacted, that the taxing power reserved in the sixth section of the said act of the nineteenth of February, eighteen hundred and forty-five, shall not be exercised until and unless the nett income of the said Baltimore and Ohio railroad shall exceed six per centum per annum.

This act shall be in force from the passing thereof.

Winchester and Potomac Railroad.

We are glad to learn, says the Baltimore American, by the following article from the

Winchester Republican, that this work, which constitutes, practically, an important branch of the Baltimore and Ohio railroad, has been placed on a better footing by recent legislation obtained from the Virginia legislature.

W. & P. Railroad Company.—The legislature at the session which has just terminated, with the liberality which has for the most part characterized her policy, passed a bill for the relief of this company that has given an impetus to public sentiment in its favor, that cannot well fail to place the improvement in a state of the highest usefulness in a short time, and in a few years to reimburse the stockholders in the way of dividends upon their stock for their aid in establishing this great public convenience.

The features of the law, we learn, are these: on the 1st, August, 1848, and annually thereafter, the company is required to pay in lieu of interest upon the debt due the state and dividends upon the state stock, an annuity of five thousand dollars, reserving the lien already existing, but suspending the collection of the debt so long as the annuity is paid. Leaving still to the stockholders the right to sell the road to the B. & O. R. R. company if they choose.

Efforts are now making to raise a fund, with every prospect of success, to re-iron the road, which, when done, (the road being in a very good condition in its woodwork to receive it) will put it in a state to transport with celerity and safety, all the trade and travel that may offer.

Isthmus of Panama.

We take from a late European journal, says the National Intelligencer, the following summary of another report on the European project of canalizing the isthmus which separate the Atlantic and Pacific oceans:

Some time since M. GARELLA received a commission from the French government to proceed to Panama for the purpose of inquiring upon the spot into the practicability of the many schemes which have been devised for cutting a ship-canal through the isthmus. The report of that gentleman on this subject has recently been published, and presents (says the Debats) the results of the first scientific exploration that has been undertaken in regard to this celebrated passage. The direction fixed upon by Mr. Garella as the most eligible for the proposed canal is on the side of the Pacific ocean, through the valley of the Caiimito, so as to *deboche* upon the sea at the anchorage of Vaco de Monte, lying about eighteen or twenty kilometres (eleven or twelve miles) to the west of Panama. On the side of the Atlantic ocean the course should be along the valley of the river Chagres, but not to terminate at Port Chagres, which is inaccessible to ships of large burden, but at four miles distance in the bay of Simon. From the Caiimito, the canal is to be directed along the course of the Bernardino, a feeder of that river whence it proceeds to the Ahogayegua mountain, which it crosses at a point where it is 455 feet above the level of the sea.—Thence it falls into the valley of the river Pajer, (otherwise Bonito,) which it follows as

far as Dos Hermanas, where it joins the Chagres, parallel with which river, and sometimes occupying its bed, the canal is to be carried as far as Gafun, where it diverges to arrive at the bay of Simon. The whole distance will be about 47 miles in length, of which 33 1-2 are between the Chagres and the Pacific, 7 1-2 between the Chagres and the bay Simon, and about 6 along the bed of the river itself. The canal is to be of the following dimensions: depth, 22 feet 9 inches; breadth at water surface, 146 feet 6 inches; at bottom, 65 feet. Ninety-four locks will be required in order to reach the summit level, each costing on the average 600,000 francs. M. Garella, however, suggests the magnificent expedient of the tunnel through the mountain, which, besides the dimensions stated above for the canal itself, must be of height sufficient to permit the passage of vessels with their lower masts standing 120 feet at least, and will be three miles and one-third in length. The estimated cost of the tunnel is fifty millions of francs, but it will enable

the canal to be constructed with a summit level of only 160 feet, and greatly enhance the future advantages of the undertaking by dispensing with by far the greater number of the locks. The total expense of the canal is estimated at 125 millions francs, (five millions sterling.)

The Atlantic and St. Lawrence Railroad. We are informed, says the Portland Argus, that ground will be broken on our railroad to the St. Lawrence, by May next—and also that the Canadians will commence their end of the road at the same time. The preliminary arrangements are going on with vigor, and every thing "gives sign" of a prosperous issue to the enterprise.

Pennsylvania Legislature.—The bill giving the New York and Erie railroad the right of going through Pike and Wayne counties was considered on its second reading in the senate, on Friday.

An amendment was adopted, requiring the company to pay to the state \$10,000 annually, on the first of January, as soon as the railroad is completed to Dunkirk, or a connection formed with any railroad at Erie—yeas 24, nays 6.

KITE'S PATENT SAFETY BEAM.

MESSEURS EDITORS.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance: of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheeled passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.

Wilmington, Del., Sept. 28, 1840.

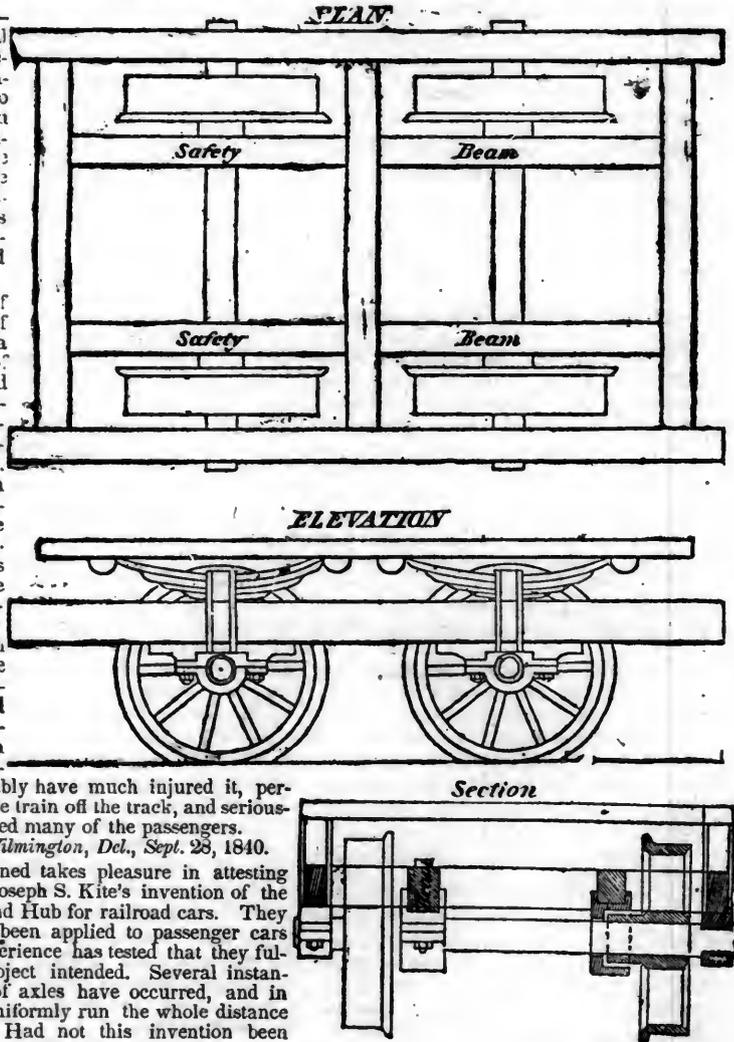
The undersigned takes pleasure in attesting to the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.

In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.

JOHN FRAZER, Agent,
GEORGE CRAIG, Superintendent,

JAMES ELLIOTT, Sup. Motive Power,
W. L. ASHMEAD, Agent.

A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 1 Hanover st., N. York.



FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

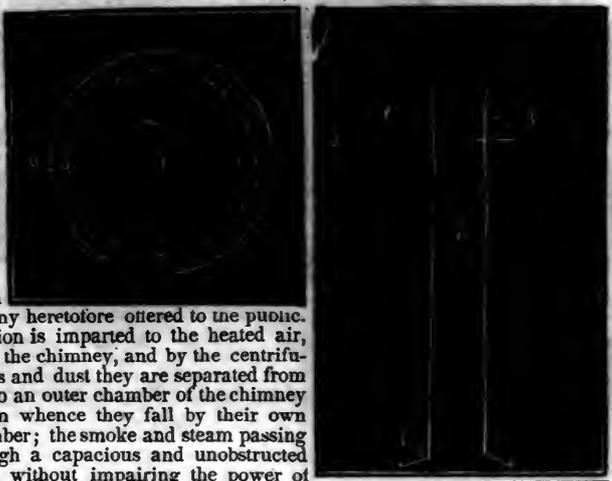
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45



BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

The article is complete in itself, occupies but little space, is perfectly portable, and requires no brick work, not even to stand upon. It is valuable not only in the saving of time and labor, but in the economy of fuel, as it has been ascertained by accurate measurement, that the saving in that article is fully two-thirds over other methods heretofore in use. They are now for the first time introduced into New York and Boston by the subscriber, who has the exclusive right for the New England states, New York and New Jersey, and are manufactured by CURTIS & RANDALL, Boston; and by FORGE, GREEN & CO. New York.

LARD OIL FOR MACHINERY, ETC.—Winter pressed, cleansed from gum, and manufactured expressly for engines and machinery of all kinds, railroads, steamboats, woollen and other manufactures, and for burning in any lamp without clogging the wick. Engineers of railroads and others who have used this oil, and to whom reference can be made, give it preference over the best sperm for its durability, and not requiring to be cleaned off like that, and costing about two-thirds the price. For sale by the barrel, and samples can be sent for trial, by addressing C. J. F. BINNEY, Agent for the Manufacturer, Boston, Mass. 11 eop 1m

FLAT BAR, ENGLISH ROLLED, RAILROAD Iron, 2 1/2 x 1/4—a large part suitable to relay. For sale by C. J. F. BINNEY, Commission Merchant, 1 City Wharf, Boston, Mass. 11 1m

Dividend.—The New Haven and Hartford railroad have declared a semi-annual dividend of three and a half per cent., payable on the first of April.

At a meeting of the board of the Morris Canal company on Wednesday, Benjamin Williamson, Esq., was elected president.

RAILROAD IRON. 500 TONS HEAVY R T Rails, of an approved pattern, expected to arrive here during March, or early in April. Apply to DAVIS, BROOKS & CO. March 5, 1844 30 Wall street.

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.

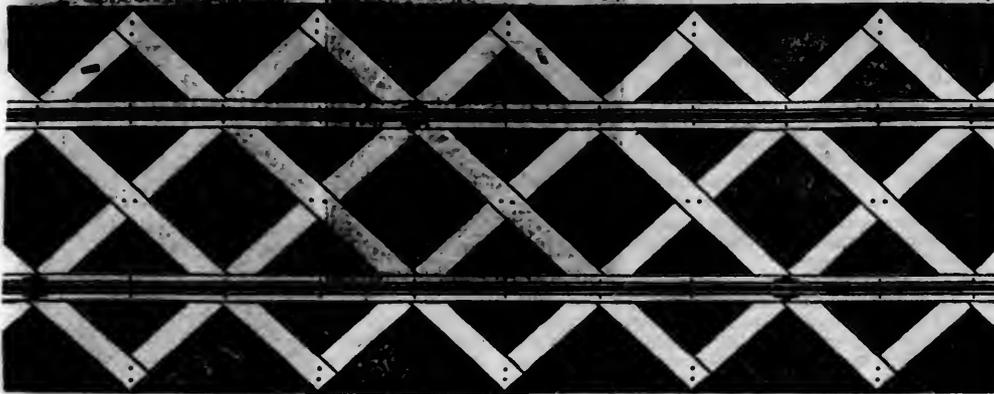
No 23 Pear street, near Third, below Walnut, Philadelphia.

NOTICE TO CONTRACTORS. PRO-posals will be received at Bridgeport, until the 20th of March next, for re-laying the Housatonic railroad with an H rail. Specifications will be furnished at the office of the undersigned, in Bridgeport, on and after the 20th February. R. B. MASON, Engineer. Bridgeport, February 4, 1844. 8 5t

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c. PETER COOPER, 17 Burling Slip. New York, January 23d, 1844. 1y 10

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years. For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York. Orders for the above will be received and promptly attended to at this office. 32 1y

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for *Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON,
Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made. 171

W. R. CASEY, CIVIL ENGINEER, NO. 23 Chambers street, New York, will make surveys, estimates of cost and reports for railways, canals, roads, docks, wharves, dams and bridges of every description. He will also act as agent for the sale of machinery, and of patent rights for improvements to public works.

TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 111

C. J. F. BINNEY,

GENERAL COMMISSION MERCHANT and Agent for Coal, and also Iron Manufactures, etc.

No. 1 CITY WHARF, BOSTON.

Advances made on Consignments.

Refer to Amos Binney, Boston.

Grant & Stone, } Philadelphia.

Brown, Earl & Erringer, }

Weld & Seaver, Baltimore.

December 8, 1845.

1m 50

SCRIBNER'S ENGINEERS' AND MECHANICS' COMPANION. For sale at this office. Price \$1.50.

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/2 x 1/4 inch Flat Punched Rails, 20 ft. long.

25 " 2 1/2 x 1/4 " Flange Iron Rails.

75 " 1 x 1/4 " Flat Punched Bars for Drafts in Mines.

A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES,

Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of.

The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,

Albany Iron and Nail Works,

1 ly

Troy, N. Y.

RAILROAD IRON WANTED. WANTED, 50 tons of Light Flat Bar Railroad Iron.

The advertisers would prefer second-hand iron, if not too much worn. Address Box 384 Philadelphia P. O.—Post paid. 8 41

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

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One square " "	1 00
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TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)

KITE'S Patent Safety Beam. (See Adv.)

FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Company.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

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WEST POINT FOUNDRY, N. Y.

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R. HOE & Co., N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

BALDWIN & WHITNEY, Philadelphia, Pa.

THOMAS & EDMUND GEORGE, Philadelphia. (See Adv.)

PROVIDENCE AND WORCESTER Railroad.—Notice to Contractors.

The Route of this Road will be prepared for Examination by Contractors on the 16th of February, and Proposals for the Graduation, Masonry, Bridges, Timber, Spikes, Chains, etc., will be received after that date, until the 25th of February.

Blank Proposals, with Specifications attached, may be obtained, and the Profiles examined, at the offices in Worcester and Providence, after the 16th of February.

5 41

T. WILLIS PRATT,

Engineer.

MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers, etc., by JOHN A. ROEBLING, Civil Engineer,

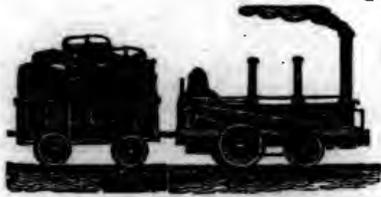
Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 13.]

SATURDAY, MARCH 28, 1846.

[WHOLE No. 509, VOL. XIX

BOSTON AND MAINE RAILROAD.
Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Spring Arrangement, 1846.

On and after March 2, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.
Boston for Great Falls at 7½ a.m., 2½ and 3½ p.m.
Boston for Haverhill at 7½ and 11½ a.m., 2½, 3½ and 6 p.m.

Portland for Boston at 7½ a.m., and 3 p.m.
Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 6½, 8½, and 11 a.m., and 3 and 6½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.
CHAS. MINOT,
February 23, 1846. 1y Super't.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Winter Arrangement. On and after Monday, Nov. 3, the Passenger Trains will run as follows:

For New York—night line, via Stonington.—Leaves Boston every day, but Sunday, at 4½ p.m.

Accommodation trains, leave Boston at 8 a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m.

Dedham trains, leave Boston at 9 a.m., 3, 5½ and 10 p.m. Leave Dedham at 8 and 10½ a.m., and 4½ and 7 p.m.

Stoughton trains, leave Boston at 12 m. and 4 p.m. Leave Stoughton at 8:20 a.m. and 2½ p.m.

All baggage at the risk of the owners thereof.

N.B. The last train to and from Boston and Dedham, will be omitted in case of a severe snow storm.

W. RAYMOND LEE, Sup't. 311y

BRANCH RAILROAD and STAGES Connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sts. 43 1y

NORWICH AND WORCESTER RAILROAD. On and after May 22, 1845, Trains will leave as follows, viz:—
Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning train from Norwich, and the morning and evening trains from Worcester, connect with the Boston, Western, and Hartford and Springfield railroads.

New York Train, via Steamboat. Leaves Norwich for Worcester and Boston, every morning except Monday, upon the arrival of the boat from New York, about 2 a.m. Leaves Worcester for Norwich and New York, at 5½ p.m., daily, except Sunday.

New York Train, via Long Island Railroad.—Leaves Norwich about 3 p.m., for Worcester and Boston, daily, except Sunday. Leaves Worcester for Norwich and New York, at 7½ a.m., daily, except Sunday, and arrives in Norwich at 9½.

Freight Trains. Daily, except Sunday. Fares are less when paid for Tickets, than when paid in the cars.

EMERSON FOOTE, Superintendent. 32 1y

NEW YORK AND HARLEM RAILROAD Company.—Winter Arrangement.

On and after November 3d, 1845, the cars will run as follows:

Leave City Hall for Yorkville, Harlem, Morrisiana, and Williams' Bridge,

7 30 A.M. This train leaves 27th st.
7 30 " Does not stop this side of Harlem.

10 30 " Does not stop this side of Harlem.

11 30 " Does not stop this side of Harlem.

1 P.M. Does not stop this side of Harlem.

2 30 " Does not stop this side of Harlem.

3 30 " Does not stop this side of Harlem.

4 30 " Does not stop this side of Harlem.

Leave White Plains for City Hall—8:10, 11:10 a.m., and 1:45, 4:10 p.m.

Leave Tuckahoe for City Hall—8:20, 11:20 a.m., and 1:55, 4:20 p.m.

Leave Williams' Bridge for City Hall—8:45, 11:45 a.m. and 12:45, 2:15, 3:45, 4:45, and 5:45 p.m.

Leave Morrisiana for City Hall—8, and 9:10 a.m., and 12:10, 1:10, 2:40, 4:10, 5:10, and 6:10 p.m.

The freight train will leave City Hall at 12:45 p.m. and leave White Plains at 11:10 a.m. All freight must be at the City Hall between the hours of 10:30 a.m. and 12:30 p.m. The White Plain trains will stop, after leaving the City Hall, only at the corner of Broome street and the Bowery, Vauxhall Garden and 27th street.

The City Hall and 27th street line will run every 6 minutes from 7:30 a.m. to 8 p.m.

The City Hall and 27th street night line will run every 20 minutes from 8 to 12 o'clock.

On Sundays the trains will be regulated according to the state of the weather. 1y 46

NEW YORK AND ERIE RAILROAD LINE. For Middletown, Goshen, and intermediate places. Two daily lines each way, as follows:

For passengers, the new, and commodious steamboat St. Nicholas, Capt. Alex. H. Shultz, will leave the foot of Duane street daily, [Sundays excepted,] at 7½ o'clock, A.M., and 5 o'clock, P.M., through in five hours. Returning, the cars will leave Middletown at 6, A.M., and 4½, P.M. For further particulars inquire of J. Van Rensselaer, Agent, corner of Duane and West streets.

H. C. SEYMOUR, Superintendent.

Stages run from Middletown daily, in connection with the afternoon line, to Bloomingburg, Wurtsboro, Monticello, Mt. Pleasant, Binghamton, Owego, Port Jervis, Honesdale, Carbondale, etc.

On Monday, Wednesday, and Friday, to Dundaff, Montrose, Friendsville, Lenox, Brooklyn, etc., etc. 31 1y

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and

Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 31 1y

DAVIS, BROOKS & Co., 30 WALL ST.

Have now on hand and for sale, 200 tons 2½ x ¼ inch Flat punched Rails, Bars 18 feet each.

100 tons Heavy Edge Rails, 90 tons per mile.

30 tons 2½ x ¼ inch Flat Rails.

Also—A STEAM PILE DRIVER, built by "Dunham & Co." which has never been used, and cost originally \$5000. 30

BALTIMORE AND SUSQUEHANNA
Railroad. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a. m., and arrives at 6 1/2 p. m. Arrives at York at 12 1/2 p. m., and leaves for Columbia at 1 1/2 p. m. Leaves Columbia at 2 p. m., and leaves York for Baltimore at 3 p. m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62 1/2. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3 1/2 p. m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc.

Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a. m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day any passenger train.

D. C. H. BORDLEY, Sup't.
Ticket Office, 63 North st.

31 1y

CENTRAL RAILROAD-FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred. On measurement goods..... 13 cts. per cubic ft. On brls. wet (except molasses and oil).....\$150 per barrel.

On brls. dry (except lime)... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.

On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd. On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, Gen'l. Sup't. Transportation.

40

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHICALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothicaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothicaloga.

On Boxes of Hats, Bonnets, and Furniture per foot.....16 cts.

“ Dry goods, shoes, saddlery, drugs, etc., per 100 lbs......95 “

“ Sugar, coffee, iron, hardware, etc......65 “

“ Flour, bacon, mill machinery, grindstones, etc......33 1/2 “

“ Molasses, per hogshead \$9-50; salt per bus. 20 “

“ Ploughs and cornshellers, each......75 “

Passengers \$10-50; children under 12 years of age half price.

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothicaloga.

J. EDGAR THOMSON, Ch. Eng. and Gen. Agent.

Augusta, Oct. 21 1845. *44 1y

WHARF BOLTS. THE SUBSCRIBERS are now ready to Contract to deliver Wharf Bolts, at a reduction of 10 per cent. on last year's prices.

SAM'L KIMBER & CO. 8 11 59 North Wharves, Philadelphia.

WESTERN AND ATLANTIC RAILROAD. The Western and Atlantic Railroad is now in operation to Marietta, and will be opened to Cartersville, in Cass county, on the 20th of October—and to Coosa Depot, (formerly known as Borough's,) on the 20th of November.

The passenger train will continue, as at present to connect daily (Sundays excepted) with the train from Augusta, and the stage from Griffin.

CHAS. F. M. GARNETT, Chief Engineer.

43

LITTLE MIAMI RAILROAD. -- DISTANCE 65 1/2 Miles. Fare, \$1 50. From 1st November to 1st March Passenger Trains leave Cincinnati for Xenia at 11 o'clock, A.M.

Returning, leaves Xenia at 8 1/2 o'clock, A.M. Freight Trains run daily, Sundays excepted.

At Xenia, Passenger Trains connect with daily lines of stages to Columbus, Wheeling, Cleveland and Sandusky city.

W. H. CLEMENT, Supt. and Engineer.

1y 1

LEXINGTON AND OHIO RAILROAD. Trains leave Lexington for Frankfort daily, at 5 o'clock a. m., and 2 p. m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a. m. and 2 p. m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a. m. from Lexington, and 2 o'clock p. m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a. m. from Lexington, and 9 a. m. from Frankfort, other hours as above.

35 1y

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. G. A. NICOLLS, Reading, Pa.

ja45

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to James P. Allaire, Peter Cooper, Murdock, Leavirt & Co. J. Triplett & Son, Richmond, Va. J. R. Anderson, Tredegar Iron Works, Richmond, Va. J. Patton, Jr. Colwell & Co. Philadelphia, Pa. J. M. L. & W. H. Scovill, Waterbury, Con. N. E. Screw Co. Providence, R. I. Eagle Screw Co. William Parker, Supt. Bost. and Worc. R. R. New Jersey Malleable Iron Co., Newark, N. J. Gardiner, Harrison & Co. Newark, N. J. 25,000 to 30,000 made weekly. 35 1y

DAVIS, BROOKS & CO., 30 WALL ST., have on hand for sale, Railway Iron of different sizes—heavy and flat bars.

A Steam Pile Driver—built by "Dunham & Co."—in complete order; has never been used, and for sale a bargain. Cost originally \$5,000. Also 12 Railway Passenger Cars, that have never been used, which will be sold a bargain. 8 11

PROVIDENCE & WORCESTER R. R. Notice to Contractors. The time for receiving proposals has been extended to the 11th March. The route is ready for examination, and blank proposals and specifications may be had at Worcester and Providence. All proposals must be sealed, accompanied by names of references and surities, and directed to the engineer, at Providence, prior to the above date.

8 4t T. WILLIS PRATT, Engineer.

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.

THE SUBSCRIBERS, SOLE AGENTS for the sale of Codorus, Glendon, Spring Mill, and Valley Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L KIMBER, & CO., 59 North Wharves, Philadelphia, Pa. Jan. 14, 1846. [1y4]

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective iron and Brass Castings of all descriptions. ja45 1y

RAILROAD IRON AND LOCOMOTIVE
Tyres imported to order and constantly on hand
by **A. & G. RALSTON**
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
Company continue to furnish at the Works,
situated in the town of Newcastle, Del., Locomotive
and other steam engines, Jack screws, Wrought iron
work and Brass and Iron castings, of all kinds con-
nected with Steamboats, Railroads, etc.; Mill Gear-
ing of every description; Cast wheels (chilled) of
any pattern and size, with Axles fitted, also with
wrought tires, Springs, Boxes and bolts for Cars;
Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders
will be executed with promptness and despatch.
Communications addressed to Mr. William H.
Dobbs, Superintendent, will meet with immediate
attention. **ANDREW C. GRAY,**
a45 President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS.
etc. The Subscriber having made important
improvements in the construction of rails, mode of
guarding against accidents from insecure joints, etc.
—respectfully offers to dispose of Company, State
Rights, etc., under the privileges of *letters patent* to
Railroad Companies, Iron Founders, and others in-
terested in the works to which the same relate. Com-
panies reconstructing their tracks now have an op-
portunity of *improving* their roads on terms very ad-
vantageous to the varied interests connected with
their construction and operation; roads having in
use flat bar rails are particularly interested, as such
are permanently available by the plan.

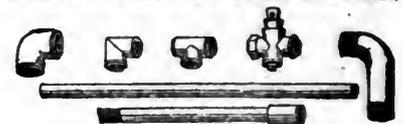
W. Mc. C. CUSHMAN, Civil Engineer,
Albany, N. Y.
Mr. C. also announces that Railroads, and other
works pertaining to the profession, may be construct-
ed under his advice or personal supervision. Ap-
plications must be post paid.

**TO RAILROAD COMPANIES AND BUILD-
ERS OF MARINE AND LOCOMOTIVE
ENGINES AND BOILERS.**

PASCAL IRON WORKS.

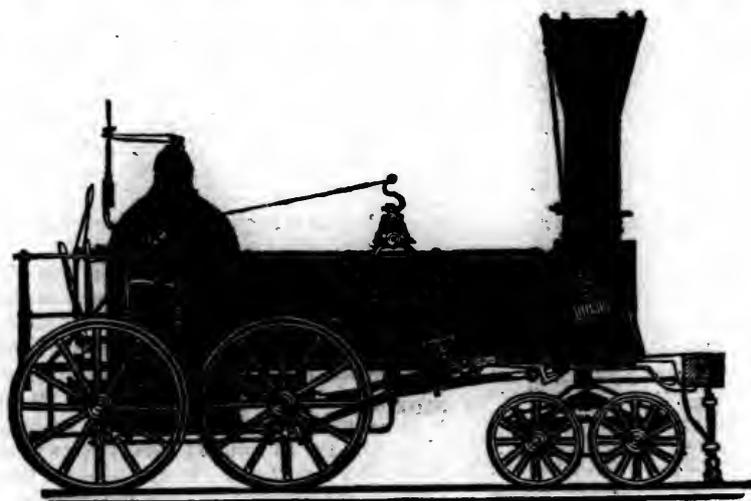
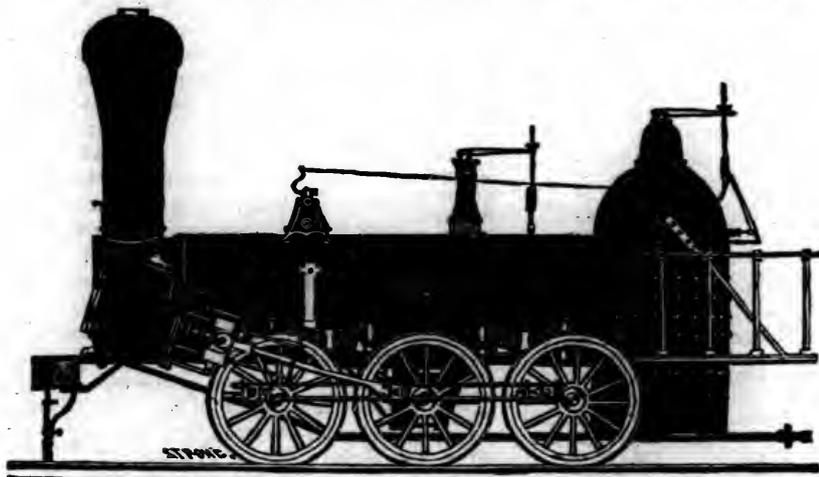
WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long,
capable of sustaining pressure from 400 to 2500 lbs.
per square inch, with Stop Cocks, T, L, and
other fixtures to suit, fitting together, with screw
joints, suitable for STEAM, WATER, GAS, and for
LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descrip-
tions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14 1/2	" " " × 20 " "
"	4,	12 1/2	" " " × 20 " "
"	5,	11 1/2	" " " × 20 " "
"	6,	10 1/2	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.
Castings of all kinds made to order: and they call attention to their Chilled Wheels
or the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**PHILADELPHIA IRON.—THE MARY-
LAND AND NEW YORK IRON AND
Coal Company** are now prepared to make contracts
for Rails of all kinds. Address the Subscriber, at
Jennon's Run, Alleghany County, Maryland.
WILLIAM YOUNG,
President.
jy451m

**TO IRON MASTERS.—FOR SALE.—MILL
SITES** in the immediate neighborhood of *Bi-
luminous Coal and Iron Ore*, of the first quality, at
Ralston, Lyoming Co., Pa. This is the nearest
point to tide water where such coal and ore are
found together, and the communication is complete
with Philadelphia and Baltimore by canals and
railways. The interest on the cost of water power
and lot is all that will be required for many years
the coal will not cost more than \$1 to \$1.25 at the
mill sites, without any trouble on the part of the
manufacturer; rich iron ore may be laid down still
more cheaply at the works; and, taken together
these sites offer remarkable advantages to practical
manufacturers with small capital. For pamphlets,
descriptive of the property, and further information,
apply to Archibald McIntyre, Albany, to Archibald
Robertson, Philadelphia, or to the undersigned, at
No. 23 Chambers street, New York, where may be
seen specimens of the coal and ore.
W. R. CASEY, Civil Engineer,

**VALUABLE PROPERTY ON THE MILL
Dam For Sale.** A lot of land on Gravelly
Point, so called, on the Mill Dam, in Roxbury,
fronting on and east of Parker street, containing
68,497 square feet, with the following buildings
thereon standing.

Main brick building, 120 feet long, by 46 ft wide,
two stories high. A machine shop, 47x43 feet, with
large engine, face, screw, and other lathes, suitable
to do any kind of work.

Pattern shop, 35x32 feet, with lathes, work benches,
&c.

Work shop, 86x35 feet, on the same floor with the
pattern shop.

Forge shop, 118 feet long by 44 feet wide on the
ground floor, with two large water wheels, each 16
feet long, 9 ft diameter, with all the gearing, shafts,
drums, pulleys, &c., large and small trip hammers,
furnaces, forges, rolling mill, with large balance
wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 1/2
feet two stories high, with a shed part 45 1/2 x 20 feet,
containing a large air furnace, cupola, crane and
corn oven.

Store house—a range of buildings for storage, etc.,
200 feet long by 20 wide.

Locomotive shop, adjoining main building, front-
ing on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of
Parker st., containing 6000 feet, with the following
buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two sto-
ries.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS, 48
State st., or to CURTIS, LEAVENS & CO., 106
State st., Boston, or to A. & G. RALSTON & CO.,
Philadelphia.** ja45

CYRUS ALGER & CO., South Boston Iron
Company.

AUCTION DUTIES.

In Assembly, March 35, 1845.

Report of the comptroller, in answer to a resolution of the assembly, of the 11th February, in relation to auction duties.

COMPTROLLER'S OFFICE,
Albany March 31, 1845.

TO THE ASSEMBLY.

The comptroller, in answer to a resolution of the assembly of the 11th inst., requested him to report "the amount of auction duties which have been annually paid into the treasury from the passage of the law requiring such payments to the present time," respectfully submits the following

REPORT.

The first act for the collection of revenue on sales at auction, was passed in 1784. (Chapter 64 of session laws of that year.) This act authorizes licences to be granted to vendue masters by the mayors of the cities of New York, Albany, etc., and required the payment into the state treasury of 2½ per cent. on the amount of sales at vendue. From 1784 to 1791. the payments into the treasury by vendue masters averaged about \$7,300 for each year, which revenue appears to have been used for the ordinary expenditures of the state government.

The sixth section of the act, chapter 27, of the laws of 1799, distinctly appropriates the duties derived from sales at auction, "for the support of the civil government of this state."

In 1792, an act was passed, (chapter 67 of the session laws of that year,) appropriating two thousand pounds annually from auction duties, to the "society of the hospital in the city of New York."

In 1795, an act was passed, (chapter 37 of the session laws,) which appropriates four thousand pounds annually to the society of the hospital in the city of New York, and repeals the appropriation of the preceding year; and also reduces the duties to 2 per cent.

In 1798, an act was passed (chapter 89) which adds one per cent. to the duties on sales at auction, and appropriates the sum received on account of this additional duty to the support of foreign poor in the city of New York.

In 1801, an act was passed (chapter 116) which appropriates one-third of the amount received on sales at auction in the city of New York, for the support of foreign poor in that city, and it appropriates the residue of the duties collected there, and the whole received in other parts of the state, "for the support of the civil government of this state."

In 1817, an act was passed for constructing the Erie and Champlain canals, various devenues were set apart and pledged for the payment of the money borrowed, and in the 5th section of the act referred to, it was provided that "all the duties upon sales at auction, after deducting thereout twenty-three thousand five hundred dollars annually appropriated to the hospital, the economical school, and the orphan asylum society, and ten thousand dollars hereby appropriated annually for the support of foreign poor in the city of New York," should belong to the canal fund.

These sums were appropriated as follows:

To the hospital.....	\$22,500
To the economical school.....	500
To the orphan asylum.....	500
For the support of foreign poor.....	10,000
	\$33,500

The economical school has not been in operation for many years, and the sum of \$600 which was originally paid for the use of this school, is now paid to the Prince street orphan asylum, under the act chapter 29, of the laws of 1834.

A statement is annexed, which shows the sums paid out of the treasury for auction duties in each year, from 1784 to 1844, and also the sums paid out of the treasury for the same period for the use of the hospital, foreign poor, and other objects.

The total sum paid into the treasury on account of sales at auction for 60 years, is.....	\$7,660,291 88
Total paid from the treasury for the use of hospitals, etc.....	1,814,774 75

Retained in the treasury.....\$5,845,517 13

Of the amount thus retained in the treasury, the sum of \$3,592,039 04 has been appropriated to the construction of the Erie and Champlain canals, and the sum of \$2,256,478 08 has been used for the ordinary support of the government.

Respectfully submitted,
A. C. FLAGG.

STATEMENT

Of the amount of duties paid into the treasury during each fiscal year, from 1784 to 1844, inclusive, and of the amount charged upon such duties and paid from the treasury during the same time for the support of the New York hospital, foreign poor, economical school, and orphan asylum in the city of New York, viz:

Year ending.	Amount paid into the Treasury.	Amount paid to hospital, etc.
Dec. 31, 1784....	\$6,356 46....	.....
1785....	11,771 77....	.....
1786....	6,473 99....	.....
1787....	6,908 84....	.....
1788....	5,356 36....	.....
1789....	6,674 79....	.....
1790....	7,318 39....	.....
1791....	8,051 38....	.....
1792....	14,605 08....	\$3,750 00
1793....	21,898 38....	1,250 00
1794....	12,594 02....	5,000 00
1795....	38,890 30....	12,500 00
1796....	14,801 13....	12,500 00
1797....	25,135 26....	13, 74 00
1798....	35,187 96....	15,098 00
1799....	47,907 95....	29,509 46
1800....	55,942 74....	30,992 91
1801....	78,783 69....	38,838 61
1802....	66,000 24....	34,263 49
1803....	52,776 14....	27,599 78
1804....	56,322 69....	29,015 69
1805....	57,614 44....	29,909 21
1806....	64,879 04....	33,955 88
1807....	73,621 80....	37,392 00
1809....	66,474 99....	28,527 37
1809....	89,636 08....	38,303 14
1810....	127,774 01....	45,346 19
1811....	107,439 25....	60,488 23
1812....	126,962 80....	53,699 12
1813....	136,122 18....	69,022 32
1814....	86,067 67....	50,336 83
1815....	191,475 23....	49,455 9
1816....	159,450 01....	97,205 88
1817....	203,149 27....	70,554 79
1818....	179,967 14....	33,500 00
Nov. 30, 1819....	144,441 13....	33,500 00
1820....	156,477 20....	33,500 00
1821....	152,778 02....	33,500 00
1822....	181,967 65....	36,500 00
1823....	202,631 16....	33,500 00
1824....	233,101 53....	33,500 00
1825....	253,452 38....	33,000 00
1826....	234,237 84....	30,500 00
1827....	298,289 65....	33,000 00
1828....	275,187 40....	35,000 00
1829....	242,552 54....	38,000 00
1830....	218,513 66....	38,000 00
Sept. 30, 1831....	178,276 66....	22,375 00
1832....	250,424 02....	35,000 00
1833....	212,014 23....	31,000 00
1834....	205,337 04....	36,000 00
1835....	244,537 24....	33,000 00
1836....	274,903 81....	36,000 00
1837....	214,458 62....	28,000 00
1838....	142,102 35....	34,000 00
1839....	225,401 84....	38,500 00
1840....	164,621 38....	30,500 00
1841....	206,702 11....	34,000 00
1842....	200,284 52....	27,875 00
1843....	161,123 02....	59,125 00
1844....	174,749 36....	33,500 00
	\$7,660,291 88	\$1,811,774 75

ABRAHAM G. THOMPSON, Esq., for many years at the head of one of the most extensive auction houses in this city, has done much for its prosperity, in obtaining from the legislature an act reducing the then prohibitory duties on sales at auction. The auctioneers should present him a pair of silver pitchers for his laudable and highly commendable efforts in the premises.—*Examiner.*

The Battle of the Gauges.

(Continued from page 187.)

The following account of the experiments made on the narrow gauge are from the London Morning Herald, though we find them in the Railway Record of January 3d.

The broad and narrow gauge engines—experiments for testing their tractive capacities.

The experiments for testing the tractive capacity of the narrow-gauge engine commenced on Tuesday on the Great North of England line, between York and Darlington. The distance run was that between the first and forty-fourth mile-posts—viz., 43 miles. This piece of railway has been selected in consequence of its being nearly a direct line throughout its whole course, and from the very easy character of its gradients. The engine selected is a new one, recently constructed (as I understand) at the celebrated locomotive establishment of Mr. Robert Stephenson. She has been running for about a week only, and has not made any except experimental trips. Her performances were considered to be so good that she was fixed upon as the champion for the narrow-gauge interests. She is a six-wheel engine, with outside cylinders; has a 6 feet 6 inches driving wheel, and the top of her boiler is about 7 feet 4 inches from the rails.

The hour fixed for the starting of the train was nine o'clock, and a few minutes before that time I observed upon the platform of the railway terminus, professor Barlow, professor Airey (two of the gauge commissioners); Mr. Watson, the secretary to the commission; Mr. G. Hudson, M.P.; Mr. Richardson (the Mayor of York); Mr. Brunel, Mr. C. A. Saunders, the secretary of the Great Western company; Mr. Gooch, superintendent of the locomotive department in the same company; Mr. Bidder; Mr. Cabry, the engineer of the York and North Midland; Mr. Harrison, the engineer of the Great North of England; Mr. W. Stevenson, of the Great Western company; Mr. Wyndham Harding; Mr. Berkley, of Mr. Robert Stephenson's establishment; and several other scientific gentlemen.

The weight of the train was 50 tons only, and that of the engine and tender together about 28 tons. It will be recollected that the weights of the experimental trains upon the broad gauge were (exclusive of engine and tender) fixed at 80 tons, 70 tons, and 60 tons, but that the actual tonnages were 81 tons 13 cwt., 71 tons 12½ cwt., and 61 tons 0 cwt. 2 qrs. It will be seen, therefore, that the experiment upon the narrow-gauge line, the particulars of which I am about to detail, has no parallel working upon the broad-gauge railway; and that whatever the value of the result, it can be recognized only when the broad-gauge engine shall have taken the same reduced tonnage for the same distance.

The broad-gauge party appeared to be considerably surprised at the reduction of ten tons below the lowest of the weights taken by the broad-gauge engine, and Mr. Brunel, Mr. Saunders, and Mr. Gooch stated that the result of the working of such a train, to the

running of which, however, they said they did not object, could not have the slightest reference to any one of the experiments tried between Paddington and Swindon. It is presumed that the determination to take 50 tons was come to without consulting the commissioners, because I heard professor Barlow himself take an objection to the reduction of weight. Mr. Brunel then observed that his (Mr. Brunel's, original proposition was, that the experimental trains should be respectively 90 tons, 80 tons, and 70 tons, but that, to gratify the desire of the narrow-gauge interests, he had agreed to run trains of 80, 70, and 60 tons. Professor Barlow repeated his objection, and said he thought it not fair to run a 50-ton train, when the lowest of the tonnages taken by the broad-gauge locomotive was 60 tons. Mr. Bidder said the object of the advocates of the narrow-gauge was to show the capacity of their engines, as well with a 50-ton as with a 60, 70, and 80 tons train, and that they should most assuredly take experimental trips with those tonnages. After this conversational discussion, which was carried on in the most perfect good feeling, the 50-ton train, composed of eight carriages, loaded with pig lead to make up the weight, was declared to be in readiness to start.

At 9h. 7m. 15s. the train started from the station in order to proceed to the first mile post, from which it had been understood the experiment was to commence. Upon the Great Western line the experimental trains left the Paddington terminus, and were brought to a stand-still at the first mile post. This, however, was not the case this morning. I was waiting for the train to stop before I noted the time of starting from the first mile post; but finding the engine was getting up her speed, I looked down the line, and found she had gone past the post without stopping, and was doing her experimental work without warning. I am, therefore, obliged to take the time of passing the first mile post from one of the gentlemen who accompanied the train, and the time of whose watch I have reduced to that of my own. The train passed the

	h.	m.	s.	Time each mile. m. s.
1st mile post at	9	12	17	0 0
2	9	14	25	2 8
3	9	15	45	1 20
4	9	17	0	1 15
5	9	18	12	1 12
6	9	19	20	1 8
7	9	20	30	1 10
8	9	21	40	1 10
9	9	28	2	1 22
10	9	24	32	1 30
11	9	26	15	1 43
12	9	28	8	1 53
13	9	30	4	1 56
14	9	32	6	2 2
15	9	34	0	1 54
16	9	35	45	1 45
17	9	37	22	1 37
18	9	38	50	1 28
19	9	40	25	1 35
20	9	42	20	1 55
21	9	44	45	2 22
22	9	46	25	1 40
23	9	47	50	1 25
24	9	49	35	1 45
25	9	51	30	1 55

26	8	53	20	1	50
27	9	55	15	1	55
28	9	57	15	2	0
29	9	59	12	1	57
30	10	1	28	2	16
31	10	3	30	2	2
32	10	5	15	1	45
33	10	6	50	1	35
34	10	8	44	1	54
35	11	10	35	1	51
36	10	12	35	2	0
37	10	14	56	2	21
38	10	17	18	2	22
39	10	19	0	1	42
40	10	20	20	1	20
41	10	21	34	1	14
42	10	22	49	1	15
43	10	24	8	1	19
44	10	26	10	2	2

The train stopped at the Darlington station at 10h. 27m. 20s. It will here be seen that the 43 miles were performed in 1h. 13m. 53s., or at the rate of nearly 35 miles per hour. The maximum speed (between the 5th and 6th mile-posts) was nearly 53 miles per hour, and the minimum rate rather more than 25 miles per hour. The average speed of the 80-ton train (exclusive of the engine and tender) upon the broad gauge lines was 47.5 miles per hour, and the maximum speed 55 miles per hour.

There was, however, one thing greatly against the narrow-gauge experiment of this morning, viz., the wind. When the train left the York station, the weather was not at all unfavorable; the horizon promised rain, but very little wind was stirring. Up to the 10th mile post, the result promised to be pretty good; the last three miles had been done at about 52 miles per hour, and the narrow-gauge party calculated that the 43 miles would be got over in about 52 or 54 minutes. On reaching the 10th mile-post a heavy westerly wind came suddenly down upon the carriages, taking them obliquely in the direction the train was going. The effect was felt in less than a minute—the wind reduced the speed from 50 to nearly 30 miles per hour. There could be no doubt about the cause of retardation, because, from the 10th mile-post the progress of the train was slow or fast in proportion to the length of embankment, open country, or cutting. Immediately the engine entered a cutting, the increase of velocity was most sensibly apparent. If she entered a cutting of a couple of furlongs in length, at 30 miles per hour, she dashed out of it at 38 or 40, and before another couple of furlongs had been run upon an embankment exposed to the gale, the speed became reduced again to 30 miles per hour.

After waiting at the Darlington station about an hour, Mr. Bidder proposed to return with four carriages only, for the purpose, as it was stated by Mr. Berkley, of getting a 400 tons goods train in readiness for an experiment. Mr. Brunel asked if any preparations had been made to get such a train together, and upon being answered in the negative, he said it was far to late in the day to think of making such a trip—professor Barlow objected altogether to return in a train of four carriages, and that number of carriages which had been detached from the train were again put on, and the return trip commenced at 12h. 8m. 15s. The train reached the first mile-post from the York station at 1h. 32m. 8s.,

performing the 43 miles, therefore, in 1 hour, 24 minutes, and 53 seconds, or at a speed of about 30 miles per hour. A stoppage took place in this trip (I believe to take in water,) by which two or three minutes were lost.

If the weather does not improve no experiment will take place to-morrow.

The experiments under the commission, were resumed on Wednesday. The experiments yesterday with the 50-ton trains were considered so inconclusive, in consequence of the high wind which prevailed, that it was determined to repeat them to-day. The hour appointed for leaving the station was nine o'clock. The train left at 9h. 2m. 10s., accompanied by professor Barlow, professor Airey, Mr. Watson, Mr. Brunel, Mr. Saunders, Mr. Gooch, Mr. Bidder, Mr. Wyndham Harding, Mr. Berkley, Mr. Cabry, and about a dozen other gentlemen. The day was a favorable one. There was a slight breeze to the north, and the rails were in a very fair condition. Contrary to the practice observed in the experimental trips upon the Great Western railway, the train did not stop at the first mile post, and commence its experimental trip from a state of rest. Instead of doing this, it passed the post at the rate of about 8 miles per hour. The following is the working of the train for the 43 miles, that is, measuring from the first mile-post out of the York station, to the mile-post on the York side of the Darlington station:—

Passed 1st mile post at	h.	m.	s.	Time each mile in seconds. —
2	9	8	30	120
3	9	10	0	90
4	9	11	13	73
5	9	12	25	72
6	9	13	30	65
7	9	14	36	66
8	9	15	44	68
9	9	16	55	75
10	9	18	5	70
11	9	19	15	70
12	9	20	28	73
13	9	21	39	71
14	9	22	49	70
15	9	23	59	70
16	9	25	8	69
17	9	26	18	70
18	9	27	28	70
19	9	28	38	70
20	9	29	48	70
21	9	30	59	71
22	9	32	8	69
23	9	33	20	72
24	9	34	38	78
25	9	35	48	70
26	9	37	0	72
27	9	38	11	71
28	9	39	25	74
29	9	40	36	71
30	9	41	48	72
31	9	42	58	70
32	9	44	5	67
33	9	45	18	73
34	9	46	30	72
35	9	47	43	73
36	9	49	5	82
37	9	50	24	79
38	9	51	44	80
39	0	0	0	—
40	9	54	12	148
41	9	55	30	78
42	9	56	48	78
43	9	58	10	82
44	9	59	58	180

The time occupied in performing the distance yesterday was 1h. 13m. 43s., or at the

rate of something less than 35 miles per hour. It will be seen that to-day the same distance was accomplished in 53m. 28s., or rather less than 48 miles per hour, the maximum speed (between the 5th and 6th mile-posts) being nearly 55 miles per hour. The wind of yesterday may therefore be considered to have offered a resistance equal to above 13 miles per hour.

The return train with the 50 tons left Darlington station at 11h. 21m. 0s., and passed the first mile post at 11h. 22m. 18s. The following is the working of the engine:—

Passed 1st mile post at	h. m. s.	
2	11 22 18	160
3	11 24 58	90
4	11 27 53	85
5	11 29 29	96
6	11 30 42	83
7	11 31 58	76
8	11 33 10	72
9	11 34 23	73
10	11 35 42	79
11	11 36 55	73
12	11 37 12	77
13	11 38 29	77
14	0 0 0	—
15	11 41 50	181
16	11 43 8	78
17	11 44 22	74
18	11 45 35	73
19	11 46 42	67
20	11 47 48	66
21	11 49 0	7
22	11 50 11	71
23	11 51 28	77
24	11 52 43	75
25	11 53 56	73
26	11 55 8	72
27	11 56 19	71
28	11 57 31	72
29	11 58 41	70
30	11 59 51	70
31	12 1 5	74
32	0 0 0	—
33	12 3 26	141
34	12 4 32	66
35	12 5 48	76
36	12 6 59	71
37	12 8 11	72
38	12 9 23	72
39	12 10 33	70
40	12 11 43	70
41	12 12 53	70
42	12 14 2	69
43	12 15 12	70
44	12 16 21	72

The duration of this trip was 54 minutes 6 seconds, which shows a speed of upwards of 47 1-2 miles per hour. The maximum rate (between the 18th and 19th mile-posts) was somewhat above 54 miles per hour.

The next experimental trip was to have been with a 60-ton train; but the weather was considered so favorable for the time of year that Mr. Bidder proposed to take a train of 80 tons. This was agreed to, and at a few minutes after two o'clock several other passenger carriages were added, and the train proceeded towards the first mile-post. To make this interesting trial of the new narrow-gauge engines' tractive power with a heavy passenger train. I am about to give a table showing the working of the broad and narrow gauge engines with the 80-ton train, and it is, therefore, right I should state that the broad-gauge engine made her trip with a pretty good head wind against her, and that the narrow-gauge engine had a light breeze with her during the whole of the journey. It

is also necessary to state that the broad-gauge engine commenced her working from a state of rest, and that the narrow gauge engine passed, at the rate of about 12 miles per hour, the first mile-post, from which I reckon the time of her performance. This will explain the reason of the apparent loss of time by the broad-gauge engine for the first 4 miles. It will be recollected that the distance gone over by the broad-gauge train was 52 miles. I have taken the first 42, and then the working of the 52nd mile, in order to get performances as nearly parallel as possible.

Passed the first mile post at	h. m. s.	Narrow Gauge.		Broad Gauge.		Narrow Gauge.	
		Time each Mile in Seconds	Time each mile in Seconds	Time lost in Seconds	Time gained in Seconds		
2	2 9 38	130	122	8	0		
3	2 11 48	90	118	0	18		
4	2 13 18	76	90	0	14		
5	2 14 34	78	80	0	2		
6	2 15 52	79	74	5	0		
7	2 17 11	74	75	0	1		
8	2 18 25	75	68	7	0		
9	2 19 40	72	68	4	0		
10	2 20 52	73	74	0	1		
11	2 22 5	73	73	0	0		
12	2 23 18	72	70	2	0		
13	2 24 30	78	65	13	0		
14	2 25 48	82	60	22	0		
15	2 27 8	80	65	15	0		
16	2 28 26	78	66	12	0		
17	2 29 40	74	68	6	0		
18	2 30 54	74	67	11	0		
19	2 32 12	78	67	11	0		
20	2 33 34	82	68	14	0		
21	2 35 0	86	68	18	0		
22	2 36 22	82	69	13	0		
23	2 37 44	82	69	13	0		
24	2 39 0	76	69	7	0		
25	2 40 18	78	69	8	0		
26	2 41 40	82	72	10	0		
27	2 43 0	80	71	9	0		
28	2 44 20	80	71	9	0		
29	2 45 34	74	71	3	0		
30	2 46 50	76	70	6	0		
31	2 48 14	84	69	15	0		
32	2 49 32	78	71	7	0		
33	2 50 50	78	74	4	0		
34	2 52 8	78	73	5	0		
35	2 53 25	77	71	6	0		
36	2 54 42	77	70	7	0		
37	2 56 0	78	70	8	0		
38	2 57 28	88	70	18	0		
39	2 59 0	92	71	21	0		
40	3 0 30	90	71	19	0		
41	3 1 55	85	70	15	0		
42	3 3 18	83	70	13	0		
43	3 4 42	84	72	12	0		
44	3 4 42	84	73	11	0		
45	3 8 8	118	102	16	0		

This shows that in the 43 miles the narrow-gauge lost 397 seconds and gained 26 seconds only, the loss, in fact, being 5 minutes 53 seconds.

From this table it is seen, that with good weather to-day, the same engine upon the same line, and going over the same gradients (for curves there are none,) took 80 tons 43 miles in 58 minutes 30 seconds, or in 15 minutes 23 seconds less than she took 50 tons yesterday with a side wind against her.

The average speed upon the narrow-gauge line with the 80 tons, will be seen to have been about 44 miles per hour, with a maximum speed of 50 miles per hour, while the average speed of the broad gauge was 47 1-2 miles per hour, with a maximum speed of 55 miles per hour.

The 80-ton train was not brought back again to York by the same engine.

I have not heard what experiments will be tried to-morrow.

Railway Tunnel under London, two miles in length.

The following description, from the "Railway Telegraph," of the proposed approach to the central terminus of the London and Birmingham railway way, on the ground of the old Fleet street prison yard, will be read with interest. It shows that the English railway proprietors do not mind trifles when they have an important object in view.

LONDON AND BIRMINGHAM RAILWAY TUNNEL UNDER LONDON.

The stupendous undertaking, projected by the London and Birmingham railway company, under the direction of their talented engineer, Mr. Robert Stephenson, for reaching their proposed central station in Farringdon street (the site of the late Fleet prison) by means of a tunnel under London, cannot have failed to excite the attention, not merely of the scientific and railway world, but particularly the notice of those who, in a commercial point of view, or by being residents on the proposed line, are likely to be benefitted thereby, or are interested therein. The importance of such an undertaking has induced us to endeavor to lay before the public a correct description of this monster tunnel, which we are enabled to perform in detail, having had in the most courteous manner a copy of the plans and sections, prepared for the ensuing session of parliament by Mr. Stephenson, placed at our disposal.

The works of this magnificent undertaking are proposed to commence at the Camden-town station of the Birmingham railway, crossing the Hampstead road, by means of two arches of 70 feet span, and 16 feet in height, the junction with the London and Birmingham requiring no alteration of level. From the Hampstead road to the line is proposed to pass (by means of a viaduct varying from 18 to 21 feet in height, and at an inclination of 1 in 97) over Grange street, Leybourne road, to the Kentish-town road, and from thence over the Camden-road, Brecknock place, Great College street, and the Camden road villas, at an inclination of 1 in 134, and at a height varying between 20 and 16 1-2 feet. After passing the King's-road, the viaduct is to be succeeded by an embankment at an inclination of 1 in 60, and then by a cutting to the western side of Maiden lane, and to the north of Randall's tile-kilns. At this point the proposed tunnel commences, being at a distance of 1 mile 163 feet from the Camden station, at a depth of 37 and a width of 30 feet. The tunnel takes its course under Carlton gardens and William street, Caledonian road, at a depth varying from 38 to 45, and thence under the Caledonian road at a depth of 54 feet. From this point the tunnel is proposed to proceed at a gradually increasing depth under the tunnel of the Regent's Canal, near Half Moon crescent, where the depth is 90 feet. The direction of the tunnel is then under Penton street, Chapel street and White Lion street, Pentonville, the depth being no less than 101 feet, and the inclination being 1 in 1,062. From hence the tunnel passes under the City-road, at Claremont terrace, in the rear of St. Mark's church, Myddelton square, at a depth of 87 feet, gradually decreasing until the tunnel arrives at the New River Head, under which it is proposed to be carried at a depth of 68 feet. A gradual decrease in depth then takes place. Under Myddelton street, Clerkenwell, it is 51 feet; Gloucester street, 48 feet; Skinner street,

Clerkenwell, 43 feet; Corporation row, Seckford street and Suffolk street, each at a depth of 42 feet; Aylesbury street, (leading to the Sessions House), 41 feet; and St. John's square, 38 feet. From this point the tunnel passes under the closely populated districts of St. Sepulchre Without, at depths gradually decreasing until it reaches Cow cross, where it will be only 25 feet below the surface.— Here it is proposed to carry the tunnel at a depth varying from 28 to 33 feet, from Greenhill's rents to West Smithfield, at an inclination of 1 in 1,062. Passing under the Greyhound Inn-yard at a depth of 31 feet, the tunnel is proposed to reach Hosier lane at 28 feet, Cock lane at 29 feet, and the Saracen's Head Inn-yard at a similar depth. Under Skinner street, Snowhill, the depth will be 28 feet, and the tunnel will terminate at Angel court, on the southern side of Skinner street, at a depth of 24 feet. A small cutting will here commence, passing through Green Arbour court, at a depth of 19 feet; Bishop's court, 14 feet; Seacoal lane, 11 feet; Fleet lane, 5 feet; and thence into the city terminus, Fleet prison yard, where the line will emerge on a level.

The entire length of the intended extension will be 3 miles 4 1-2 chains, of which the tunnel will occupy 2 miles. It is a singular fact that the tunnel will pass under only one main sewer.

The London and Birmingham company propose taking powers for carrying out a deviation line, if found necessary, and to take such property as may be required for that purpose. The plans, which are engraved in a very elaborate style by Messrs. Dixon and Ross, of the Hempstead road, indicate the various houses which the company propose to purchase altogether, or to afford compensation for, if injuriously affected by the projected line.

For the convenience of the grand city terminus, the company propose to take powers for obtaining the whole range of houses on the south side of Skinner street, extending from the Old Bailey on the east to Turnagain lane on the west, and including from that point to the Fleet prison, the eastern side of Farringdon street, and passing to the rear of the prison yard, extending again to the Old Bailey, and including a portion of Prujean square, thus occupying the site of all the intermediate houses. One grand and desirable object the London and Birmingham company have in view in taking this group of houses, is to forward the improvements contemplated by the corporation of the city of London.

Another important advantage which will result from this plan of the London and Birmingham company, is that the inhabitants of the metropolis will be saved the inconvenience and noise of the ponderous wagons laden with merchandize, which at present perambulate the streets day and night, to the detriment of the paving, in passing to and from the city and the goods station of the railway at Camden town.

Upon the whole no one who views this great undertaking in a dispassionate manner, can be of any other opinion than that it is one calculated to afford convenience as well as comfort to the public generally; and from the high standing of the company, and the scientific reputation of their engineer, there can be but little doubt the project will meet with the sanction of parliament.

Too much praise cannot be awarded to those who have undertaken the herculean task of preparing the magnificent plans and sections which we have just described; nor can we do otherwise than express our admiration at the

superb way in which they are engraved, being decidedly superior to any done for the various proposed lines of railway about to be submitted to parliament this session.

U. S. Mails and the Railroads.

There has been much complaint, and justly so we now learn, during the past winter, in consequence of the delays of the mails between New York and Albany.

Our business men have generally felt the inconvenience of these delays; few of them, however, have known the cause, and many have of course placed it at the door of the railroad companies. We have more than once heard complaints made that "the railroads would not carry the mails without an exorbitant compensation." We recollect to have heard it said, soon after the close of navigation, that the "Housatonic and the Western railroad would not carry the mail between New York and Albany." It seems, however, that there would have been no difficulty, and no complaints, if these companies would have continued to carry the mail without compensation, and even without being requested to carry it, as they did, for nearly a fortnight, rather than to discommode the business community.

The causes of complaint against railroads are frequently based upon no better foundation than those made in this case, and yet these were deemed grave enough to be made the subject of inquiry by the legislature, as will be seen by the following report made by the committee on railroads, to whom the complaints were referred; and we ask for it a candid perusal, that the saddle may be placed upon the right—mule?

Report of the committee on railroads, made Feb. 16, 1846, in compliance with a resolution of the assembly of the 2d inst.

Mr. Tefft, from the committee on railroads, to which was referred the resolution of the assembly of the 2d of February instant, with power to send for persons and papers, and instructions to inquire into the cause of the refusal of the Albany and West Stockbridge railroad company to transport over their road the mail for the city of New York,

REPORTS:

That in the discharge of their duties the committee deemed it necessary, in order that full opportunity might be given for every explanation which should be deemed important in behalf of the company, or any individuals implicated in its affairs, to address, by way of letter, such persons as were supposed to possess the information sought, and pertinent thereto. The chairman, therefore, addressed to James D. Wasson, postmaster at Albany, a note requesting his personal appearance before the committee, to give such information as he might possess in reference to the subject matter under consideration, to which he readily responded. The facts elicited from the post master are set forth in the subjoined affidavit, No. 1.

On the 6th day of February, Mr. George Bliss, president of the Western railroad company, spontaneously appeared before your committee and submitted the affidavit marked No. 2. On the 9th of February a letter was addressed to Mr. S. Witt, at East Albany, who being absent from his residence, did not appear before the committee until the 14th of February, when he made the deposition marked No. 3.

Your committee have thus completed the investigation submitted to their charge, and they arrive at the conclusions which they have with greater pleasure, as the road in question is distinguished for its punctuality and speed, and attention to the wants of the travelling and business community. The committee offer the following resolution:

Resolved, That the committee on railroads be discharged from the further consideration of the subject.

Testimony accompanying the report of the committee appointed to investigate the circumstances attending the refusal of the Albany and West Stockbridge railroad company to carry over their road the New York mails.

In committee of investigation, February 6, 1846. Present, L. I. Tefft, Chairman, Jas. H. Titus, John T. Bush, William C. Rogers.

George Bliss appeared and made oath to the facts set forth in the affidavit No. 2.

James D. Wasson, post master, Albany, also appeared and made affidavit as No. 1.

(No. 1.)

Affidavit of James D. Wasson.

On or about the tenth of December last, Mr. Hyde, who carries the mail to and from the Albany post office to the depot of the Albany and West Stockbridge railroad at Greenbush, left word at the post office, under the direction of Mr. S. Witt, the agent of this and the Western railroad company, between nine and ten o'clock, P. M., that the United States' mails from this office to the city of New York would not be allowed longer to pass over the railroad, if they were sent to the depot. The mails being then made up, and no other arrangements made to convey them to New York, I requested the mail agent to take them over to the depot, all the mails as usual, on the following morning, and I would accompany him to the depot and urge the necessity of having the mails go forward until I could have more time to prepare to send them by land.

On our arrival in the car-house with the mails, one of their hired men stepped in front of the door of the mail car, and said to the mail agent, Mr. Chadwick, that the New York mails could not be put on board the cars. I inquired of the man under whose authority he acted, he replied the agent, Mr. S. Witt, who was then sent for; I then inquired of Mr. S. Witt by whose authority he acted, in refusing to pass the mails. He took from his pocket, and read a letter from Mr. Bliss, the president of the Western railroad company, directing him not to allow the mails to the city of New York to pass over the road. Mr. Witt said, I must obey the instructions of the president of the company.

I urged the importance to business men of having the mails go forward immediately, and the shortness of the notice upon me; and that the notice to me ought to be at least 24 hours: whereupon Mr. Witt said he would allow them to pass that morning.

I requested Mr. Witt to give me a copy of the letter from Mr. Bliss, to which he assented, but I have not been furnished with it.

On the same day I informed two of the

directors, residents of this city, of the Albany and West Stockbridge railroad company, of the refusal to convey the mail over their road, and was told to send the mail on the following morning, that they would not be refused.

I immediately advised the postmaster general what had taken place, in relation to these mails, and on the 30th December, Mr. Beach commenced taking them by horse power, where they are now being carried, to and from the city of New York.

The railroad company had not refused to take them, *except the time above stated*, up to the time Mr. Beach commenced his contract.

JAMES D. WASSON, P. M.

Albany, Feb. 6, 1846.

Sworn to before me this 7th }
day of February, 1846. }

L. I. TEFFT, *Chairman, committee*
on railroads in the assembly.

(No. 2.)

Affidavit of George Bliss.

I, George Bliss, depose and say, that as president of the Western railroad corporation, I have had the sole charge of the negotiations for the U. S. mails on the line of railroads between Albany and Worcester for a year past. That the old contracts for mail service expired July 1, 1845, prior to which time the New York and Albany mails were contracted for by stages. That in the winter of 1845, the stage proprietors made a sub-contract with the Housatonic railroad company to carry their New York and Albany mails for them by railroad, there being no contract with the department.

For the new contracts (after July 1, 1845) the department advertised for proposals for the Boston and Albany mails *twice a day*, by railroad; and the New York and Albany mails, by steamboat in summer and by stage in winter; but no proposals were asked for, for services on the Albany and West Stockbridge railroad, independent of the two daily mails between Boston and Albany. Proposals were made by me for the Boston and Albany mail twice a day each way, and they have been regularly carried, though no contract is executed therefor.

The postmaster general, in classifying the railroad mail service under the law of the last congress, specified and required only these two mails between Boston and Albany on this line, and did not classify or require a third mail for the Albany and West Stockbridge railroad.

In December last, under a contract with the Housatonic company, an extra train was put on between the state line and Albany for New York and Albany passengers, not connecting with either train between Boston and Albany. Never, to my knowledge, in any way was this third trip recognized by the department, or treated as a mail line by the postmaster general. The department never, to my knowledge, asked for proposals for a third mail on this line, never requested such service, and never offered any compensation for it.

Notwithstanding, I, on Nov. 17, 1845, wrote the department that if they desired, an

extra train might be arranged to carry the New York and Albany mail via New Haven, if they would pay reasonably for it, to which no answer was given having reference to this service.

Again, on Dec. 9-10, 1845, I proposed to the department *terms* for this service, if they desired it performed, either by New Haven or Bridgeport, to which no answer was given alluding to this service, no offer was made for it, and no request to perform it.

When the navigation closed, about Dec. 7, and the extra train started, I observed a notice in an Albany paper of the arrival of a mail from New York by this train, and supposing some mail bag was carried secretly, without the knowledge of the proper authorities, I immediately wrote our agent at Greenbush, Dec. 9, that the mails were not to go in that train, without some contract with the department. But on reflection, I wrote him the next morning to let the mails go along, until we could hear from the department, as I did not wish the business community to suffer. He had not and did not retain or exclude the mails a single trip. On further inquiry, I learned that the postmaster at Albany had sent the mails over to Greenbush to go by this line without instructions from the department, and he requested us to continue them, till he could hear from the department, and they were carried daily for near a month, without a word from the department on the subject. In the mean time, on Dec. 12th, I again wrote the department, to say that should any difference arise as to the terms of the mail service on the Albany and West Stockbridge railroad, we were willing to submit it to arbitration, as provided by law. This was declined on January 9, 1846.

While these mails were thus carried, I, about Dec. 20th, sent by an agent of the Hartford railroad going to Washington, to see if an arrangement could not be made for some compensation for this service, and some regular understanding for the season. That gentleman, on his return reported to me that the department had been negotiating with Mr. Beach for the service by stages, but had suspended it on his arrival; and that the postmaster-general requested him to consult me, and write him on what terms we would unite and carry the New York and Albany mails via New Haven. As soon as I learned of this request of the postmaster general, a proposal was forwarded to him, Dec. 29, that we would carry these mails between New Haven and Albany, six days in the week, for a *pro rata* proportion of the sum it would cost the department to carry them by stages between New York and Albany. And if the department had not a contract with the boats between New York and New Haven, by which they could send these mails (without further pay) no doubt was entertained that an arrangement could be made to include the whole service, from New York to Albany (by New Haven) at the same or a less price than that offered by Mr. Beach. This proposal was not accepted, but the mails were soon after voluntarily taken from the railroad, without any action or request

by me, and no request has since been made by the department to carry them on the railroad, and no compensation made or offered, for the time they were so carried. So far as our part of the line is concerned, we are now, and have been quite willing to carry these mails by railroad for a *pro rata* compensation paid for the service by stage, or to leave the matter to arbitration, if desired. I say, then, we never were requested by the department to carry these mails, nor by any one for them, except temporarily by the postmaster at Albany, till the department could be heard from, and on one occasion by the postmaster of New York: that I repeatedly offered to negotiate for them: that the department did not consent, or offer any compensation for the service: that I offered arbitration, as provided by law, and that finally an offer was made to perform the service by railroad on the terms it would cost to do it by stage: that these mails were carried by railroad from the closing of navigation to near the 1st of January, when they were voluntarily transferred to the stages by the department.

GEORGE BLISS.

Sworn to before me this 6th }
day of February, 1846. }

L. I. TEFFT, *Chairman, committee*
on railroads in the assembly.

Affidavit of Stillman Witt.

Stillman Witt, of East Albany, being duly sworn, deposes and says: that he is the agent, at East Albany, of the Western, and Albany and West Stockbridge railroad companies: that he received a letter from George Bliss, president of the Western road, stating to him that the said railroad companies had no contract with the post office department to carry the United States' mail; and that it was not proper that it should be carried by railroad, unless some contract was made: that he did refuse, on or about the 11th of December, 1845, at first upon one morning, to let the said mails go by the railroad, but that on the representations of the postmaster at Albany, he consented to let said mails go, and that they did continue to go for several days, until withdrawn by the department itself, and transferred to the stage; and that the said company has never, for a single day, prevented the mails from being carried over their road.

And he further deposes and saith, that for the said transportation of the mails, neither the Albany and West Stockbridge or the Western road has received any compensation whatever. And that the said mails were carried over the said roads for nine to thirteen days, but on this point speaks without definite recollection.

S. WITT.

Subscribed and sworn to before me }
this 14th day of February, 1846. }

L. I. TEFFT, *Chairman, committee*
on railroads in assembly.

Who will censure the railroad companies, for not carrying the New York mails during the past winter, after reading this report? and who will not censure the head of the post office department for his uncourteous inattention to the offers made—and his

entire disregard of the wants of the business community, relying upon the great northern mail during the close of navigation on the Hudson? We only ask that those *deserving* censure may have it awarded to them in the ratio that business men have been made to suffer, by the transportation of the mails between New York and Albany, in stages, during the past winter, while there were two lines of railroad over which it might have been carried, if the postmaster general had been as much disposed to consult the wishes of the public, as he appears to be to control and censure those companies who choose to manage their own affairs.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.

Saturday, March 28, 1846.

It will be seen by the following advertisement that the N. Y. and Erie railroad company have reduced their fares, which will, we doubt not, add much to their passenger receipts. It is the *true course*.

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.

" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts.

H. C. SEYMOUR, Supt.

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 tf

Housatonic Railroad.

This road is soon to be re-laid with a heavy edge rail, and thus to be included in the list of good roads. We are gratified to learn that this company have surmounted the difficulties with which it has been surrounded for several years past, and that it may now look forward with confidence to the realization of the benefits which have been anticipated from its

construction. A recent, and *first*, visit to the valley of the Housatonic, has given us more correct views in relation to this work than could be formed from the current reports of the day.

It was truly a bold undertaking for a place like Bridgeport—with the probability, almost certainty, that another road would be constructed between it and the Hudson river—to undertake a work of such magnitude; and the only wonder is that they ever carried it through. Yet they did form a connection with the Massachusetts roads at the north, and thus opened a communication between the sound and New York and Albany, very much better than any one which the people of New York had, with all their wealth and enterprize, been able to secure; and we hope they may, as we think they will, yet derive rich returns for their foresight and liberal expenditure.

We recollect well to have heard of the valuable water power of the Housatonic river, but had no just idea—very few, indeed, have—of its extent and availability, until we passed over the railroad a few days since. Of course, a particular examination could not be made when in the cars, and passing at the rate of twelve or fourteen miles an hour; yet we saw enough, and heard of the remainder, to satisfy us that the period is not very far distant when the business along the line, and what it will naturally draw from the adjacent country, and from those roads with which it now connects, as well as from another to be constructed from the Western road at Pittsfield to North Adams, in Massachusetts, now under contract, and from there to Bennington, Manchester, Rutland and Burlington, (Vermont,) which has been surveyed and found to be an exceedingly favorable line. By the time this road is completed, and that period is not distant, the Housatonic company will probably extend their road along the valley of the river to Pittsfield, and thus form a direct connection with the "Western" and the "Western Vermont" road, by which a large amount of traffic will be secured to it, which would otherwise pass down to, and upon the Hudson river, to New York, and over the Western railroad to Boston. The right spirit is moving in relation to the extension of railroads, and the works here alluded to will be among the early ones brought into use; and a few years only are required to make them profitable—especially when the power of the Housatonic is even one-half occupied, as we hope soon to see it.

Western Vermont Railroad.

We called attention in the "Journal" of the 14th instant, to a meeting to be held at Pittsfield, Mass., on the 18th, in relation to it.—The object of this meeting was to receive the report of the engineer, F. HARBACH, Esq., who had been engaged in making the examinations and surveys; and it appeared to us quite a matter of interest to the people of New York, and we suggested the propriety of sending, and took some measures for the appointment of, delegates to the meeting, that our citizens might be informed in relation to the true character of the project; but strange as it may appear to some who do not understand us of New York fully, there was not an individual at the meeting who could speak for, or in behalf of the New York interest. The Boston interest, however, was well and ably represented, as it usually is where works to promote the prosperity or the reputation of that noble city are likely to be discussed.

The report of the engineer was made, and proved highly satisfactory to those assembled to receive it.

It shows clearly that the route from North Adams to Rutland, passing near Bennington and through Manchester—a distance of a little over fifty miles—is an exceedingly favorable one, having no grades over forty-five feet to the mile, and passing through a fine agricultural region, abounding with iron, marble, etc.

The surveys and calculations were made, we understand, with much ease; and the plans and profile were got up in a manner very creditable to the engineer and his assistants, as we can speak from personal observation, having attended the meeting as a looker-on. We ought also to award much credit to the committee, Messrs. Strong, Sargeant, Lyman and Fenton, who caused the surveys to be made and the plans to be prepared, and by whom the meeting was called. They have performed their duty faithfully; and if the people along the line, and others interested in the construction of the work—we mean the *people* of New York and Boston, and the Western and the Housatonic railroad companies—will do theirs as faithfully, the work will be speedily completed to Rutland, where it will connect with another road to Burlington and to Montreal—thus becoming a link in a *tri-partite line*, with one terminus at New York, another at Boston, and the third at Montreal, with direct and easy connections with all the other New England and New York railroads.

We were highly gratified to see the spirit which prevailed at the meeting; and from the determination evinced by the gentlemen from Vermont, it is evident that the road *will be built*. It is evident from present indications that, though late in the field in relation to railroads, the people of the Green Mountain state will, in a few years have their full share in use.

As we hope soon to be able to publish the report of the engineer, we omit further notice of the proceeding of the meeting.

English Engineers and their Engagements.—We find in "Herapath's Railway Journal," of December 13th, a list of 116 engineers, with the number of railways on which they are employed. Among others, we find

Sir John McNeill is employed on.....	37
R. Stephenson " " ".....	34
J. Lock " " ".....	31
C. Vignoles " " ".....	23
Sir J. Rennie " " ".....	20
I. K. Brunel " " ".....	14
W. Cubitt " " ".....	11
J. Gibbs " " ".....	12
W. Gravatt " " ".....	10

This shows how far a *name* goes. It is well known that this work is done by others, and that they can only look at the plans and specifications of those who do the work.

For the American Railroad Journal.

Schuylkill County Railroad—No. 3.

In my last No. I gave a brief history of the several roads of the Schuylkill valley, and propose now to review the remaining railroads of this county.

The Little Schuylkill railroad has its source at Tamaqua, a town at the head waters of the Little Schuylkill river, and is about sixteen miles distant from Pottsville, in a northeasterly direction. This road is about twenty-nine miles in length, terminating at Port Clinton, a town on the confines of the county, and about sixteen miles below Pottsville on the line of the Reading railroad. The road is of an inferior quality, having been laid about ten or twelve years ago, when improvements of this kind

were in their infancy. A movement is on foot for the purpose of re-laying the track with heavy iron, and re-grading the road. The Reading railroad company have erected a substantial bridge at Port Clinton, to connect this road with their own. The greater part of the coal from this section of the region formerly was taken down by the canal, but the enterprise of the railroad company will be apt to detract considerably from the business of the canal in future from this point. As the road is not in a good condition, and as horse power is only used, the dealers and transporters have not the same advantages possessed by others, on account of having to re-ship their coal into the Reading railroad cars at Port Clinton. Very superior schutes have been erected by the Reading company for this purpose, and I may say that this is the only point in the coal region where the canal is on an equal footing with the railroad as far as convenience in shipping the coal goes. This road, like all the laterals in this county, (with but one exception,) is graded in favor of the trade, which has a great tendency to cheapen transportation.

The Mount Carbon Railroad.—This road forms a junction with the Reading road at Mount Carbon. At the distance of one mile from its commencement, it branches off into two separate roads, each being four miles in length. This road is one of the oldest in the county, having been laid fifteen years, although in a very inferior manner; and it was not until the Reading road was finished that a good and substantial track was laid. Horse power is used on this road, as it passes through the centre of the town, and the grades are too heavy for the use of locomotives with advantage. This company are doing a profitable business, but as they make no report, the receipts and expenditures are not known.

The Mine Hill and Schuylkill Haven Railroad.—This road has its commencement in Schuylkill Haven, three miles below Pottsville. The principal part of its stock is owned in Philadelphia, and is managed by gentlemen of that city, and is one of the best paying roads in the county, declaring the yearly dividend of 15 per cent, although this is short of their actual receipts, as they are bound by their charter to pay all over that amount into the treasury of the state, which has received from them something over \$10,000. Their road is laid with the best quality of iron, and has a double track the whole distance, including the branches, being 19 miles. The road is graded in favor of the trade, the greatest descending grade on the main line being 185 feet to the mile, and the lowest, 10 feet to the mile. The first branch from the main line is called

The West Branch.—Being five miles in length, having a double track, and like the main line, kept in good order. The greatest descending grade on this branch is 105 feet to the mile, and the lowest 11 feet to the mile. From this branch springs two other roads, the first called

The Wolf Creek.—Which is one mile in length, and under the same management and of the same quality as the other; the grades being 70 feet to the mile for the greater part of the way. And the other branch is called

The Muddy Branch.—Which completes the finished branches of the Mine Hill and Schuylkill Haven railroad, being 2½ miles in length, and like the other branches has a descending grade the whole distance.

I have now given you a concise history of all the lateral railroads of this county, and to show the large amount of capital invested in this manner, I

give you the aggregate number of miles of railroads which cannot be surpassed by any other county in any other state.

	Miles.
Reading railroad.....	18-0
Mount and Port Carbon.....	2-5
Schuylkill valley.....	9-0
Little Schuylkill.....	29-0
Mill Creek.....	4-0
Mount Carbon.....	9-0
Mine Hill and Schuylkill Haven and branches.....	19-0
Swatara extension, (unfinished).....	7-25
Lorberry.....	6-0
Good Spring Creek.....	5-0
	108-75

The above does not include several laterals from three quarters to a quarter of a mile in length—of which I suppose there are some five or six miles. The above valued at \$20,000 per mile, which is a fair average cost, would be equal to \$2,175,000.

Yours, etc., M.

Broad and Narrow Gauge.

Below we give the report of the commission lately instituted in England to investigate and report upon the relative merits of the broad and narrow gauge for railways, that is to say, of a gauge of seven feet, and the ordinary gauge of four feet, eight and one-half inches. The result is nearly what we anticipated. The commission, in view of the establishment of an uniform width, recommend the adoption of the narrow gauge. In making this recommendation they desire particularly not to be understood as expressing an opinion "that the dimension of 4 feet 8½ inches is in all respects the best suited for the general objects of the country." They state, moreover, that the number of miles of railway in operation in England on the broad gauge is 274, and on the narrow, not less than 1,901, and if an uniformity is to be effected, it can be accomplished at less expense, by reducing the wide gauge to the dimension of the smaller one.

This subject of the best width of gauge was very fully investigated some 4 or 5 years since by the Great Western railroad company, and resulted in a determination to adhere to the wide gauge, and we have seen no evidence of any wish on the part of that company to adopt the narrow width; although from the comparatively limited extent of broad gauge lines, these lines must suffer most from any inconvenience resulting from a difference in the width of track as compared with other lines, which is the great objection urged by the commissioners, and the only one which can be said to possess much force. The attempt on the part of those interested in the narrow gauge lines, to compel, by act of parliament, all new lines to adopt the narrow gauge (and such was evidently the object in instituting this commission,) will we trust not be successful, it being a matter which should be left to the several companies, whose interests being inseparable from those of the public, will lead them to the adoption of the best plan, in the construction of their roads.

The reasons in favor of an adherence to the narrow width, are stronger in England than elsewhere, from the great extent of line already constructed of that width, and the absence of any great necessity for very high speeds in consequence of the limited extent of the country, the longest lines measuring at most but little more than 100 miles, while in this country the case is quite different—speed and accommodation to passengers being a paramount object.

Upon the latter head, that of speed and power,

the testimony of the commissioners is very decided in favor of the wide gauge, and indeed it could not be otherwise without contravening the established principles of mechanics. They state that they "are fully satisfied that the average speed on the Great Western, both by the express trains and by the ordinary trains, exceeds the highest speed of similar trains on any of the narrow gauge lines; that, while the Great Western company have not altered in any degree the plan of their engines, the highest velocities on the narrow gauge lines have been attained by the introduction of a more powerful kind of engine than was employed at an earlier period, and probably the new engines now used on the narrow gauge lines are as powerful as they can well be made *within the limits of their gauge*, whereas the broad gauge lines have still a means of obtaining an increase in the power of their engines, and of increasing their speed," etc.

They state moreover, "that the fire boxes boilers etc., of narrow gauge engines still possesses a smaller evaporating power than those of the broad gauge engines, although recent attempts have been made to raise the former to the level of the latter, but those attempts have not succeeded; and it is indisputable that whatever can be done for the narrow gauge, in this respect can be surpassed on the broad gauge." This gauge allows also, the use of driving wheels of larger diameter, which is represented to be "unquestionably favorable to high speed both because the steam is used to greater advantage, and because the alternating shocks upon the machinery are less rapid," rendering the "motion more easy at high velocities." On the whole they conclude "that the broad gauge engines possess greater capabilities for speed with equal loads, and generally speaking of propelling greater loads with equal speed; and moreover that the working of such engines is economical when very high speeds are required, or when the loads to be conveyed are such as to require the full power of the engine." The subject is not as ably discussed in the report as we had reason to suppose it would be, since several important considerations are overlooked, and conclusions are drawn in several instances not justified as we think by the premises. We shall give in this number a report on this subject made by E. F. Johnson C. E. sometime since, and propose to follow it in subsequent numbers by such information as we may obtain in order that it may be fully understood.

It is now ten or eleven years since the question of a wide gauge was first agitated, and nearly simultaneously by Mr. E. F. Johnson in this country. Mr. Brunel in England, and DeGerstner on the continent, and without any concert as we are informed on the part of those gentlemen.

The New York and Erie is the only railroad in the northern states having what may be termed a wide track. The width of track on this road is six feet or one foot less than upon the Great Western road in England.

Had the other great lines of road which were started then and since, adopted this width, it would, we have no doubt, have proved greatly to their advantage, as well as conducive to the best interests of the public.

We deem it very fortunate that the New York and Erie railroad, which is destined to be the great main-line of road leading from New York city to the Mississippi valley, and eventually perhaps to the Pacific, has been so far constructed with wide gauge. We are induced to express ourselves more decidedly in respect to this road, as we have heard some ru-

mors that an attempt is to be made to reduce the gauge upon it, which we hope are without foundation.

We have only room this week for the "general conclusion" of the commission, viz:—

GENERAL CONCLUSION.

"After a full consideration of all the circumstances that have come before us, and of the deductions we have made from the evidence, we are led to conclude—

"1st. That as regards the safety, accommodation and convenience of the passengers, no decided preference is due to either gauge, but that on the broad gauge the motion is generally more easy at high velocities.

"2dly. That in respect of speed, we consider the advantages are with the broad gauge, but we think the public safety would be endangered in employing the greater capabilities of the broad gauge much beyond their present use, except on roads more consolidated and more substantially and perfectly formed, than those of the existing lines.

"3dly. That in the commercial case of the transport of goods, we believe the narrow gauge to possess the greater convenience, and to be more suited to the general traffic of the country.

"4thly. That the broad gauge involves the greater outlay, and that we have not been able to discover either in the maintenance of way, in the cost of locomotive power, or in the other annual expenses, any adequate reduction to compensate for the additional first cost.

"Therefore, esteeming the importance of the highest speed on express trains for the accommodation of a comparatively small number of persons, however desirable that may be to them, as of far less moment than of affording increased convenience to the general commercial traffic, we are inclined to consider the narrow gauge as that which should be preferred for general convenience; and, therefore, if it were imperative to produce uniformity, we should recommend that uniformity to be produced by an alteration of the broad to the narrow gauge, more especially when we take into consideration that the extent of the former at present in work is only 274 miles, while that of the latter is not less than 1,901 miles, and that the alteration of the former to the latter, even if of equal length, would be the less costly, as well as the less difficult operation.

"We are desirous, however, of guarding ourselves from being supposed to express an opinion, that the dimensions of 4 ft. 8½ in. is in all respects the most suited for the general objects of the country. Some of the engineers who have been examined by us have given it as their opinion, that 5 ft. would be the best dimensions for a railway gauge; others have suggested 5 ft. 3 in., 5 ft. 6 in., and even 6 ft., but none have recommended so great a breadth of 7 ft., except those who are more particularly interested in the broad gauge lines. Again, some engineers of eminence contend that a gauge of 4 ft. 8½ in. gives ample space for the machinery of the engine and all the railway requirements, and would recommend no change to be made in the gauge.

"We may observe, in reference to this part of the question, that the Eastern Counties railway was originally constructed on a gauge of 5 ft., and has since been converted into a gauge of 4 ft. 8½ in., to avoid a break of gauge; and we have been informed that some lines in Scotland originally on the gauge of 5 ft. 3 in. are about to be altered to 4 ft. 8½ in. for the same reason.

"Whatever might be the preferable course were the question now to be discussed of the gauge for an entire system of railways, where none previously existed to clash with the decision, yet under the present state of things we see no sufficient reason to suggest or recommend the adoption of any gauge intermediate between the narrow gauge of 4 ft. 8½ in. and the broad gauge of 7 ft., and we are peculiarly struck by the circumstance, that almost all the continental railways have been formed upon the 4 ft. 8½ in. gauge, the greater number having been undertaken, after a long experience of both the broad and the narrow gauge in this country; nor must the fact be lost sight of, that some of these railways have been constructed as well as planned by English engineers, and amongst that number we find Mr. Brunel, the original projector of the broad gauge. Mr. Brunel

was also the engineer of the Merthyr Tydvil and Cardiff line, which is on the 4 ft. 8½ in. gauge; and we think that the motives which led to his adoption of the narrow gauge in that instance would equally apply to many English lines.

We are sensible of the importance, in ordinary circumstances, of leaving commercial enterprise, as well as the genius of scientific men unfettered; we therefore feel that the restriction of a gauge is a measure that should not be lightly entertained; and we are willing to admit, were it not for the great evil that must inevitably be experienced when lines of unequal gauges come into contact, that varying gradients, curve, and traffic, might justify some difference in the breadth of gauge. This appears to be the view which Mr. Brunel originally took of the subject; for the Great Western proper, is a line of unusually good gradients, on which a large passenger traffic was anticipated, and as it touched but slightly on any mineral district it embraced all the conveniences and advantages of the broad gauge system, and was comparatively free from the influence of those defects on which we have commented; but such a breadth of gauge, however suitable and applicable it may have originally been considered to its particular district, appears wholly inapplicable, or at least very ill-suited to the requirements of many of our northern and midland lines.

In reference to the branches already in connection with the Great Western railway, we may observe, that the greatest average train on the Oxford branch, for two weeks in July and October, was only forty-eight tons; on the Cheltenham branch it did not exceed forty-six; between Bristol and Exeter, fifty-three; and between Swindon and Bristol, it was under sixty tons. With such a limited traffic the power of the broad gauge seems beyond the requirements of these districts.

We find, from an estimate furnished to us, and the general grounds of which we see no reason to dispute, that the expense of altering the existing broad gauge to narrow gauge lines, including the alteration or substitution of locomotives and carrying stock, would not much exceed £1,000,000; yet we neither feel that we can recommend the legislature to sanction such an expense from the public moneys, nor do we think that the companies to which the broad gauge railways belong can be called upon to incur such an expense themselves (having made all their works with the authority of parliament), nor even the more limited expense of laying down intermediate rails, for narrow gauge traffic. Still less can we propose, for any advantage that has been suggested, the alteration of the whole of the railways of Great Britain, with their carrying stock and engines, to some intermediate gauge. The outlay in this case would be very much more considerable than the sum above mentioned; and the evil, inconvenience, and danger to the traveller, and the interruption to the whole traffic of the country for a considerable period, and almost at one and the same time, would be such that this change cannot be seriously entertained.

PRACTICAL RECOMMENDATIONS.

Guided by the foregoing considerations, we most dutifully submit to your majesty the following recommendations:

First. That the gauge of 4 ft. 8½ in. be declared by the legislature to be the gauge to be used in all public railways now under construction, or hereafter to be constructed, in Great Britain.

Second. That, unless by the consent of the legislature, it should not be permitted to the directors of any railway company to alter the gauge of such railway.

Third. That in order to complete the general chain of narrow gauge communication from the north of England to the southern coast, any suitable measure should be promoted to form a narrow gauge link from Oxford to Reading, and thence to Basingstoke, or by any shorter route connecting the proposed Rugby and Oxford line with the South-western railway.

Fourth. That as any junction to be formed with a broad gauge line would involve a break of gauge, provided our first recommendation be adopted, great commercial convenience would be obtained by reducing the gauge of the present broad gauge lines to the narrow gauge, of 4 ft. 8½ in.; and we, therefore, think it desirable that some equitable means should

be found of producing such entire uniformity of gauge, or of adopting such other course as would admit of the narrow gauge carriages passing, without interruption or danger, along the broad gauge lines.

(Signed)

J. M. FREDERIC SMITH, [L.S.]
Lieut. Colonel Royal Engineers.
G. B. AIRY, [L.S.]
Astronomer Royal.
PETER BARLOW. [L.S.]

Report on the Width Track by E. F. Johnson, 1842.

The width of track, (by which is meant the width in the clear between the inner edges of the rails, or rail plates,) of the majority of railroads in the United States, is *four $\frac{7}{10}$ ths* feet, or *four feet eight and a half inches*.

The railroads in New-Jersey, are mostly *four feet ten inches* wide. The road leading from Charleston westward into Georgia, is *five feet* wide. The road from New-Orleans northward towards Tennessee, which has been commenced, twenty-four miles of which are completed, has a width of *five and one half feet*; and the New York and Erie railroad has a width of track of *six feet*, exceeding in this respect any other railroad in the United States.

In addition to these, the Quincy railroad in Massachusetts, and the Mauch Chunk railroad in Pennsylvania, have a width of track, the former of *five* and the latter of *three and one half feet*. The latter roads unlike the others are not designed for the general purposes of trade and travel, being used almost exclusively for the conveyance of granite and coal to the nearest navigation.

As stated above, the majority of railroads in this county, have a width of track of *four feet eight and one half inches*, or very nearly that amount, varying in some instances from about four feet eight inches to four feet nine inches. This variation of about $\frac{1}{10}$ ths of a foot, may perhaps be attributed mainly to the different views entertained as to the space required for the play of the flanges of the wheels inside of the rails necessary for an easy motion. These variations, are indeed in several instances so great, as nearly or quite to preclude the reciprocal use of cars upon roads designed to be constructed upon the same general standard as to width of track.

The subject of the best width of track for railroads, does not appear to have received from those interested in their construction the attention due to its importance. In the year 1834, the views of the undersigned upon this subject, were made known to the board of directors of the Auburn and Syracuse railroad company, but no greater width than four and three fourths feet was recommended, in consequence of that road constituting but a small portion of the whole line between Albany and Buffalo, one hundred and fifty miles of which were then nearly completed with that width.

In 1836, being then in the service of the New York and Erie railroad company, the undersigned invited the attention of that company to the subject of adopting a width of track exceeding that of the line of road above named, and notwithstanding the grading had been commenced for a track of the ordinary width, a change was subsequently made, and the portions of the New York and Erie rail-

road now completed have a track *six feet wide*.

About this time the Great Western railway in England was commenced, and although the strongest reasons existed in that particular case for an adherence to the ordinary width of track, in consequence of connections with other roads already in operation or building with the narrow width, a track of *seven feet wide* was adopted under the recommendation of the Engineer Mr. Brunel, and it does not appear that the company have had any reason to regret having adopted so great a width.

About this period also, the attention of the late Chevalier DeGerstner, one of the earliest writers upon railways, was directed to the subject, and in arranging a plan for the prosecution of the railroad system in Russia he recommended a width of track of six feet and this width was adopted on the portion of the St. Petersburg and Moscow railroad, then constructed from St. Petersburg to Zarsko Selo. This gentleman subsequently visited this country, and examined minutely into the condition and operation of the railroads in the United States, and in conversation with the undersigned, expressed his decided conviction that a width of track of six feet, for railways intended for the general purposes of trade and travel, was the most suitable width that could probably be adopted. Mr. Vignoles, also a gentleman who stands among the first in the profession in England, has recently distinctly stated in a course of lectures delivered by him, that in reference to the gauge of railways "theoretical investigation and practical results led him to consider a six foot gauge the best."

England has the credit of having first resorted to the use of railways for the purposes of transportation. Those first constructed in that country were of limited length, connecting the coal mines with the nearest navigation, being similar in their objects to the Mauch Chunk and Quincy railroads already noticed. They were designed for one species of freight only, moving at low velocities, by the aid of *animal power*. The dimensions of the cars did not therefore vary materially from those of vehicles of the same description in use upon the common roads. Indeed many of the roads mentioned, were of the kind called *tram roads*, and were operated with the same vehicles in use upon the common roads, the guide-flanges being placed upon the rail, instead of the wheels.

As the utility of railways became more manifest, longer lines of communication were established, designed to accommodate both freight and travel, for both of which purposes they were ascertained to be particularly well adapted. When the Liverpool and Manchester railroad was constructed the question of the relative cheapness and efficiency of animal and steam power on railways, had not been experimentally solved. The experiments made on that road in 1829, were conclusive as to the superiority of steam, and it was then first ascertained that a speed exceeding *ten miles per hour* was practicable upon a railway, and that a locomotive steam engine was capable of drawing, upon a level

railway, a load equal to *three times* its own weight, or about *twelve to fourteen tons!* The width of track of that road is four *71-100ths* feet.

The extension of the railway system was attended with a general adherence, as to the width of track, to the standards previously established, owing undoubtedly in a great degree to the facilities thereby afforded of connecting different lines of roads, and using upon each the same carriages and engines.

Other causes may have operated in favor of an adherence to the width of track first adopted: that of the increased expense in particular would undoubtedly be deemed a prominent objection to a wide track.

On the railways first constructed in the United States, and designed for the general purposes of transportation, the standard established on the leading English roads, was in most instances adopted. This was found convenient, as the engines first used were manufactured in England, and were obtained at less expense by conforming to the proportions, and using the same patterns, previously arranged and prepared for the English roads.

Circumstances have since materially changed. The engines manufactured in this country are deemed superior, in power of traction and economy of fuel and repairs, to any that are imported, and they have been constructed for various widths of track, from four *71-100ths* feet to six feet, so that the proportions of their several parts, suited to these different widths, are now very correctly understood by our own manufacturers.

With respect to the New York and Albany railroad, the adoption of a track wider than exists on most other roads, will be attended with advantages and disadvantages, which it is proper should be duly considered.

By widening the track, the carriage and its load are supported upon a broader base. Experience has shown the very great difficulty, not to say impracticability, of securing in this climate, a permanent and immoveable foundation to the rails of a railroad, except at an expense not justified by any resulting benefit. Stone blocks of large size, trenches filled with rubble or broken stone, and foundation sills of stone, have all been resorted to, but without attaining the object desired. Wooden piles driven by steam power have also been proposed and in some places adopted. These while they continue in a sound condition, afford a very firm foundation, but their liability to decay and the ultimate greater cost of the road when formed on this plan renders it extremely doubtful whether they can be made available in all cases for securing a firm foundation. The effect of frost upon the foundations of railways is to disturb the adjustment of the rails, causing elevations and depressions which are increased by inequalities in the character of the sub-soil, so that ordinarily without great care and constant attention, it is impossible to preserve a level and even surface to the rails.

The body of a railroad car designed for a track four *71-100ths* feet wide, and supported upon four wheels has ordinarily a width of eight to nine feet. The sides of the car there-

fore, project nearly two feet outside of the rails. A depression or elevation of one of the rails, of a given amount, imparts to the side of the car a vertical movement much greater, the effect of which is to produce irregularity in the motion of the cars and in consequence to increase the resistance. This will be lessened by the adoption of a wider track as will also, in a very considerable degree, the danger of flying the track. It is upon the curved portions of the road that the carriages, or rather the engines are most exposed in this latter respect, arising from the tendency of all bodies in motion to pursue a rectilinear course unless diverted therefrom by some external cause. This cause upon a railway, is the impinging of the flanges of the wheels, particularly those of the engine, against the outward rail of the curve, aided by the greater relative elevation of that rail, and the conical shape which is sometimes given to the rims of the wheels. The danger arising from a possible inefficiency of these causes, is lessened in proportion as the centre of gravity of the load is depressed, or in other words, as the breadth of base or width of track is increased, giving more steadiness of motion, and of course less liability in the cars to leave the track at those points where irregularities exist in the surface of the rails.

With a wider track a more equal bearing of the load upon each wheel will be insured, lessening the maximum pressure upon each, and diminishing in the same degree the liability to fracture of the journals and wheels: since, under any given depression or irregularity of the rails, the consequent thrust or strain occasioned by the centre of gravity of the load being thrown to one or the other side of the track will be less. By giving to the body of the car also greater steadiness of motion, reducing the lateral movement produced by the irregularities in the rails, the comfort of the traveller will be greatly increased.

Upon the railways first constructed, cars supported upon four wheels were used.— These are now giving place, for the conveyance of both freight and passengers, to carriages of a larger size supported by eight wheels, formed by placing a long body capable of accommodating fifty to eighty passengers, upon the running parts of two four wheel cars. To preserve the body of the car at a suitable elevation above the track, keeping the centre of gravity within such a distance as not to cause too much unsteadiness to the motion, the wheels are usually lessened in diameter from their ordinary size of *three feet to two feet*, or two feet *six inches*. This of course by diminishing the ratio between the diameters of the journals and wheels, lessens the leverage by which the friction is overcome in the same proportion, requiring more power to communicate motion to the cars.

If for a track six feet wide, the wheels are increased in size in proportion, there will result an increase in the leverage for overcoming the friction at the journals, of about *twenty-seven* per cent, and the axles will have a greater elevation above the rail of about five inches, the motion being equally steady.— The resistance presented by friction to the

motion of the car, is in proportion, or very nearly so, to the insistent weight. In computing this resistance, the weight only of the body of the car and its load, or that portion which bears upon the journals, is considered. The wheels and their axles forming one half or one third of the weight of the car when empty, and nearly one sixth of the car and its load, do not by any increase of weight arising from an increase of size add materially to the resistance. The resistance encountered by the latter setting aside that of the atmosphere, proceeds from the dust on the rails and the inequalities of their surface. This is less with larger wheels. The total amount of this resistance for a given weight for wheels three feet in diameter, is only a moiety of the resistance under the same weight, from friction at the journals. An addition of five pounds to the weight of the wheels and axles, will not probably cause as much resistance to motion as the addition of one pound to the body of the car and its load. *Any increase, therefore, in the size or diameter of the wheels or of the axles, consequent on a wider track, to impart the same degree of strength, will not add materially to the resistance to be overcome by the motive power.*

Although, as stated above, the resistance from friction at the axles is lessened by enlarging the diameter of the wheel, yet for the eight wheel cars, (the kind which will be most used,) it is not probable that it will be found expedient to exceed the diameter of three feet for a track as wide as six feet. This will cause a saving of resistance compared with the wheels now in use for cars of that description on roads of the narrow width, of from sixteen to twenty per cent. The addition to the weight of axles for a track six feet wide as compared with one of four 71-100ths feet, will be about thirty-three per cent, or forty pounds to each axle to give the same strength, equal at the present price of iron, (1842,) to an increase in the cost of each axle of five to seven dollars.

In my remarks thus far, I have supposed the dimensions of the carriages to remain the same as now used on a track four 71-100ths feet wide. With a track six feet wide, the motion will be equally steady as upon the narrow track, if the width of the car is increased to ten or eleven feet. This will render the cars much more commodious for passengers and better adapted for the conveyance of all descriptions of freight, particularly of bulky articles, such as hay, cotton, seasoned lumber, furniture, barrels, cattle on the hoof, sheep, hogs, etc.

When the articles conveyed are so light and bulky as to render it necessary with a view to safety to restrict the load below the weight which is capable of being born by each car, a loss of power must ensue, since the weight of the carriages will then constitute a much larger portion of the gross load. A single car with four wheels and weighing about one and one half tons, as they are ordinarily constructed, is capable of conveying three and one half tons nett weight. If in consequence of the light or bulky character of the lading, it should become necessary to limit the nett load to one and one half or two tons, there is evi-

dently a large per centage lost in the conveyance of the extra weight of the carriage.

In the former case, the weight of the axle is forty-three per cent of the nett load, in the latter, seventy-five to one hundred per cent.—making a difference of thirty-two to fifty-seven per cent., which loss is increased by the increased resistance arising from the addition, which, from the small capacity of the cars, it may be necessary to make to the number of cars in the train. A similar loss will occur when in consequence of the peculiar shape of the articles conveyed, and narrowness of the carriage, the load cannot be compactly arranged, so as to occupy the least possible space.

Those who are conversant with the business of lading and unlading merchandize, furniture, etc., know how much superior a width of ten or eleven feet is to a width of eight or nine feet. They know also how important it is often that boxes and other articles should be placed in particular positions for safe conveyance, and can readily appreciate the advantages derived from wider carriages in disposing a load to the best advantage.

If by the use of wider cars the number of tons which an engine can convey, can be arranged into a shorter train, less resistance will be experienced on the curved portions of the road, and there will also be less resistance from the atmosphere. Experiments indicate that the amount of atmospheric resistance is less, or rather that its effect upon the motion of the cars is less, upon the front or traverse section of a railway train than upon the sides. When the atmosphere is in motion, the oblique or side winds have a tendency to force the flanges of the wheels against the rails, and to cause more resistance than an opposing wind directly in front. The greatest speed practicable being important on the New York and Albany railroad, and the atmospheric resistance increasing rapidly under the higher velocities, any arrangement that shall serve to lessen that resistance is an object. It is a very great object also to have cars of such dimensions and so commodious as that passengers may not be confined to one position, but may move about and amuse themselves in various ways, with ample space for rest and sleep, enjoying all the comforts of a parlor in a hotel, or a saloon in a steamboat. These conveniences and comforts, it is quite certain, cannot be secured so perfectly when the cars are only eight or, at most, nine feet wide, as they can be under a width of ten or eleven feet.

One of the more prominent of the advantages resulting from a wider track, remains to be noticed. It consists in the greater economy and efficiency with which steam can be used as an impelling power.

Much inconvenience has hitherto been experienced from the narrowness of the track on most railroads, in consequence of the space being insufficient for the required dimensions and arrangement of the parts of the engine.

(To be continued.)

Increase of Traffic on Railroads:

The increase of business resulting from the construction of railroads is not generally duly appreciated. We know that, in every case where a railroad has been constructed, and properly managed, in this country, the travel and the trade of the region from and to and through which it passes has increased immensely; yet so imperfectly have the "traffic returns" been given to the public that very few indeed are aware of the rapidity of the increase. In

England it appears to be the practice of the companies generally to furnish weekly returns of their business for publication, but in this country it is, in most cases, entirely different—the effort seems to be to prevent such publication. This, to say the least of it, we consider well an unwise policy; as it is now demonstrated that the more railroads in use the better the average business—and the greater the aggregate receipts, therefore those now in use are to be benefited by every extension of the system, and the system will be extended just in proportion to the knowledge which the people have of its advantages, and its success. Can this knowledge be more easily, and more thoroughly disseminated than by placing before them regularly, in weekly or monthly statements the amount of business performed by them? It seems to us not, and we are fully sustained in our opinions by the practice of all the English railways, as will have been seen by the tabular statement in our last number, and also in the short historical sketch of the London and Birmingham railway in this number.

There are some features of this sketch worthy of note; and first the great difficulty of obtaining a charter for it. The first efforts were made in 1823, yet none was granted until 1833, or ten years after, such were some of the difficulties thrown in the way of railways by ignorance and prejudice, even in the parliament of Great Britain, as well as in the city of London and town of Manchester; yet it will be seen that within eight years from the date of it being opened, the annual receipts exceeded by £226,566, the estimates of its early friends. The receipts were £195,864, and the number of passengers carried about 192,000, during the first six months after it was opened for use, according to the first semi-annual report, and according to the 15th semi-annual report, or at the end of seven and a half years the number of passengers had increased to 480,637 and the receipts to £450,478, or, including freight receipts, very nearly 19 shillings per passenger.

At the commencement of the eighth year the rates of fare were reduced and the rates of speed increased about the same time by which the number of passengers were increased to 615,904 while the receipts remained about the same, and indeed fell off £3,300. Yet they were able to divide ten per cent among the stockholders on the stock; but the sketch above alluded to, from the London Railway Chronicle will illustrate our views more clearly than anything we can say ourselves.

London and Birmingham Railway.

This most important railway had many struggles for its existence. In the present state of public demands for railway, its history seems almost fabulous. A railway between London and Birmingham was projected in 1823: a company was formed, and shares were issued, but the project was refused by parliament. In April 1826, Sir John Rennie reported in favor of a line intended to pass near to Oxford and Banbury; but this, too, came to nothing. A different line through Coventry was then proposed by Mr. Francis Giles, and in 1829 rival companies for each of these lines were started, but ultimately amalgamated. Mr. Giles' line, newly surveyed by Mr. George Stephenson, was selected and submitted to parliament in 1832: the house of lords threw out the bill. Fresh application was made to parliament in 1833, and London and Birmingham, after 10 year's suspense, were at last united by railway, and

the necessary act of the legislature received the royal assent in the May of that year.

It was estimated that the railway would take four years to make, and this expectation was only exceeded by four months. The average rate of progress in its construction was one mile in every fortnight. The works were begun on the 21st of April, 1834. Many difficulties arose: the cuttings at Triang and Blisworth, the Kilsby tunnel and the embankment at Wolverton, frightened the contractors, who abandoned their contracts, as well in these places as at Primrose hill, Rugby, and at Brandon. All obstacles at last were overcome, and the railway between London and Boxmoor was opened on the 20th July, 1837; and on the 17th September, 1838, the whole line of railway was opened. The preliminary expenses, before obtaining the act of parliament, amounted to £72,868 18s. 10d. The estimated cost of the line was under two millions and a half, the income calculated at £671,102 per annum. The capital of the company has been gradually increased to seven millions. The receipts for the first six months after the opening were £195,804, which were rapidly increased. The following shows the progress of the traffic since the line was fairly in operation, up to the last year before the amalgamation with the Grand Junction took place:—

Six months ending	Passengers.	Miles Travelled.	Receipts.
June 30, 1839.....	267,144	17,391,035	£270,241
Dec. 31, 1839.....	341,420	22,284,830	343,910
June 30, 1840.....	327,930	21,675,287	343,194
Dec. 31, 1840.....	394,688	35,931,163	405,040
June 30, 1841.....	354,322	23,399,936	382,452
Dec. 31, 1841.....	413,272	27,156,212	429,023
June 30, 1842.....	372,532	24,144,243	388,288
Dec. 31, 1842.....	407,840	26,563,216	420,958
June 30, 1843.....	360,784	23,395,261	385,104
Dec. 31, 1843.....	419,963	26,993,482	432,357
June 30, 1844.....	371,331	24,664,979	405,768
Dec. 31, 1844.....	480,637	31,122,185	450,478
June 30, 1845.....	615,904	38,758,260	447,190

Thus the annual revenue for the last year ending June 30, 1845, in ten years has exceeded the estimate by £226,566 or 35 per cent. The prosperity of the company is still advancing, or to speak more correctly, it should be said the public continue to receive the chief advantages of the prosperity by the great reduction of fares and increased accommodation. The original proprietors are content to receive only their ten per cent on their investment, and all the surplus profit is virtually returned to the public. And this arrangement, which is almost singular in commercial or political affairs, is called a *monopoly*!

The traveller who now passes between London and Birmingham in three hours for twenty shillings, in luxurious comfort, may like to have the locomotion of the past and the present contrasted. An advertisement in 1742, announced that a good coach and able horses would travel from London through Birmingham to Litchfield, leaving London on Monday morning early, and arriving at Litchfield to dinner on Wednesday. In 1801 a light four-horsed coach made the journey in sixteen hours. By the mail in 1838, the journey occupied ten hours. It is now done in three, and might be in two hours!

Morris Canal Company.—John J. Palmer and Zedee Cook, of New York, and D. S. Gregory, of Jersey City, have been chosen trustees of the mortgage fund, which the directors have concluded to raise to \$700,000 instead of \$500,000, as was the intention when the circular, which we have heretofore noticed was issued.

Better make it a million while about it.—[Ed. R. R. J.]

A bill has passed the lower house of the Virginia legislature by a decided majority, directing the sale of the Portsmouth and Roanoke railroad.

Providence and Worcester railroad.—We are informed that the contracts for the whole line of the road from this city to Worcester, were given out on Friday afternoon.

Michigan railroad sale.—The bill to authorize the sale of the Central railroad, passed the Michigan house of representatives on the 4th, by the very decisive vote of 41 to 9. It has now to undergo the more dubious ordeal of the senate; but we hope it may be successful there and become a law.

From a report of the finance committee in the senate, says the Journal of Commerce, it appears that the recognized indebtedness of Michigan will amount on the 1st of January next, to \$5,022,084 40. There

is besides a contingent liability, amounting to \$2,755,351 97. The sum of \$1,235,829 18, will be due and payable in the course of the present year.—If the sum of \$2,000,000 is obtained for the railway, the state will be able to pay that amount without inconvenience.

OFFICE OF THE NEW YORK AND ERIE RAILROAD CO., No. 50 Wall street.—New York, March 19th, 1846.—Notice is hereby given, that proposals will be received until the 10th day of April next, for the Grading, Masonry and Bridging required to complete the Newburg Branch of the New York and Erie Railroad, extending from Chester depot in Orange county, to the village of Newburgh, a distance of about 18 miles.

The maps and profiles, estimates and specifications, are in the office of the company, in the village of Newburgh, where all necessary information will be given, either by the subscriber or by Messrs. SILAS SEYMOUR and L. J. STANDIFF, Civil Engineers.

The work will be divided into sections, averaging a mile in length, and proposals will be received either at Newburgh or in the city of New York, for grading the whole or any part.

By order of the President and Directors.
T. S. BROWN, Chief Engineer.

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KITE'S PATENT SAFETY BEAM.

MESSRS. EDITORS.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheel passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.

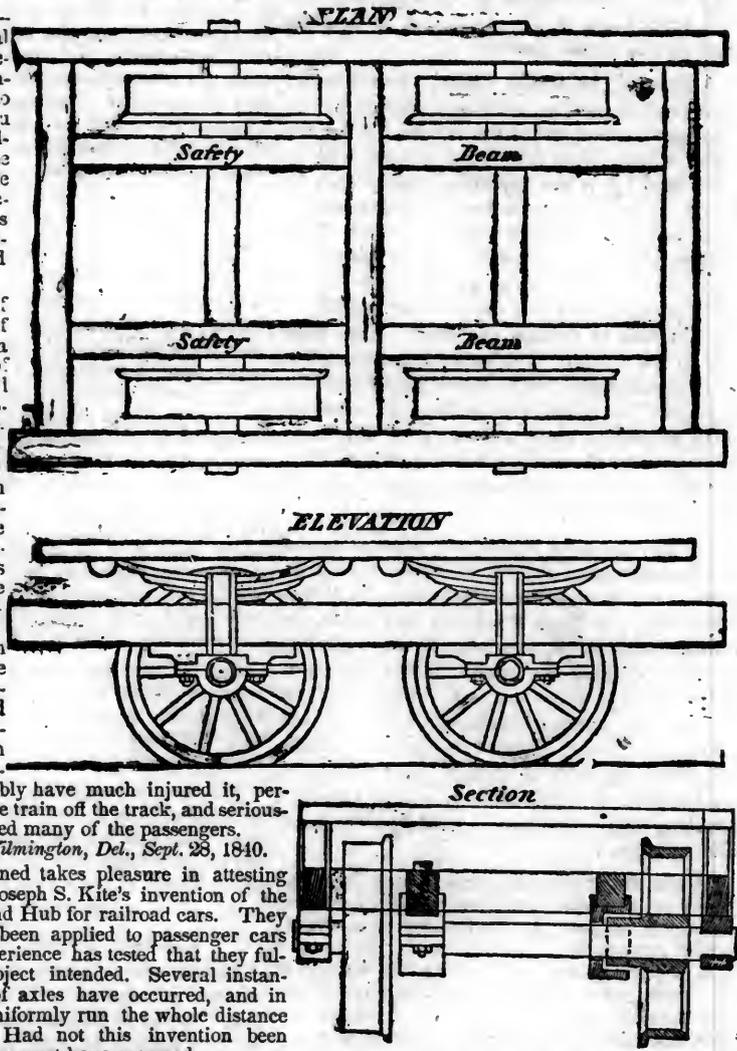
Wilmington, Del., Sept. 28, 1840.

The undersigned takes pleasure in attesting to the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.

In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.

JOHN FRAZER, Agent, JAMES ELLIOTT, Sup. Motive Power,
GEORGE CRAIG, Superintendent, W. L. ASHMEAD, Agent.

A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 1 Hanover st., N. York.



FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

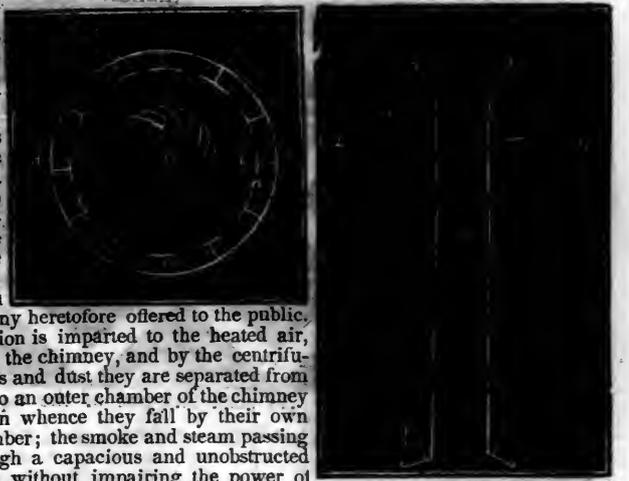
These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844. ja45



BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

The article is complete in itself, occupies but little space, is perfectly portable, and requires no brick work, not even to stand upon. It is valuable not only in the saving of time and labor, but in the economy of fuel, as it has been ascertained by accurate measurement, that the saving in that article is fully two-thirds over other methods heretofore in use. They are now for the first time introduced into New York and Boston by the subscriber, who has the exclusive right for the New England states, New York and New Jersey, and are manufactured by CURTIS & RANDALL, Boston; and by FORCE, GREEN & CO. New York.

LARD OIL FOR MACHINERY, ETC.—Winter pressed, cleansed from gum, and manufactured expressly for engines and machinery of all kinds, railroads, steamboats, woollen and other manufactures, and for burning in any lamp without clogging the wick. Engineers of railroads and others who have used this oil, and to whom reference can be made, give it preference over the best sperm for its durability, and not requiring to be cleaned off like that, and costing about two-thirds the price. For sale by the barrel, and samples can be sent for trial, by addressing C. J. F. BINNEY, Agent for the Manufacturer, Boston, Mass. 11 cop 1m

FLAT BAR, ENGLISH ROLLED, RAILROAD Iron, 2 1/2 x 1/4—a large part suitable to relay. For sale by C. J. F. BINNEY, Commission Merchant, 1 City Wharf, Boston, Mass. 11 1m

Dividend.—The New Haven and Hartford railroad have declared a semi-annual dividend of three and a half per cent., payable on the first of April.

At a meeting of the board of the Morris Canal company on Wednesday, Benjamin Williamson, Esq., was elected president.

RAILROAD IRON. 500 TONS HEAVY RT Rails, of an approved pattern, expected to arrive here during March, or early in April. Apply to DAVIS, BROOKS & CO. March 5, '44 30 Wall street.

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.

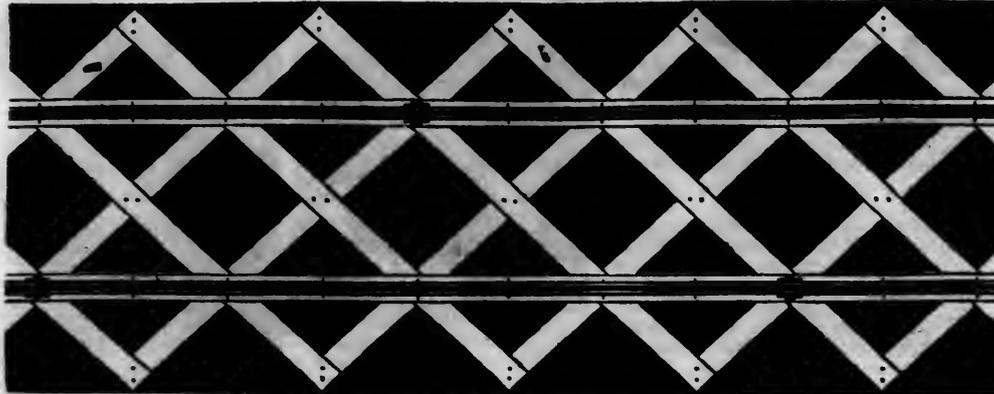
No 23 Pear street, near Third, Philadelphia. below Walnut

NOTICE TO CONTRACTORS. Proposals will be received at Bridgeport, until the 20th of March next, for re-laying the Housatonic railroad with an H rail. Specifications will be furnished at the office of the undersigned, in Bridgeport, on and after the 20th February. R. B. MASON, Engineer. Bridgeport, February 4, 1846. 8 5t

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c. PETER COOPER, 17 Burling Slip. New York, January 23d, 1846. 1y 10

LAWRENCE'S ROSENDALE HYDRULIC Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flocks and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years. For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York. Orders for the above will be received and promptly attended to at this office. 32 1y

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY Superstructure effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.
Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made. 1y1

W. R. CASEY, CIVIL ENGINEER, NO. 23 Chambers street, New York, will make survey estimates of cost and reports for railways, canals, roads, docks, wharves, dams and bridges of every description. He will also act as agent for the sale of machinery, and of patent rights for improvements to public works.

TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 11f

C. J. F. BINNEY,

GENERAL COMMISSION MERCHANT and Agent for Coal, and also Iron Manufacturers, etc.

No. 1 CITY WHARF, Boston.

Advances made on Consignments.

Refer to Amos Binney, Boston.

Grant & Stone, } Philadelphia.

Brown, Earl & Erringer, }

Weld & Seaver, Baltimore.

December 8, 1845.

1m 50

SCRIBNER'S ENGINEERS' AND MECHANICS' Companion. For sale at this office. Price \$1.50.

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long. 25 " 2½ x ½ " Flange Iron Rails. 75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required; large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,

Albany Iron and Nail Works,

11y

Troy, N. Y.

RAILROAD IRON WANTED. Wanted, 50 tons of Light Flat Bar Railroad Iron. The advertisers would prefer second-hand iron, if not too much worn. Address Box 384 Philadelphia P. O.—Post paid. 8 4t

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column "	50 00
One square "	15 00
One page per month	20 00
One column "	8 00
One square "	2 50
One page, single insertion.....	8 00
One column " "	3 00
One square " "	1 00
Professional notices per annum...	5 00

ENGINEERS and MACHINISTS.

- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- H. R. DUNHAM & Co., N. Y.
- WEST POINT FOUNDRY, N. Y.
- PHENIX FOUNDRY, N. Y.
- R. HOE & Co., N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.
- BALDWIN & WHITNEY, Philadelphia, Pa.
- THOMAS & EDMUND GEORGE, Philadelphia. (See Adv.)

PROVIDENCE AND WORCESTER Railroad.—Notice to Contractors.

The Route of this Road will be prepared for Examination by Contractors on the 16th of February, and Proposals for the Graduation, Masonry, Bridges, Timber, Spikes, Chains, etc., will be received after that date, until the 25th of February.

Blank Proposals, with Specifications attached, may be obtained, and the Profiles examined, at the offices in Worcester and Providence, after the 16th of February.

T. WILLIS PRATT,
Engineer.

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

BALTIMORE AND SUSQUEHANNA Railroad. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a.m., and arrives at 6 1/2 p.m. Arrives at York at 12 1/2 p.m., and leaves for Columbia at 1 1/2 p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62 1/2. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3 1/2 p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc. Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day any passenger train.

D. C. H. BORDLEY, Supt.
Ticket Office, 63 North st.

CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods... 13 cts. per cubic ft.

On brls. wet (except molasses and oil).....\$1 50 per barrel.
On brls. dry (except lime)... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
On hhds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.
On molasses and oil.....\$6 00 per hhd.
Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, Gen'l. Supt. Transportation.

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot.....16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs.....95 "
" Sugar, coffee, iron, hardware, etc.....65 "
" Flour, bacon, mill machinery, grindstones, etc.....33 1/2 "
" Molasses, per hogshead \$9-50; salt per bus.20 "
" Ploughs and cornshellers, each.....75 "

Passengers \$10-50; children under 12 years of age half price.

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
Ch. Eng. and Gen. Agent.

Augusta, Oct. 21 1845. *44 1y

FLAT BAR, ENGLISH ROLLED, RAILROAD Iron, 2 1/2 x 1/4—a large part suitable to relay. For sale by

C. J. F. BINNEY,
Commission Merchant, 1 City Wharf,

11 1m Boston, Mass

WESTERN AND ATLANTIC RAILROAD. The Western and Atlantic Railroad is now in operation to Marietta, and will be opened to Cartersville, in Cass county, on the 20th of October—and to Coosa Depot, (formerly known as Borough's,) on the 20th of November.

The passenger train will continue, as at present to connect daily (Sundays excepted) with the train from Augusta, and the stage from Griffin.

CHAS. F. M. GARNETT,
Chief Engineer.

LITTLE MIAMI RAILROAD. — DISTANCE 65 1/2 Miles. Fare, \$1 50. From 1st November to 1st March Passenger Trains leave Cincinnati for Xenia at 11 o'clock, A.M.

Returning, leaves Xenia at 8 1/2 o'clock, A.M. Freight Trains run daily, Sundays excepted.

At Xenia, Passenger Trains connect with daily lines of stages to Columbus, Wheeling, Cleveland and Sandusky city.

W. H. CLEMENT,
Supt. and Engineer.

LEXINGTON AND OHIO RAILROAD. Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 26 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above.

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. G. A. NICOLLS, Reading, Pa.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, Peter Cooper, Murdock, Leavirt & Co. } New York.
J. Triplett & Son, Richmond, Va.
J. R. Anderson, Tredegar Iron Works, Richmond, Va.

J. Patton, Jr. } Philadelphia, Pa.
Colwell & Co. }
J. M. L. & W. H. Scovill, Waterbury, Con.

N. E. Screw Co. } Providence, R. I.
Eagle Screw Co. }
William Parker, Supt. Bost. and Worc. R. R.

New Jersey Malleable Iron Co., Newark, N. J.
Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly. 35 1y

DAVIS, BROOKS & CO., 30 WALL ST., have on hand for sale, Railway Iron of different sizes—heavy and flat bars.

A Steam Pile Driver—built by "Dunham & Co."—in complete order; has never been used, and for sale a bargain. Cost originally \$5,000. Also 12 Railway Passenger Cars, that have never been used, which will be sold a bargain. 8 ft

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.

THE SUBSCRIBERS, AGENTS FOR the sale of Codorus, Glendon, Spring Mill, and Valley, Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L KIMBER, & CO., 59 North Wharves, Jan. 14, 1846. [1y4] Philadelphia, Pa.

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morrisown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective iron and Brass Castings of all descriptions. ja45 1y

NOTICE TO CONTRACTORS. Proposals will be received at Bridgeport, until the 20th of March next, for re-laying the Housatonic railroad with an H rail.

Specifications will be furnished at the office of the undersigned, in Bridgeport, on and after the 20th February. R. B. MASON, Engineer.

Bridgeport, February 4, 1846. 8 5t

RAILROAD IRON AND LOCOMOTIVE
Tyres imported to order and constantly on hand
by **A. & G. RALSTON**
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

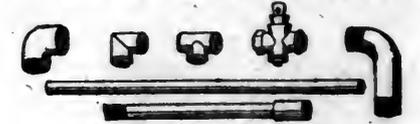
CUSHMAN'S COMPOUND IRON RAILS.
etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
Albany, N. Y.
Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

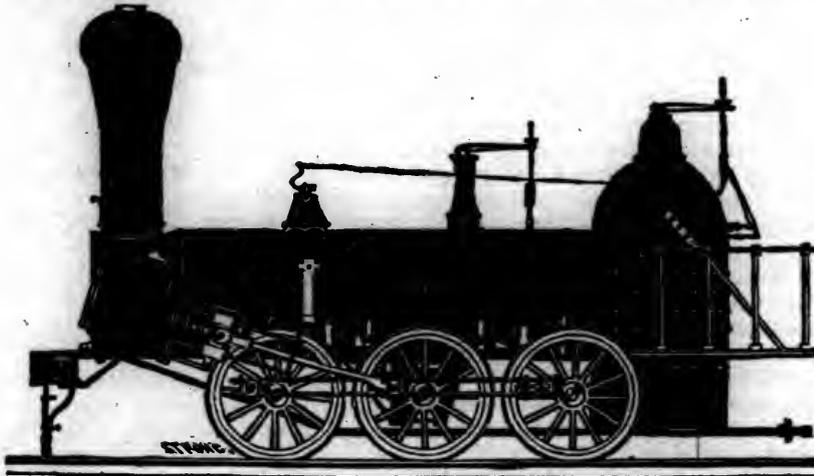
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From 4 inches to 12 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



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NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of Cylinder,	× 20 inches	Stroke.
" 2,	14	" "	× 24	" "
" 3,	14½	" "	× 20	" "
" 4,	12½	" "	× 20	" "
" 5,	11½	" "	× 20	" "
" 6,	10½	" "	× 18	" "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels on the Trucks of Locomotives, Tenders and Cars.

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RAILROAD IRON.—THE MARYLAND AND NEW YORK IRON AND Coal Company are now prepared to make contracts for Rails of all kinds. Address the Subscriber, at Jennon's Run, Alleghany County, Maryland.
WILLIAM YOUNG,
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TO IRON MASTERS.—FOR SALE.—MILL SITES in the immediate neighborhood of *Biluminous Coal and Iron Ore*, of the first quality, at Ralston, Lyoming Co., Pa. This is the nearest point to tide water where such coal and ore are found together, and the communication is complete with Philadelphia and Baltimore by canals and railways. The interest on the cost of water power and lot is all that will be required for many years the coal will not cost more than \$1 to \$1 25 at the mill sites, without any trouble on the part of the manufacturer; rich iron ore may be laid down still more cheaply at the works; and, taken together these sites offer remarkable advantages to practical manufacturers with small capital. For pamphlets, descriptive of the property, and further information, apply to Archibald McIntyre, Albany, to Archibald Robertson, Philadelphia, or to the undersigned, at No. 23 Chambers street, New York, where may be seen specimens of the coal and ore.

W. R. CASEY, Civil Engineer,

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 feet, with lathes, work benches, &c.

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS, 48 State st.,** or to **CURTIS, LEAVENS & CO., 106 State st., Boston,** or to **A. & G. RALSTON & Co., Philadelphia.**
ja45

CYRUS ALGER & CO., South Boston Iron Company.

Report on the Width of Track by Edwin F. Johnson, 1842.
(Continued from page 205.)

As engines are ordinarily constructed the highest speed at which the greatest load can be conveyed at the average working pressure of the steam, is about *ten* miles per hour. That is, the steam cylinders consume at that speed all the steam which the boiler is capable of generating at the given pressure.

Under a greater speed therefore the steam is expanded in the cylinders, and its pressure reduced in proportion. The power requisite to keep the train in motion being the same at a high as a low speed, or rather greater, since the resistance of the atmosphere is greater, it follows that as the speed is increased above ten miles per hour the load must be diminished in proportion. At twenty miles per hour the pressure of steam on the square inch in the cylinders is only about one half of what it is in the boiler, and at thirty miles, only one third.

If it is desired therefore, that an engine shall convey at a rate of twenty miles per hour, without increasing the pressure of steam in the boiler, the same load now conveyed at the rate of ten miles per hour, the generating power of the boiler must be *doubled*. If at thirty miles it must be *trebled*.

The boilers of locomotives are of the multiflue description, or what are termed tubular. Their capacity to generate steam is in proportion nearly to the superficial extent of heating surface, that is, of the fire-box and flues combined, and the size of the steam chamber.

To add to the dimensions of these, the diameter of the boiler or its length or both must be increased. Experience seems rather to indicate that there is a certain length beyond which the flues cannot with propriety be carried, and the enlargement of the heating surface must in such an event be effected by increasing the diameter of the boiler. This requires more space between the wheels of the engine, and a track of greater width.

A very high degree of speed, the power continuing unimpaired, it is supposed, will at times be required upon the New York and Albany railroad, particularly in summer, when a competition will to a certain extent exist between the *through* trains of the railroad and the steamers on the river. It will be very desirable to accomplish the whole distance between New York and Albany and Troy in about five hours, making the velocity from thirty to forty miles per hour. Supposing, however, that it is not an object to produce a great effect at high speed, then an advantage will result in the use of boilers having a larger heating surface, in consequence of saving in repairs of the boiler. The intensity of the heat being less, less injury will accrue to the boiler. Experience thus far in the use of locomotive steam power upon railways, shows that a very large portion of the expense of this power is made up of the cost of repairs which are confined mostly to those parts of the boiler exposed to the direct action of the heat. When it is considered, therefore, that the cost of steam power, constitutes much the largest item of the ex-

pense of locomotion upon railways, any saving in this respect is an object of great importance.

With a wide track, a larger diameter may be given to the drawing wheels of the engine. It has not been found advantageous, to give to the drawing wheels of locomotive engines a diameter very much greater than the width of the track. Upon the Great Western railway in England, which is seven feet wide, drawing wheels of ten feet diameter were not found to work as well as those of less diameter, and in this country and elsewhere on roads having a width of four feet eight and a half inches, the diameters of the drawing wheels of the engines range from four and a half, to five feet.

With the larger drawing wheels the length of the crank being given, a greater speed is attained with the same movement of the pistons, or at the same speed, the motion of the piston is lessened, enabling the steam to act comparatively with more effect, lessening also the friction and wear and tear of the rubbing parts, producing more steadiness of motion and less frequent occasion for packing the pistons and repairing and tightening the joints. Under high velocities, and consequent rapid motion of the piston, the resistance of the escape steam is very considerable, owing to the atmospheric pressure and limited size of the steam passages. The amount of this resistance is materially lessened by reducing the motion of the piston, which can only be done without impairing the speed, by enlarging the drawing wheels to the greatest practical limit permitted by the width of track, and if that is insufficient, to widen the track.

In all low pressure or condensing engines, and in many high pressure ones, it has been found highly advantageous to stop the admission of steam into the cylinders, before the stroke of the piston is completed, allowing the steam already introduced to expand so as to fill the cylinder.

In locomotive engines owing to the small size of the cylinders and rapidity of motion of the piston, this plan has seldom been adopted. With cylinders of a size such as may be used with wheels seven feet in diameter, it is supposed this principle may be adopted and with advantage.

The average pressure of steam in most locomotive boilers will not vary much perhaps from seventy-five pounds per square inch.—Deducting the pressure of the atmosphere, which is fifteen pounds, and the *effective* pressure of the steam in the cylinder is sixty lbs. per square inch. Suppose this pressure to continue through half the stroke, or until the cylinder is half filled, and then no more steam admitted, the effective pressure upon the piston for the remaining half of the stroke is reduced from sixty pounds per square inch, to twenty-two and a half pounds at the end of the stroke,* giving an average pressure for this half of full *forty* pounds. The mean

* Steam at seventy-five pounds filling half the cylinder, is reduced to thirty-seven and one-half pounds when occupying the whole cylinder, deducting fifteen pounds, the atmospheric resistance, from this, leaves twenty-two and one half pounds, the effective pressure at the end of the stroke.

effective pressure for the whole stroke is therefore *fifty* pounds. That is, a loss of only *ten* pounds per square inch, or *one-sixth* of the *effective* pressure is experienced, while one-half of the steam is saved.

By cutting off the steam nearer the beginning or end of the stroke, the amount of saving compared with the effect produced will vary. By adopting this principle, cylinders of large diameter as well as of greater length may probably be required, rendering, in addition to the increased diameter of the wheels, more lateral space or width between the tracks desirable, especially in those cases where the engines are formed with what are termed *inside connections*.

The advantages of a wider track in giving more steadiness of motion to the engine, lessening the inequalities of its action, whenever the level and even surface of the rails is disturbed, are very great. As already stated, inequalities in the surface of the rails, owing to the intense action of frost in this climate, will undoubtedly exist upon all roads whatever may be their plan of construction. A wider track lessens the injurious effects of these inequalities upon the engine, the several parts moving more freely and easily, and with less friction. The injury also which the engine causes to the track, owing to the great weight necessarily placed upon the drawing wheels is lessened, inasmuch as both the vertical and lateral or vibratory motion of the engine is diminished.

Upon a road where freight is to be conveyed in large amount, as will be the case upon at least two-thirds of the New York and Albany railroad in summer, and upon the whole road in winter, a wide track will be found advantageous in increasing the capacity of the road and lessening the cost of transportation, by permitting the use of engines, larger and more powerful and capable of taking heavier loads, with no more expense of engineers, firemen and agents, than is necessary for engines of smaller dimensions and less power. There is indeed the same advantage to be attained in this respect as is derived from the use of vessels of large size designed for the conveyance for freight, as evidenced in the increase of tonnage of our Atlantic packet ships for years past, and in the less cost of transportation in large vessels upon the rivers, as compared with the canal, which, although not owing altogether to the cause mentioned, is yet in a great measure attributable to it.

Before leaving the subject of locomotives, it is proper to notice that the boilers designed for the use of anthracite coal are usually placed vertically, and require in consequence more breadth of base, or width of track, to insure steadiness of motion, and also for the purpose of giving to the boiler greater capacity to generate steam, by increasing its diameter, and the number of its tubes or flues, and extent of heating or evaporating surface.

It is true that upon most railways, even those penetrating the coal regions, wood is still used as a fuel for generating steam; but it is well known that coal is rapidly taking the place of wood in steamboats and in sta-

tionary engines, and the time may arrive when it will be used to advantage in locomotives upon railroads.

A prominent objection to the adoption of a wide track for railroads, is the additional expense. This will consist mainly in the extra width of road bed, and greater length of the cross ties and transverse sleepers.

The addition which it may be necessary to make to the weight of the axles of the carriages, and the amount of ground required for the road are too unimportant to be noticed.

If the track is six feet wide, a width of road bed of fifteen to sixteen feet will be sufficient. This is but very little, if any, more than is usually adopted for a narrow track. The greatest difference in this respect will arise whenever it becomes necessary to construct a second track. In such a case, the width or space between the track should bear some proportion to the width of track or breadth of the carriages. The capacity of a single track for transportation is so great that considerable time must elapse before a second track will be required, and when it is, the business of the road will be so much increased, that the extra cost of the road bed will not probably be a consideration of importance.

The ground upon the line of the New York and Albany railroad is generally so favorable, that an addition to the width of road bed, equal to the difference between a track 4 71-100ths feet and six feet wide will not probably much exceed *three hundred dollars* per mile. For the extra cost of cross ties or sleepers, *seventy dollars* per mile, will be the maximum for a single track. This gives four cents additional for each sleeper, supposing them to be placed three feet apart from centre to centre, which is the usual distance. It is safe to say that the whole extra cost of constructing the road with a track six feet wide, will not exceed *one and one-half per cent. on the total cost of the road when completed.* Inconsiderable as this amount is, it is not improbable that much of it may be saved, by increasing the inclination of the grade line at points, where the excavations and embankments are heavy, since the use of the more powerful engines on the wide track may render any slight variations in the position of the grade line less objectionable. A similar remark may also be made in respect to the curves, since it may be found advantageous perhaps in some instances, in order to lengthen the radius of curvature, to give to the grade line a little greater inclination, to avoid increasing the cost of construction.

In all locomotive engines the strength of the boilers is such as to permit the use of a pressure of steam higher than the average rate intended to be used. This is of advantage in overcoming acclivities in the grades of limited extent of the character of those above described. In surmounting such acclivities the supply of cold water to the boilers is withheld, which at once causes an increase of temperature and pressure in the boiler and of course an increase of power in the engine. The suspension of the supply of water can only be for a limited time, since it must not

be allowed to fall too low in the boiler. For larger and more capacious boilers, the supply of water can be suspended for a longer time, thus giving to the engine an ability to overcome acclivities in the grades of greater extent.

As it respects the weight and the cost of the rails, both will, if anything, be lessened, by using a wider track, since with cars of the usual breadth a less portion of the weight of the load would be thrown upon any one rail in consequence of inequalities in their surface. As it is probable however that the cars will be enlarged, no saving is contemplated in this respect. The rails are subjected to the greatest strain under the weight of the drawing wheels of the engine. It has been suggested that a wider track is rather better adapted to the use of engines with eight drawing wheels. If this opinion is correct, the rails even with heavier engines will not need to be made as strong for the wide track as for the narrow one.

Another prominent objection which will doubtless be urged against a wide track, is the increased resistance on the curved portions of the road. An examination into the character of this resistance, shows that it is owing to a part or all of the following causes.

1st. The obliquity of the direction of the moving power, or the angle which the lines of traction, drawn from the engine to each carriage attached thereto upon the curve makes with the tangent to the curve, or with the direction of the motion of the carriage at the given point.

2d. The pressure, and consequent friction of the flanges of the wheels against the outer rail arising from the centrifugal force.

3d. The pressure, and consequent friction of the flanges of the wheels against the outer rail, arising from the straight forward tendency of each car, resulting from the parallelism of the axles.

In the eight wheel cars of the two pair of wheels attached to the same frame, being brought nearer together, this resistance is less than in the four wheel cars.

4. The resistance arising from each pair of wheels being firmly connected to the same axle, and of course revolving with it, causing a sliding upon the rails, when the wheels are cylindrical, equal to the difference in length of the inner and outer rails of the curve.

Of these four resistances, the three first cause a greater obstruction to the motion probably in the aggregate, than the last, and as they are dependent wholly upon the radius of curvature and velocity of motion, they are not affected by any variation in the width of track.

The sliding of the wheels upon the curved portion of most railways is to a certain degree obviated by giving a conical form to the rims of the wheels. Upon the wider track if the angle of the cone is preserved, a little more play must be given to the flanges of the wheels upon the curves.

If the conical wheels are not used, the increased sliding upon the supposition that the track is widened from four 71-100th feet to six feet, is equal to two 7-10th inches for each

ten degrees, which the direction of the motion is changed through the intervention of the curve, and is but about one-fourth more than the total sliding upon the narrower track, and will not probably exceed in its effect upon the motion *one-sixth or one-seventh* of the whole resistance occasioned by the curves.

From some experiments made on the Baltimore and Ohio railroad it was concluded that a change in direction equal to three hundred and sixty degrees, or four right angles, produced a resistance equivalent in its effects upon the cost of transportation equal to twenty-three one hundredth parts of a mile of distance. With a track six feet wide this would be increased to about *twenty-seven one hundredths* of a mile, or for the whole amount of curvature upon the New York and Albany road, the increased resistance from a wider track, would be equal to an addition to the length of the road of about one-fourth, or at most one-third of a mile; *less than one fifth of one per cent. of the whole distance.*

It does not appear therefore, that in the case of the New York and Albany railroad, any material loss of power will be occasioned by giving to the rail track a width of six feet.

With respect to the increased resistance upon curves, which as shown above is not an important item, it should be remembered, that improvements are being constantly made in the construction of carriages and engines, and that the resistance from this cause will not be increased but may be *lessened* by such improvements.

As it regards the greater liability of the axles to break, from their greater length, on a wider track, I have supposed their size and weight would be increased so as to give them the same relative strength in resisting the effect of torsion upon the curves, being the only strain of importance to which they are subjected. This increase of diameter does not lessen the leverage so as to add to the power required to overcome the friction at the journals, since in all railway cars, the bearing points or journals are situated *outside* of the wheels.

It may be urged as a further objection to a wide track, that the road-bed being wider will be more difficult to drain. The addition of fifteen inches to the width of track cannot, it is believed, cause any material difference or inconvenience in this respect. On the contrary the greater width will afford more space for a longitudinal drain between the rails, and lessen probably the number of lateral conduits into the side ditches.

It will of course be an object to form as much of the road as possible in embankment consistent with the expense, and the slopes will be best preserved from abrasion by having the longitudinal drain between the rails as ample as possible.

As to the greater difficulty of removing the snow from a wide track, it is believed that no inconvenience of consequence will be experienced. Very heavy falls of snow occur but seldom in winter, and upon a road doing a large business, where the trains are passing and re-passing frequently, it cannot accumu-

late to any great depth upon the road so as to cause much delay in its removal. The experience thus far upon the New York and Erie railroad, and upon the Russian road from St. Petersburg, to Zarsko Selo, does not indicate any particular inconvenience in this respect from a track six feet wide.

The most serious objection which can probably be made to a wide track is the delay and expense attending a transfer of freight and passengers at those points where business connections are formed with other roads. As it regards passengers this is not of much importance. The instances in which it may be desirable to run the cars of the New York and Albany company upon other roads will be exceedingly rare, and when they occur, a substitute can be adopted of transferring the car bodies which contain the freight by a very simple and expeditious process, from the running parts of the cars of one road to those of the other.

The line of the New York and Albany road is favorably situated for avoiding any difficulties in this respect. The road is of such length, and the inconvenience to the company will be so great of permitting their cars to pass beyond its limits as not to make it an object to exchange cars or engines with other companies.

The cities of Troy and Albany being prominent points for the distribution and concentration of the trade with the west, the north, and the east, makes it altogether probable that a breaking of bulk, or transfer must take place at those cities, and hence, that as it regards the main business of the road, no occasion will exist for the mutual interchange of cars with other companies unless with a view of accommodating lateral or branch roads.

Of these latter there are only two in operation with which such a connection will be desirable. One is a connection with the upper part of the Housatonic railroad, with a view of bringing in the business of the western parts of Connecticut and Massachusetts, and the other with the New York and Erie railroad by a branch extending to Tarrytown, opposite Piermont, the present termination of that road upon the Hudson.

The latter road has a track six feet wide. So far therefore, as it regards this connection a track of that width is the best. The Housatonic railroad has a track 47-100 feet wide, but being laid in a cheap manner with a light iron plate, on a timber rail, it is not improbable that when the New York and Albany road is completed up to the point where a connection would be formed, that a new and more substantial track will be needed which can then be laid, if found expedient, of the same width with the New York and Albany road.

In the event also of an arrangement with the New York and Harlem company, to use their road as a part of the line of the New York and Albany road, a new track or superstructure will be required, which can be laid of the proper width. The track now in use being unsafe and unsuitable for the purposes intended.

The proposed branch connecting with the

eastern roads at New Haven will, it is reasonable to suppose, be constructed of the same width of track with the New York and Albany road.

The superstructure of the road now in operation from New Haven to Hartford is of the same general character with the Housatonic road, but more substantial, and the road from Hartford to Springfield to connect with the Western road in Massachusetts is not yet commenced. Whether however, the wide track shall be extended further east or north than New Haven or not, is a question which will not affect the propriety of adopting a width south or west of that point, corresponding with the standard established on the New York and Albany road.

With respect to the northern division of the road, it has been proposed to locate that portion so that some twelve to fifteen miles of the Albany and West Stockbridge roads can be used in common by both companies, and the latter road has been graded for a double track for the distance mentioned with a view in part undoubtedly to this object. Should such an arrangement be consummated, it does not follow that the rail tracks of both roads should be of the same width. On the contrary, an advantage may result from having them of different widths to prevent all possibility of collision or interference of the cars and engines of the two companies, the one with the other.

The necessity which requires that two great and rival companies should occupy the same road-bed, must be urgent; and the evils of juxtaposition, should not be aggravated by any arrangement which will permit the cars and engines of the one to pass upon the track of the other.

It would appear therefore, that so far as it regards connections with other roads, no very weighty reasons can be urged for adhering to the standard of the narrow width of track, and that no serious impediments exist, to prevent the company availing itself of the advantages of a wider track.

It is most certainly of the utmost importance to the success of the New York and Albany railroad, that it should be constructed in the most perfect manner, and that the highest speed of which railroads are capable should be attained upon it.

Upon its superiority in this respect, its value to the stockholders mainly depends. It should, therefore, have ample breadth of base with commodious and well furnished cars, with drawing wheels to the engines of the largest possible diameter, and capacious boilers with fire-boxes large enough to generate, and steam chambers to contain the great amount of steam requisite to supply the cylinders.

That the railway will to a certain extent come in competition with the steamers on the river in the conveyance of passengers there can be no doubt. In this competition its greatest recommendation will be superiority of speed, and comfort to the passengers; and allowing even that such superiority is not required to secure to it an amount of business sufficient to sustain it, yet there is no doubt

by possessing such superiority, the revenue will be increased in a large ratio compared with the expense of attaining it. Less of the business will be diverted to the eastern seaports, and both the public and the stockholders will be greatly benefitted.

In the use of impelling wheels of large diameter, and capacious boilers, the same principles will apply to railways as to steamboats and to those who have observed the improvements in speed upon the Hudson river within the last fifteen years, it is needless to state that it is attributable quite as much to those causes as to improvements made in the parts of the engine or in the models of the boats.

The question of the best width of track to be adopted is probably of more importance than any other connected with the plan of construction of the road.

Any error which may be committed in this respect will be irremediable except at great expense, and will be attended with a loss and inconvenience to the company and the public, so great as to render any change which might hereafter be found desirable, virtually impracticable.

The subject is one deserving of a thorough investigation, and I do not hesitate to express the opinion that if the investigation is carefully and impartially made, it will result in a conviction of the superiority of a width of 6 feet for the track or superstructure of the New York and Albany railroad.

EDWIN F. JOHNSON,

Chief Engineer, N. Y. & A. R. R. Co.
August, 1842.

We copy from the Journal des Chemins de Fer, of Paris, the following notice of works already begun on the railroad between Rouen and Havre:

Bridge, (wood,) 8 arches, 45 yards each.

Tunnel, 1050 yards long.

Viaduct, 4 arches.

Tunnel, 80 yards long.

" 1500 " "

" 1184 " "

Viaduct, 5 arches.

" 8 "

Tunnel, 2200 yards long.

" 20 " "

Viaduct, 580 " "

Tunnel, 100 " "

" 160 " "

Viaduct at Mirville.

2 do at Harfleur, 5 arches each.

New York and Boston Railroad.—The Greenfield Mass., Gazette says,

"The road, if completed, will probably be one of the most profitable in the United States. The other roads have all been constructed with reference to steam navigation on the sound, and for obvious reasons must be pretty generally abandoned whenever this goes into operation.

"It is a splendid project, and considering the directness of the route, deviating very little from a straight line, the nature of the country it will pass through, its easy grade, the great commercial importance of the two cities, its superiority to every other land route in regard to time, shortening it more than one-half—it can hardly fail of realizing the most sanguine expectations that have been formed respecting it. The passenger business on this route must be immense. It presents great attractions to capitalists."

ENGLISH RAILROAD SHARE-LIST.

NAME OF RAILWAY.	Miles opened.	Total sums, in pounds, authorized to be raised by shares.			Total sums, in pounds, authorized to be raised by loan or mortgage.			Total sums, in pounds, expended at date of latest balance sheets.			Cost of working for six months as stated in latest balance sheets.			Total earnings, in pounds, for six months, as stated in latest balance sheets.			Dividend at last meeting.		NEW AND PROPOSED RAILWAYS.	Share Capital.			
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	Per cent. per annum.	Per share.			Value of share.		
Arboath and Forfar.....	15	102,000			35,000			138,870									0 12 6	2 10 0	25	20	Aberdeen.....	1,400,000	
Birmingham and Gloucester.....	55	1,187,500			407,336			1,500,806			39,261		53,203				1 5 0	2 10 0	100	100	Barnsley Junction.....	200,000	
Brandling Junction.....	23	161,700			365,470			481,452									4 10 0	50 54	50	54	Belfast and Ballymena.....	385,000	
Bristol and Gloucester.....	37½	400,000			211,000			657,825									nihil.	30 59	30	59	Blackburn and Accrington.....	400,000	
Chester and Birkenhead.....	14½	750,000			143,170			518,980			5,856		13,148				0 10 0	2 0 0	50	60	Birk. and Ches. Junction.....	1,000,000	
Dublin and Drogheda.....	31	450,000			150,000			582,254									nihil.	60 115	60	115	Bolt., Wigan and Liverpool.....	800,000	
Dublin and Kingston.....	6	200,000			152,200			349,736									9 0 0	0 0 0	100	251	Caledonian.....	1,800,000	
Dundee and Arbroath.....	16½	100,000			49,445			153,416			2,989		6,993				1 5 0	5 0 0	25	36	Cambridge and Lincoln.....	1,250,000	
Durham and Sunderland.....	18½	163,350			124,055			270,392			9,889		17,702				nihil.	50 25	50	25	Chatham and Portsmouth.....	5,000,000	
East County and North and East.....	86½	4,443,200			341,155			3,931,905			47,385		118,726				1 6 6	45 57	45	57	Chester and Wrexham.....	120,000	
Edinburg and Glasgow.....	46	1,125,000			375,000			1,649,523			29,429		55,866				1 5 0	5 0 0	50	78	Churnet valley.....	1,800,000	
Glasgow, Paisley and Ayr.....	51	937,500						1,071,258			12,446		36,736				1 5 0	5 0 0	50	72	Direct Northern to York.....	4,000,000	
Glasgow, Paisley and Greenock.....	22½	650,000			216,666			797,643			11,830		23,447				0 5 0	2 0 0	25	21	Dublin and Belfast.....	950,000	
Grand Junction.....	104	2,478,712						2,503,671			84,309		195,060				0 0 0	0 0 0	100	239	Dundee and Perth.....	250,000	
Great North of England.....	45	969,000			581,017			1,307,487			12,201		36,189				0 0 0	6 0 0	100	230	Edinburg and Northern.....	800,000	
Great Western.....	221½	4,650,000			3,679,343			7,445,689			143,279		440,046				4 0 0	8 0 0	80	215	Ely and Bedford.....	270,000	
Hartlepool.....	15½	438,000			155,540			719,205										8 0 0	100			Glogow, Dum. & Carlisle.....	1,300,000
Leicester and Swannington.....	16½	140,000						140,000			2,207		6,317				1 5 0	5 0 0	50		Gt. South and West Ext.....	1,200,000	
Liverpool and Manchester.....	32	1,209,000			497,750			1,785,000			64,885		141,252				0 0 0	0 0 0	100	214	Gt. Grimsby and Sheffield.....	600,000	
Llanelly.....	27	200,000			44,000			221,624									1 0 0	2 0 0	0	87	Harwich and E. coun. Jun.....	160,000	
London and Birmingham.....	202½	6,874,976			1,928,845			6,611,005			96,413		456,997				0 0 0	0 0 0	100	245	Huddersfield & M. rl. & cl.....	600,000	
London and Blackwall.....	3½	804,000			266,000			1,768,851			15,978		23,870				3 0 1	10 0 0	16	10	Kendal and Windermere.....	125,000	
London and Brighton.....	56	1,935,000			705,000			2,637,753			30,490		130,156				1 0 0	6 0 0	50	77	Leeds and Dewsbury.....	400,000	
London and Croyden.....	8½	550,000			229,000			761,885			7,583		10,545				0 8 0	4 0 0	14	23	Leeds and Thirsk.....	900,000	
London and Greenwich.....	3½	759,383			233,300			1,040,930			15,193		28,933				nihil.	13 11	13	11	Liv. Ormskirk and Preston.....	600,000	
London and South Western.....	92½	2,222,100			630,100			2,604,405			89,439		190,631				0 0 0	0 0 0	41	82	London and Portsmouth.....	1,750,000	
Manchester and Birmingham.....	31	2,100,000			690,586			1,923,699			15,397		58,162				0 0 0	5 0 0	40	62	London and York.....	5,000,000	
Manchester and Bolton.....	10	778,100			197,730			773,743			8,565		21,140				2 0 4	10 0 0	93	169	Londonderry & Enniskillen.....	500,000	
Manchester and Leeds and Hull.....	87	2,937,500			1,943,932			3,921,593			46,653		156,761				8 10 6	8 10 6	60	170	Lynn and Ely.....	200,000	
Midland railway.....	179½	5,158,900			1,719,630			6,279,838			75,227		276,129				0 0 0	6 0 0	100	192	Manchester, Bury and Ross.....	300,000	
Newcastle and Carlisle.....	61	878,240			188,563			1,135,069			26,499		46,745				0 0 0	5 0 0	100	113	Manchester and Buxton.....	250,000	
Newcastle and Darlington.....	23	500,000			405,728			405,728									1 0 0	8 0 0	21	56	Mullingar and Athlone.....		
Newcastle and North Shields.....	7	150,000			153,876			309,629			8,943		18,466				6 9 0	5 0 0	50	69	Newcastle and Berwick.....	700,000	
North Union.....	39	739,201			308,306			1,028,593			24,788		37,794				2 10 6	6 5 0	100	176	Richmond & W. End Jun.....		
Paris and Orleans.....	82	1,600,000			400,000			1,978,415									0 16 0	8 0 0	20	45	Scottish Central.....	700,000	
Paris and Rouen.....	84	1,440,000						31,247			91,171						8 0 0	8 0 0	20	40	Sheffield and Lincolnshire.....	650,000	
Preston and Wyre.....	19	830,000			179,852			355,161			4,191		7,066				4 0 0	5 0 0	50	32	Shrewsbury and Gd. Jun.....	400,000	
Sheffield and Manchester.....	19	1,150,000			311,759			951,455			11,895		14,876				nihil.	87 135	87	135	Shrew. Wolv. Dudley & B.....	900,000	
South Eastern.....	88	2,996,000			1,530,277			3,464,172			69,288		139,042				3 1 4	33 48	33	48	Trent Valley.....	900,000	
Taff Vale.....	30	465,000			195,000			595,089			9,115		22,692				1 17 7	3 15 0	100	194	West London Extension.....	64,000	
Ulster.....	25	519,150			20,000			318,626			5,401		13,556				0 15 0	5 1 8	32	52	West Yorkshire.....	1,000,000	
Yarmouth and Norwich.....	20½	187,500			62,500			230,036			5,186		10,008				0 0 0	5 0 0	20	29	Whitehaven and Maryport.....	100,000	
York and N. Mid. and Leeds and Selby	28	1,052,500			167,500			1,107,146			31,349		75,474				2 10 0	10 0 0	50	115	FRENCH RAILWAYS.		

ENGLISH STEAM AND MISCELLANEOUS COMPANIES.

Steam and Miscellaneous.						NAME OF COMPANY.						Water Works.								
NAME OF COMPANY.	Num. of shares.	Am't. of share.	Amount paid.	Div. p.c. per ann.	Last price.	Present price.	NAME OF COMPANY.	Num. of shares.	Am't. of share.	Amount paid.	Div. p.c. per ann.	Last price.	Present price.	NAME OF COMPANY.	Num. of shares.	Am't. of share.	Amount paid.	Div. p.c. per ann.	Last price.	Present price.
Anglo Mexican Mint.....	10,000	10	10		15½	15½	Loughborough.....	70	142½	142½	70	1140	1140	Birmingham.....	4,900	25	25	3½	28	28
Anti Dry Rot.....	10,000	10	18½		2	2	Monmouthshire.....	2,409	100	100	10	160	160	East London.....	4,433	100	100	8	223	225
Australian Trust Company	5,700	100	35		34½	34½	Melton Mowbray.....	250	100	100	10	117	117	Grand Junction.....	5,500	av.	41 2-3	7½	88	90
General Steam Navigation	20,000	15	14	10	27½	27	Mersey and Irwell.....	500	100	100	10			New River L. B. Ann.....	1,500	av.	30	8½	57	57
Gt Western Steam Pa.....			100		25	25	Macclesfield.....	3,000	100	100	2½	15	15	Manchester and Salford.....	6,486	av.	30	8½	57	57
Metropolitan Wood Pav..	15,000	10	6	5	6½	6½	Neath.....	247	100	100	17	365	365	Vauxhall, lt. S. London.....	1,000	100	100	5	55	55
Patent Elastic Pav.....	10,000	1	1	5	1½	1½	Orford.....	1,786	100	100	30	505	505	West Middlesex.....	8,294	av.	63½	6½	126	127
Peninsular and Oriental..	11,493	50	50	7	64½	65	Regents or Loncon.....	21,418	33½	33½	2½	25	25	Commercial Dock.....	1,065	100	100	3	80	80
Ditto.....	3,200	50	40	7			Shropshire.....	500	125	125	6	120	120	East and West India.....		sto.		5½	137	137
Polytechnic Institution..				6			Somerset coal.....	800	150	150	7½	123	123	London.....	3,236,310	sto.		4½	114½	115
Reversionary Int. Soc.....	5,387	100	100	4½	104	104	Stafford and Worcester.....	700	140	140	25	480	480	St. Katharine.....	1,352,752	str.		5	116	117
R. Mail Steam Packet.....	15,000	100	60		36½	37	Shrewsbury.....	500	125	125	12	230	230	Southampton.....	7,000	50	50			
South Western Steam.....	4,000	25	5				Stourbridge.....	300	145	145	14	360	360							
Ship Owners' Towing.....	3,000	10	7½	10	15	15	Stroudwater.....	200	150	150	19									
Thames Tunnel.....	4,000	50	50				Swansea.....	533	100	100	15	240	240							
University College.....	1,500	100	100				Severn & Why & Rail Av.....	3,762	26½	26½	5½	30	30		</					

London and Southwestern Railway.

A railway between the metropolis and Southampton was first projected as early as 1825, but nothing was accomplished. The present scheme was projected in 1832, and it received the sanction of the legislature in 1834. To alter the works and raise more capital another statute was obtained in 1837.

The works were begun early in 1835, under Mr. Giles, as engineer; but their progress being unsatisfactory, that gentleman resigned, and was succeeded, in 1837, by Mr. Locke, the engineer of the Grand Junction. From that time the works advanced rapidly, and on the 21st of May, 1838, the line was opened as far as Woking, and throughout on the 11th of May, 1840. The Guilford branch was opened in May, 1845.

The traffic was estimated to produce £347,000 per annum, including £23,333 for fish to come from Torbay, but which has yet to come. Within three months after the opening the traffic in passengers realized the estimate of Mr. Chaplain, the present chairman, viz: £125,000. The receipts for 1845 have been upwards of £354,000, so that in less than six years the estimated traffic has been fully realized.

The works on the line were estimated to cost £894,874, with the addition of 11 1-2 per cent for contingencies. The capital to be raised was about £2,000,000. The expenditure, exclusive of the Gosport branch, exceeds that sum, and including it, at present amounts to £2,620,000. The land alone, including compensation, etc., cost £300,000—more than one-third of the original capital.

The engineering characteristics of this line, are strongly marked. Without large commercial termini, without the extensions it was designed to possess, yet by virtue of economical construction and management, and the intrinsic power of railway accommodation to generate traffic, it has been rendered a profitable and valuable line. Although in remuneration, and therefore commercially, a line of the first class, yet in engineering peculiarities it belongs to what is generally called the second class, that is, it has long and steep gradients; and although it encounters great physical difficulties, it does not present any of those gigantic bridges, viaducts, and great efforts of design and masonry, which delight the engineer more than they profit the shareholder.

The engineering characteristics of the line are long and steep gradients and enormous earth works. In gradients, it has a single inclined plane of 1 in 250, extending from Litchfield tunnel, 54 miles from London, down to Bishopstoke, a distance of 17 miles. Litchfield is a summit 392 feet above the level of the termini, at Nine Elms and at Southampton, both almost on the level of Trinity high water mark; and as this summit has to be gained from the London side within a length of 54 miles, and on the other within 23, it is plain there is much heavy work to be done both ways. Of the earth works, a sufficient notion will be gained from the statement before the parliamentary committee by the engineer who originally projected the line, that the aggregate earth work amounts to 16 millions of cubic yards—a mass of material sufficient to form a pyramid having for its base 150,000 square yards, and for its height 1,000 feet. Distributed along the whole line, it gives about 200,000 cubic yards per mile. The steep gradients are chiefly caused by the extensive high ridge of country which runs east and west through Hampshire, near the middle of the line, and which it is not possible to avoid. The brick and stone work on the line is inconsiderable.

The geology of the line presents but two varieties of strata. It begins at London, and ends both at Portsmouth and at Southampton, with the tertiary formations, passing first through the London clay as far as Walton, then plastic clay and sands from Walton to Basingstoke—then over about 25 miles of chalk between Basingstoke and Bishopstoke, seven miles beyond Winchester, when it again reaches the London clay. The Guilford terminus just touches the upper green sand.

The distances on this line are not very obviously or efficiently denoted. On all the metropolitan lines but this, the miles and the quarters of the mile are marked: on the Birmingham and Brighton they are marked on both sides of the line. Here, the miles only are marked on one, viz., the south side, and not conspicuously. But if this point of management needs amendment, we may especially commend the excellence of the carriages.—We had a testimonial from no less a person than a cabinet minister, that the railway carriages most easy and quiet to ride in, were those of the Southwestern. The cabinet, on its way to her majesty at the isle of Wight, were able to have a conference, so little noise was there in them, with their wooden wheels and good padding!

Railway Property.—The gradual development of railway property is best shown by the increase in its returns, and the year 1845 has been marked by extraordinary success in that respect. Taking the present lines as 50 in number, and only 1,800 miles in length, their weekly receipts averaged during the summer months about £80,000 for passengers, nearly £30,000 for goods, and above £60,000 for "goods and passengers" combined (some of the companies keeping their accounts so imperfectly as to defy the statistician, but this sum being on "goods" lines rather than "passenger lines," the greater part may be assumed to be for goods;) these make a total weekly receipt of above £170,000, and a weekly increase of £30,000 over the corresponding week of 1844. In the winter months the passenger receipts are less, but the weekly receipts exhibit a large increase over 1844; thus, in December last, our week's receipts were, for passengers, £58,400; for goods, £30,000; and for passengers and goods, £30,000, making a total weekly receipt of about £118,000, and an increase over the corresponding week of last year of above £18,000. Taking then for 1,800 of railway, £130,000 as a mean total receipt per week, we have a total yearly receipt of about £6,750,000 for passengers and goods, and taking only £20,000 as a mean weekly increase over 1844, we have a yearly increase of above £1,000,000. As to the goods, taking as a mean weekly receipt £30,000, and only a moiety of the other £60,000 (amalgamated for "passengers and goods,") together making as a mean weekly receipt for goods £60,000 at least, the total yearly receipt for goods would be about £3,000,000 sterling, at an average rate of 1d. per mile per ton.—When the 3,600 miles already sanctioned, and not less than 500 miles to be sanctioned in the next session, are completed, with the increase consequent on increased trade, who can doubt but that this species of property will fast supersede other investments, and that

the subject will, if it does not now, interest every one?

Suspension Bridge over the Monongahela at Pittsburg.

We have more than once referred to this structure which was completed in February last, and promised a description of it when completed, which we shall soon give, accompanied with two views of it.

The length between the abutments is 1500 feet, divided into eight spans, averaging 188 feet.—Each span is sustained by two cables composed of 750 strands of wire. The ultimate strength of the two cables is calculated at 860 tons.

Gradients upon Railroads—Difference of Opinion.

We find the following statement in Mr. John B. Jervis' letter, published in the Journal of Commerce on the 21st of March, in relation to the different gradients on the Hudson river line and the interior, or Harlem, line to Albany, viz:

"The same power that would transport 100 tons on the Harlem line would carry 153 tons or 53 per cent. more on the Hudson line."

This is somewhat different from the opinion expressed by Mr. Edwin F. Johnson in his statement submitted to the legislature of this state in 1843, and published in this journal on the 25th of September last. Mr. Johnson says:

"The river line is also represented to have a maximum grade or inclination of 13 feet less per mile. Assuming this statement to be correct, it does not by any means follow that any very material advantage is derived therefrom to the river line, either in the average velocity of movement, or in the cost of transportation.

"Both routes have their termini upon the same level. If, therefore, there is more ascent upon one line, it must also have an equal surplus of descent, so that the aid afforded by gravity in the latter case will be precisely equal to the resistance in the former.

"For the purpose of illustration let it be supposed that the rate of ascent on the two lines for a given distance, to be equal to the maximum or both, inclination 30 feet per mile on the one, and 17 feet per mile on the other. If with a given power, a given load is conveyed up the latter at the rate assumed of 26 miles per hour, the same power will convey the same load up the former at the rate of 23 miles per hour nearly, (see New York assembly documents, No. 133, p. 11, 1839) making a difference in the speed on the ascent of three miles per hour. If these grades occupy half of the whole distance (they in fact occupy only one-sixth) and the journey between the two extremes is performed in 6 hours, the train which is on the lowest grade will commence its descent about 9 miles only in advance of the other, or 20 minutes sooner in time. To make up for this loss of time, on the remaining half of the distance, the train on the 30 feet grade has the benefit in its descent of the greater force of gravity on that slope, compared with the slope of 17 feet per mile, and hence the whole distance will be accomplished with the same expenditure of power, in the same, or very nearly the same time.

"If the rate or degree of inclination of the grade line was so great in any part as to render it impossible from considerations of safety to derive the full benefit of the aid afforded by gravity on the descending portion, the result would be different, and a disadvantage might ensue; but such is not the case, to a degree to enhance materially the expense where the maximum inclination does not exceed the limit of 30 feet per mile, and in the case of the interior route the average is very much below that amount."

Here are the expressed opinions of two eminent engineers, differing widely on a subject of vast importance to this community. Both, it must be conceded, cannot be accurate—and we feel called upon to offer the gentlemen an opportunity to sustain their respective positions in the Railroad Journal, for the benefit of the cause, and we hope to hear from them soon.

For renewing track.....\$20,179 38
 For new engines and cars..... 21,747 00

\$41,926 38

These items are included in the current expenditures, and go very far towards the difference between it and other roads in the cost of working per mile.

An examination of the reports and expenditures of other companies, which seem to range high in the cost of working, would give similar satisfactory results, as have been obtained in relation to the three companies particularly named, and it would be found, that if the expenses of each company were made up by the same formula, for a term of years, excluding the item of wood, which varies in its cost, owing to local circumstances, from \$2 75 to \$6 per cord, that that item would be the only variable one of any moment. L.

The Value of Railroads.

The following remarks, of "An Observer," on the value of railroads, which we take from the National Intelligencer, are so true and so highly deserving the attention of the people of this country, that we cannot do the cause better service than by giving them a prominent place in the Journal, and requesting those papers with whom we exchange to re-publish the article. We agree with the writer, that the late express from Halifax has served to show the value of railroads to this country, even if no other good resulted from it; and on that account, if no other, we hope those who planned and paid the expenses of it will not be forgotten by those who read newspapers. We should like also to know that the government, and especially the postoffice department, appreciate them, and are willing to make fair returns for their services. We are sure the managers of railroads generally only require a fair compensation for services rendered, and the department ought to be willing to pay its full value, according to the increased rates of speed, instead of attempting to compel the service of millions of capital at the same rate that they pay for thousands in other sections of the country.

Railroads.

The value of railroads is made manifest by the recent example of extraordinary dispatch between Halifax, in Nova Scotia, and the city of Washington. The papers by the Hibernia, up to the 4th of March from Liverpool, and to the 3d from London, were delivered in Washington at half-past 8 o'clock on the 20th of March. The distance from Halifax to Washington, near one thousand one hundred miles, was travelled in about sixty-four hours, including all detentions and delays, notwithstanding the disadvantages of a bad road, travelled by horses, for more than one hundred miles in Nova Scotia; a high wind during a voyage at sea by steamer of two hundred and fifty miles; and another high wind for near one hundred miles on the sound.—With these obstacles, the rate of travel, for the entire distance, including stoppages—one hour at Boston, one hour and a half at New York and others—was seventeen miles an hour. If no other valuable end shall have been attained by this express, it serves to show what can be accomplished in this way in our country. While so much with railroads have been achieved in the northeast direction from Washington, it is to be regretted that the same has not been done to the southwest of it.—

However important the news from Mexico and Texas, time must be lost in the sloughs of Alabama, to say nothing of other detentions to which the express might be exposed. As the deficient links to a continuous railroad between the Potomac and the Mississippi are not likely to be supplied as a national work, is it not surprising that the states and cities interested in it do not unite with our capitalists in completing a work of such incalculable importance? Were the wanting link supplied between the Carolina capitals, Raleigh and Columbia, less than two hundred miles in a direct and practicable route, and about twenty miles further by Fayetteville, there would soon be a continuous line of railroads from the Potomac, both to the Chattahoochie and the Tennessee rivers, to the western boundary of Georgia.

Were the travel from Alabama and Tennessee brought to Raleigh, to be transported over the state road to Virginia, it cannot be doubted it would be a capital financial measure for the state of North Carolina. Would not its citizens be benefitted in various ways by a railroad from Columbia to Raleigh?—When one looks at the adaptation of the intervening country, on many accounts, for a railroad, who can doubt it would yield a hand some remuneration for the enterprise? How could planters more profitably employ their negroes than as laborers on the line? Why will not old Rip Van Winkle wake up? Cannot South Carolina shake the poppies from her brow? Let the Carolinas but imitate the example of other states, and the movements now making in Georgia, Alabama and Mississippi, and in the course of a year or two the work will be done.

Some thirty or forty years ago, one more prescient than that age, was considered deranged for believing the time would come when the travel between Philadelphia and Boston would be achieved in forty-eight hours. It is now performed in about twelve hours.—When the great plan of a direct and continuous railroad between New York and Boston shall be put in operation, it is confidently believed the whole distance between those cities, two hundred and nine miles, may be travelled by ordinary trains in six hours. That being the case, why should more than nine hours be required between Philadelphia and Boston? As New York is not thirty miles nearer to Boston than New York to Washington, why should not the day come when one may travel of a summer's day, between sunrise and sunset, from Washington to Boston? We shall not be considered insane were we to venture the prediction that the day will come when one day only will be required for the travel between Washington and Boston! But we must begin by accelerating the travel between Washington and New York, which at this time ought not to require more than ten consecutive hours.

If England beats us, as she does greatly, by the rapidity of her travel, it seems we beat her by the extent of our railroads. At the close of 1843, from the returns compiled by order of parliament, it appeared that there were in America 3,688 miles of railroad to 2,069 1-2 in Great Britain; and that the mileage on our railroads nearly equalled those of Great Bri-

tain, France and Belgium. But ours cost £4,800 per mile, on an average, to £31,048 in Great Britain.

We suppose in no part of the world can a railroad be constructed at a cheaper rate than between Raleigh, North Carolina, and Columbia, South Carolina. Let this work be done, and it will soon lead to a completion of the metropolitan route to Baton Rouge, in Louisiana, or to Mobile, in Alabama, whence there might be an easy and rapid communication to New Orleans.

AN OBSERVER.

[National Intelligencer.]

Little Miami Railroad--Third Ann. Report.

We are indebted to W. H. Clement, Esq., superintendent and engineer of this road, for a copy—yes, for two copies—of the third annual report of the company, showing the cost and condition of the work up to 1st of December, 1845, for which he will please accept our thanks, and an apology for the seeming neglect of the first copy which came to hand, or rather to the office, and was laid carefully aside for use, but by some means or other did not come under our observation, until after we had requested another copy to be sent to us.

On referring to the copy before us, we find distinct reports from Jeremiah Morrow, Esq., the president of the company, Jacob Strader, the treasurer, and W. H. Clement, the engineer and superintendent. From the first we make a few extracts in relation to matters not referred to in the report of the engineer, which we give entire, together with so much of the treasurer's report as will show from whence the capital has been derived, the present financial condition of the company, and its future prospects.

The length of the road now in use from Cincinnati to Xenia is 65½ miles—the distance to be completed from Xenia to Springfield, where it will connect with the Mad river and lake Erie road, is 18½ miles—or its entire length will be 84 miles—and the entire distance to the lake at Sandusky, 214 miles.

The president says:

"In our last annual report it was stated that with the aid of a loan of \$100,000 contracted for with the city of Cincinnati, the board of directors had been enabled to take measures for extending the road to the town of Xenia. And that contracts for the work and material on that part of the line had been entered into. It is proper here to remark, that these contracts were in general fulfilled in proper season, and that the road was regularly opened for business to that point on the 19th of August last, and has continued in successful operation ever since. It was also then stated, that the cost of extending the road to Xenia, would exhaust all the available funds of the company. And that no further progress could be made in the extension of the road with safety to the credit of the company, unless additional means should be provided, and that to an amount sufficient to warrant its construction to some point promising remuneration from the business of transportation and travel. Two modes were then suggested for obtaining the necessary funds to justify a further extension or finish of the road. The first was to constitute an active agency for procuring subscriptions of additional stock in amount sufficient for the purpose, and in failure of realizing a competent amount by that mode, then to endeavor to contract for a loan on the credit of the company, to the amount required.

"The board of directors were early impressed with the opinion that the interests of the company would be promoted by carrying on the work in continuation up to the point of

termination as fixed by the charter. It was determined that exertions be made to procure the means if practicable, could they be obtained on reasonable terms, to effect that object. A preference was given to a subscription in stock to that of contracting for a loan. The board, accordingly, engaged an agent to visit the Atlantic cities, and authorize him to procure stock subscription for the company, not exceeding \$200,000 in amount. After suitable exertions, the agent failed in the object of his mission; he had, however, ascertained and communicated the fact to the directors, that a loan on the credit of the company for the specified amount, could be negotiated with the capitalists in the city of Boston. The state of Ohio being a stockholder in the company to a large amount, it was deemed necessary that authority should be granted by the state legislature to enable the company legally to contract for a loan on the terms proposed. On application to that body, an act was passed at their last session, authorizing the company to borrow an amount not exceeding \$200,000, and at a rate of interest not exceeding seven per cent. per annum. Under the authority of that act, the company contracted for a loan with capitalists of the city of Boston, for the amount authorized, and at the maximum rate of interest specified by the act. The proceeds of the loan are now available in the prosecution of the work. The loan was taken for 10 years, with the privilege on the part of the lenders to convert it into stock of the company at any time within five years from the date of the contract, by giving notice of their intention so to do; and also the privilege on the part of the company of paying off the loan at any time after five years, if not vested in stock of the company before that time."

After alluding to some difficulty in relation to the final location of the road, he observes that,

"The line of road being established, it was soon prepared for being put under contract. The letting was made on the 1st day of July last; public notice having been previously given to invite bids on the work. The grading on all the sections, except that next adjoining the town of Springfield, was let for contract at that time. That one section was reserved from contract for some time, in order that the location should be so made as to admit of a convenient junction with the Mad river and lake Erie railroad. That object being accomplished, that section was then let. The whole line is now under contract and good progress made in forming the grade. Contracts have also been made for the lumber to form a road structure, and for iron to lay the track. The contracts have been made on terms considered reasonable, and at rates just to the parties concerned. According to contracts the embankments are to be completed by the 1st of January, 1846; the graduation and masonry by the 1st of March, and the furnishing of lumber by the 1st of April."

An arrangement, it appears, has been made between the two companies for their mutual accommodation at Springfield, by the erection of a passenger depot over the roads at their connection, and a separate building on each side of the road, one for each company. This appears to be admirably arranged, and they are fortunate if they have only secured *ground enough*, which has not always been the case, even when it could have been obtained at reasonable rates, and we would recommend their securing *more*, rather than less, than is necessary, at all their stations, as it will never be worth less than now, after the road shall have been completed.

In relation to the completion of the road, we select the following extract, viz:

"The Little Miami railroad will be finished unless the happening of some unforeseen event prevents, against the 1st of July next, and we are informed by the directors and principal engineer on the Mad river and lake Erie railroad, that their road will be completed against the 1st of October next, so that in autumn the line will be opened for business between the Ohio river and the lakes. The Miami canal with its extension, is a state work, constructed at the common expense of the citizens of the state, and however beneficial in promoting the general interest, many districts of our country from remote local situation, derive no direct benefit from the improvement; the inhabitants of the lower part of the Little Miami valley, the upper part of the Scioto, and the Sandusky valley, never did, nor could, from their remote situation, derive any direct advantage from this state improvement.

"The product on the whole line of these railroads must depend on them for transportation. The canal will not compete with the business of the railroads, only on an inconsiderable portion of the line. The whole business of transportation for an extended region of a fertile country, cannot fail to secure to them a large and profitable employment, and that without interfering, but in a small degree with the local business of the state works.

"From the business done on the finished portion of the railroads, calculation can be made of the revenue which will be produced when the line shall be extended through.

"It is only after this line shall have been completed to the lakes, and a sufficient amount of machinery procured to avoid the delays and disappointments we have hitherto been subjected to, that the stockholders can hope to realize a full return for their patience and liberality. That such a return will be made in dividends beyond the expectations of most of those engaged in forwarding the enterprise, no one familiar with the country through which the road passes, can doubt. There is not, strictly speaking, an acre of waste land on the whole line—no spot which cannot be made useful in some way, and by far the greater portion unequalled in point of fertility. The number of mills dependent on the road to a greater or less extent, for the transportation of their manufactures, averages one to the mile—and it is the opinion of one well qualified to judge, that the business of Springfield and its neighborhood, will yield a larger revenue to the road than is now realized from the road south of Xenia.

"This line will form a direct communication between the two great streams of travel on the Ohio and the lakes; offering to the traveling public a choice of routes to the sea board by a cheap and speedy conveyance, and to the merchant and business man a medium of transportation open at all seasons of the year. The city of Cincinnati will also have the benefit of a daily intercourse with the extensive and fertile district of country bordering the lakes, and her commercial citizens be enabled to interchange commodities with a section of country shut out for one-third of the year from any and every market by ice and snow.

"The time required to reach Boston from Cincinnati, during the season of navigation on the lakes, and after the opening of this line, will be less than three days, allowing for all reasonable contingencies."

Well may it be said that when this work is completed, and well supplied with machinery, "a return will be made in dividends beyond the expectations

of most of those engaged in forwarding the enterprise." No one familiar with the operations and influences of railroads upon a region of country *having resources to be developed*, and possessing a correct idea of the country through which this road passes, can doubt for one moment that it will become one of the most productive works in the west, when it shall have been, *as it must soon be*, relaid with heavy H or bridge rail. True economy will require this to be done at the earliest possible period. It will also require that a *full supply* of engines and cars be provided in season to accommodate *all* the business that may offer—as no effort should be omitted to *encourage* and foster the traffic of the region. Never turn it away, and never, if possible to prevent it, *delay it* by a deficiency of machinery. The people expect railroads to work with *railroad speed*.

Engineer and Superintendent's Report. Little Miami Railroad.

We next give the report of the engineer and superintendent. We like its straightforward business-like tone and manner. We should select its author for a suitable man to build a railroad in a comparatively new country, where capital is not as plenty as good timber. He does not appear to be disheartened by limited resources, nor discouraged by delays—but pushes, on resolved to accomplish the object in view.

We have, during the past seven years, witnessed the efforts of many a bold heart, similarly situated; and have never more ardently desired the ability to induce the capitalists of New York to loosen their purse strings than when applied to for our opinion as to the probability of their obtaining subscriptions to the stock—or loans upon the pledge of their road—not wholly on account of those directly engaged in the work, however, but because the people of N. York have also a direct interest in their construction; and it has always been with corresponding regret that we have been compelled to say that such applications are usually made with much fairer prospects of success in Boston; and such appears to have been the case with this company; and Boston will not be forgotten by those who have been aided in this work, as others were also in the case of the Mad river railroad last year. Indeed, but for Boston sagacity, it is probable that these two roads—by which an easy communication will be opened between lake Erie and the Ohio river—would have been compelled to struggle on for years unfinished; whereas now they will both be opened for use this year—and other roads will also be constructed as a matter of course.

To the President and Directors of the Little Miami Railroad.

GENTLEMEN:—It gives me pleasure in presenting the annual statement of the business, condition, and progress of the road, to be able to say, that no important interruption to the passage of trains has taken place, and that no accident, resulting in serious injury to passengers or machinery, has occurred.

It will be seen, on reference to the accompanying statement of receipts and expenditures, on account of transportation, that while the gross amount collected, has fully met your expectations, the net proceeds have fallen short of the sum named in the last annual report. This falling off is due entirely to the large amount expended for the renewal of superstructure.

Notwithstanding the business of the road shows a great comparative increase, a variety of causes have contributed to keep away a

considerable amount, which would naturally seek this channel to a market. Among the most important, may be mentioned, the want of motive power, during the first half, and the requisite number of cars, throughout the business season of the whole year. The first of these evils, has been remedied for the time being, by the arrival of the three locomotives ordered in the spring, and the second will be removed, as fast as circumstances will permit. A steady increase of business has been realized, in both passengers and freight, from nearly every point on the line, and no reasonable doubt can be entertained, that the business of the coming year, will yield a gross revenue of more than \$100,000, without taking into the estimate the extension of the road to Springfield. Heretofore, the produce of the district of country through which the road passes, has been transported principally in wagons; changing the mode of conveyance, requires new business arrangements, and the sale of horses, wagons, etc., etc.—Until a disposition can be made of this surplus, many persons will be prevented from using the road as a medium of transportation. A better acquaintance with the manner of doing business, and the many advantages it presents over the ordinary mode, will eventually transfer the whole business to the line.

The superstructure of the road above Foster's crossings is generally in good repair.—On that portion next to the city of Cincinnati, the same difficulties which have been met with from the opening of the road, still exist, and I know of no effectual remedy, short of increasing the width of the excavations to 28 feet, and relaying the track in a bed of gravel or broken stone.

The experience of the past year furnishes conclusive evidence, that the cost of keeping anything like a smooth surface, in clay excavations, will amount in two years, to a sum sufficient to ballast the road bed, to say nothing of the annoyance to passengers, and injury to machinery caused by an uneven surface. The rails and ties have been relaid from near the sixth mile post to the town of Milford, a distance of eight miles, with the exception of a half mile near Plainsville, on which work was suspended, in consequence of cold weather.

The lumber necessary to complete it, is mostly on the ground, and a week or ten days of fair weather, will suffice to close it up.

The rails and ties will require renewal from the office to the 6th mile, as early next spring as is practicable. I would respectfully urge upon the board the propriety of renewing this part of the road with a heavy T or U rail. The character of the present business, and the certainty, that when the line shall be completed, freight will form an important portion of the revenue of the road, renders this step eventually a matter of necessity. All experience has shown, that a heavy freight business cannot be done as economically or satisfactorily, upon as light a plate rail as that adopted upon a part of this line. The transition from the $\frac{3}{4}$ to the $\frac{7}{8}$ bar, laid upon the upper part of the road, can be detected instantly by a casual observer, and

the difference will be still more marked in the inch bar to be laid between Xenia and Springfield.

The rails and ties will also require renewing from Milford to Foster's crossings, early next year. To secure the speedy and economical execution of this work, contracts should be made for all the lumber required this winter, and the delivery completed as far as possible. An inadequate supply of timber has been a fruitful source of expense and delay the past season, and will be again, unless measures are taken to secure a sufficient supply in time. The cost of relaying has been somewhat higher than was anticipated, arising from the necessity of keeping the track connected for the passage of trains, and the decayed condition of the old ties.

Hereafter, the cost of repairs of superstructure, will probably reach an average of \$300 per mile per annum, with the present speed and additional number of trains required by the increasing business of the road. Should you conclude to adopt a higher rate of speed, after the road is opened to Springfield, the average cost of repairs will be increased in proportion.

The bridges over streams are generally in good repair. It is proposed to give additional strength to those built on Long's plan, by connecting the upper and lower chords with iron rods secured to bolster blocks, and to protect them from decay, by ceiling and capping the truss frames.

As a measure of precaution, it would be advisable to keep all the materials required for a bridge of the longest span on the line, framed and under roof, ready for any emergency. By adopting this course, no serious interruption to the business of the road could occur.

The embankment over the deep valley, above Milford, is so far completed as to permit the laying of the track. The timber is now being delivered and the work will be prosecuted under any circumstances, as fast as possible. But two bridges upon dry land are now remaining upon the line, one over the island at the Little Miami river, and the other in the town of Fulton; these are believed to be safe for some time to come, but should be replaced by embankments as soon as the resources of the company will permit.

A considerable sum has been expended in repairs of locomotives, and a further expenditure will be required to replace the frame and fire box of the engine "Governor Morrow," the coming year, in addition to the ordinary repairs in this department.

The motive power has been strengthened by the receipt of three engines;—one an eight wheeled passenger engine, from the shop of Messrs. Rogers, Ketchum and Grosvenor, and two six wheeled connected freight engines, from the manufactory of Messrs. Baldwin and Whitney. After a fair trial of the freight engines, we have found them fully equal to the performance of the duty guaranteed by the builders. In October last, permission was obtained from the city council to use locomotive engines in Front st., limiting the speed to four miles per hour. Since

that time the freight trains have been brought in without the aid of horse power; a result long desired; effecting a great saving in time and expense to the company, and working no injury it is believed, to the residents on the street.

The grades at present, are too abrupt for the lighter class of engines on the road to overcome usefully; but when these shall be reduced, or the business justify the employment of an engine of suitable size, exclusively for this purpose, the horse power may be dispensed with entirely.

The machinery on the road is, generally, in good repair.

The motive power consists of

One 10 ton engine, with a single pair of driving wheels.

Two 13 ton eight wheeled passenger engines.

Two 15 ton six wheeled connected freight engines; making in all five.

In addition, two 13 ton eight wheeled passenger engines are ordered; one of them is completed, and on its way, via New Orleans, and the other is being built by Mr. Anthony Harkness of this city.

There will be required for the next year's business, in addition to the number above stated, one eight wheeled passenger engine, and one six wheeled connected freight engine.

NUMBER OF CARS.

- 4 eight wheeled passenger cars.
- 1 four " " "
- 1 eight " baggage "
- 2 four " " "
- 15 eight " platform "
- 13 four " " "
- 14 " " house "
- 7 lever hand cars for transporting men and tools.
- 2 gravel cars.

In addition there are now in the shop, and nearly completed, one eight wheeled passenger car, one eight wheeled baggage car, two eight wheeled and four four wheeled house cars.

There will be required for the next year's business, in addition to the number above stated, the following cars.—

23 eight wheeled house cars.

- 10 four " " "
- 10 eight " platform "
- 10 four " " "
- 4 eight " passenger "
- 2 " " baggage "

I would respectfully urge on the board, the importance of ordering cars in time to enable the contractor to procure the requisite quantity and quality of timber. Some loss, and a great deal of delay may be thus saved.

Number of miles run by passenger, freight and gravel trains, during the year, 70,976.

Average cost per mile, including current expenses for all purposes, 43.04 cents.

Number of passengers carried for the year, 44,764.

Receipts and Expenditures, on Account of Transportation for the year ending December 1st., 1845.

For carrying passengers.....	\$25,394 82
" " freight.....	20,932 76
Total.....	\$46,327 58

Expenditures:

For renewing rails and ties on seven and half miles of track, for three miles of rails, and the ordinary repairs on remainder of superstructure.....	\$10,160 90
For repairs of bridges.....	159 04
" " road bed, ordinary and extraordinary, including widening excavations, and deepening ditches.....	4,960 93
" " widening cars.....	765 63
" " locomotives.....	2,052 63
" " machinery.....	407 56
" " oil and tallow.....	525 79
" " fuel.....	3,075 92
" " transportation expenditure, including wages of men, rent, etc., etc.....	9,832 35
	\$31,940 89
Less, say 110,000 b. m. feet timber on hand at \$10.....	1,000 00
Total expenditure.....	\$30,840 89

Recapitulation:

Total receipts on acct of transportation.....	46,327 58
" " expenditure.....	30,840 89
" " over current expenses.....	\$15,486 69

A statement of the amount received each month in the year, for carrying passengers and freight:—

	Passengers.	Freight.
December, 1844.....	1,023 04	1,593 22
January, 1845.....	1,142 53	1,571 33
February, ".....	970 21	1,225 19
March, ".....	1,050 38	1,433 65
April, ".....	1,263 52	1,267 27
May, ".....	1,543 28	1,151 26
June, ".....	1,590 32	915 44
July, ".....	1,936 22	1,751 92
August, ".....	2,843 03	1,505 31
September, ".....	4,239 83	2,367 67
October, ".....	4,063 32	2,551 85
November, ".....	3,819 23	3,568 65
Totals.....	\$25,394 82	\$20,932 76

A statement of the principal articles of produce transported on the road, for the year ending December 1st.

Apples, clover seed, and eggs.....barrels	553
Beef, pork, and lard....."	1,971
Molasses, oil, vinegar, and cider.."	658
Whiskey....."	19,582
Wheat, and buckwheat flower...."	25,147
Lime....."	1,054
Salt....."	3,031
Empty barrels and kegs.....	2,367
Mer'dize, sundries, and furniture..pounds	1,798,427
Iron and nails....."	166,673
Pork, and bulk meat....."	624,557
Paper and rags....."	241,553
Butter....."	96,705
Castings....."	181,985
Hay....."	118,612
Lumber, M. feet, B. M....."	289,763
Hoop poles and staves.....M	276,919
Shingles....."	740,550
Malt.....sacks	2,822
Barley and oats.....bushels	5,093
Corn, wheat, and rye....."	103,811
Potatoes and turnips....."	2,774
Coal....."	41,028
Live hogs.....No.	4,096

In addition, there has been transported for the company during the year, 900 tons of iron, and 600,000 feet B. M. lumber.

It is indispensable, that the ground necessary for an engine house, shop for repairing and building cars, etc., should be procured at an early day. The buildings now used for these purposes, are unsafe and inconvenient in every respect, and another year's business cannot be done without some improvement in that particular, except at great expense and delay.

Some arrangement should also be made to procure ground and erect a suitable build-

ing for the reception of freight and passengers at Milford. At present, they are alike delivered and received in the open air.

Complaints have been made of the slow rate of speed adopted for the passenger trains but more particularly of the accommodation train. The speed of the morning train from Cincinnati is over 14 miles per hour, including stoppages, which is believed to be up to the average over flat bar roads in the United State. The accommodation train doing the local business, consumes more time in making stoppages, and does not average over 10 miles per hour. These objections can be readily obviated when the through business will justify a special train, as there is no difficulty in the way of attaining a higher rate of speed, but the increased expense.

EXTENSION OF THE ROAD FROM XENIA TO SPRINGFIELD.

This work was let on the 1st of July, and the contractors had generally commenced operations by the 1st of August. The grading, masonry, and timber are in a state of forwardness, and with the usual proportion of fair weather this winter and coming spring, the road can be opened for travel to Springfield in the month of July, 1846. Care has been taken to secure better workmanship and materials in every department. The road bed will also be ballasted throughout with clean gravel one foot deep by ten feet wide. The bridges will be built of sufficient strength, to sustain 22 ton engines, and the superstructure be much superior in strength, in consequence of the increased weight of iron, and a better arrangement of timber.

The following estimate of the cost of the road between Xenia and Springfield, is believed to be correct.

Superstructure, including iron and bridges.....	\$98,624 30
For graduation and masonry.....	72,387 30
Depot at Springfield, and water stations.....	5,800 00
Right of way, and lands, "say".....	6,000 00
Engineering and contingencies.....	5,000 00
Total.....	\$187,811 60

The distance from the office in Cincinnati, to the court house in Xenia is 65½ miles.

The total length of the road when completed to Springfield will be 84 miles.

Respectfully submitted,
W. H. CLEMENT,
Superintendent and Engineer.

We also give most of the abstract of the books as given by the treasurer.

Abstract of the condition of the Books of the Little Miami Railroad Company.—December 1, 1845.

	Dr.	Cr.
For construction.....	\$623,549 07	
" " Depots and real estate.....	37,961 42	
" " Machinery and animal power.....	68,824 94	
" " Expenditures on account of transportation.....	31,940 89	
" " Interest and expense.....	85,418 03	
" " Subscriptions.....	34,580 48	
" " Bills receivable.....	6,905 92	
" " Cash in hands of treasurer.....	43,136 25	
" " Cash in hands of agents and due from sundry individuals.....	7,050 92	
	\$939,367 92	
By capital stock.....		\$549,245 25
" " Loan from city of Cincinnati.....		100,000 00
" " Bills payable.....		32,466 94

" Transportation receipts.....	46,327 58
" Wharfage account.....	197 50
" Proceeds of eastern loan.....	204,390 00
" Unclaimed dividends.....	229 58
" Surplus, December 1, 1844.....	680 99
" Amount due sundry individuals.....	5,630 08
	\$939,367 92

The amount expended up to the 1st instant, for road, depots, cars, engines and appurtenances, is as follows:

Graduation and masonry.....	\$241,380 81
Bridges.....	22,015 79
Superstructure.....	295,020 93
Interest and expense account.....	85,418 03
Engineering.....	29,369 08
Machinery.....	67,453 94
Real estate.....	2,967 29
Lands for right of way.....	35,762 46
Animal power.....	1,371 00
Depot account.....	15,178 52
Cincinnati depot.....	19,815 61
	\$815,753 46

The receipts on account of subscription to the capital stock, and loans, have been,

From the city of Cincinnati, in bonds.....	\$200,000 00
" " " in loan.....	100,000 00
" " " state of Ohio in interest.....	6,900 00
" " " " bonds.....	115,000 00
" " " " county of Greene, in cash... ..	26,145 34
" " " " " in bonds.....	23,000 00
" " " " " interest.....	854 66
" " " " Clark, in bonds.....	25,000 00
" " " " Individual subscriptions.....	104,019 52
" " " " Proceeds of eastern loan.....	204,390 00
Total.....	\$805,309 52

The present indebtedness of the company is,

In bills payable.....	\$32,466 94
" " Open account in the books.....	5,630 08
" " Loan from the city of Cincinnati, payable in the year 1880.....	100,000 00
" " Loan from eastern capitalists, payable in the year 1855.....	200,000 00
Total.....	\$338,097 02

Immediate and prospective means for the payment of debt and interest for the ensuing year:

Net receipts for transportation, estimated at.....	\$45,000 00
Bills receivable.....	6,905 92
Amount in treasurer's hands.....	43,136 25
Individual subscription in Clark county, "say".....	6,000 00
Due from sundry individuals, and cash in the hands of agents.....	7,050 92
Due from Charles Anthony, Esq., former treasurer.....	654 09
Total.....	\$108,747 18

Estimate of amount required to complete the road to Springfield, and to procure the requisite furniture.

For graduation, masonry, superstructure, depots, lands for right of way, etc., between Xenia and Springfield, as per estimate of engineer.....	\$187,811 60
Locomotive cars, etc.....	78,000 00
Total.....	\$265,811 60

Less amount already paid..... 35,118 00

Less 20 per cent. for which a credit can be claimed by the directors, if desirable.....	53,200 00
Total.....	\$177,493 60

The expenditures may be reduced considerably in machinery, as the estimate is a full one, and intended to cover all possible wants.

I would recommend to the board to offer to the present stockholders stock sufficient to cover the deficiency, and in failure of that to resort to a loan.

The net revenue of the road for the past year has been expended in the purchase of machinery, and construction.

The amount standing to the credit of the road will be as below:

Surplus, December 1st, 1844..... \$850 99
Net receipts for the year ending 1st inst. 15,486 69

Total..... \$16,367 68

The above surplus will admit of a dividend of 3 1/2 per cent., which I would recommend the board to make; payable in stock. JACOB STRADER, Treasurer.

By referring to the map of the United States, it will be seen that this road occupies a very favorable position, and must become a great thoroughfare for travel. It will be the first point, at least, for some time to come, at which travellers, ascending the Ohio, can leave the river steamers for land steamers—and reach the lake steamers in about 12 hours—thus having a desirable change, and make much more rapid progress. It therefore becomes very important that this road should be of the very best description; and we are gratified to learn, as we do, by a letter of 21st March, that the directors have resolved to commence relaying the road where it needs it, with a heavy rail. The writes says,

“Our work is just growing into importance. Five years since but few besides some ten or twelve clear sighted and enterprising individuals had faith in railroads anywhere—much less in this, which has only a mill to the mile, and an inexhaustible soil to support its business. But the ‘times have changed, and men with them.’ The directors have ordered the superstructure to be renewed with an H rail as fast as it requires renewal at all, and we calculate that 12 locomotives will not more than do our business before we connect with the Mad river road.—Then—but we will leave the future to speak for itself. Our road is all laid with the plate rail, but, with the exception of the part first built, is much superior to the same kind of roads in the east, as we use an inch bar and white oak timbers. You will see from the report that our business has been heretofore comparatively unimportant, but this year will give us a gross receipt of over 100,000 dollars, and next year nearer three times that sum.”

Extension of Railways.—The extension of railways during the last three years from about 1,500 to 2,000 miles, has had the effect of increasing the average receipts per mile from about £2,800 to 3,200, and the total returns from about £2,600,000 to just £4,000,000.

Produce of Iron in Great Britain.—Of the quantity of iron, South Wales produces 279 1/2 thousand tons, Staffordshire 219 1/2, Shropshire 81 1/2, Scotland 37 1/2, Yorkshire 33, Derbyshire 22 1/2, and North Wales 25. The quantity has increased 100,000 tons per annum.

OFFICE OF THE NEW YORK AND ERIE RAILROAD CO., No. 50 Wall street.—New York, March 19th, 1846.—Notice is hereby given, that proposals will be received until the 10th day of April next, for the Grading, Masonry and Bridging required to complete the Newburg Branch of the New York and Erie Railroad, extending from Chester depot in Orange county, to the village of Newburgh, a distance of about 18 miles.

The maps and profiles, estimates and specifications, are in the office of the company, in the village of Newburgh, where all necessary information will be given, either by the subscriber or by Messrs. SILAS SEYMOUR and L. J. STANDIFF, Civil Engineers.

The work will be divided into sections, averaging a mile in length, and proposals will be received either at Newburgh or in the city of New York, for grading the whole or any part.

By order of the President and Directors.
T. S. BROWN, Chief Engineer.

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.

PETER COOPER, 17 Burling Slip.
New York, January 23d, 1846. 1y 10

DAVIS, BROOKS & Co., 30 WALL ST.
Have now on hand and for sale,
200 tons 2 1/4 x 1/4 inch Flat punched Rails, Bars 18 feet each.

100 tons Heavy Edge Rails, 90 tons per mile.
30 tons 2 1/4 x 1/4 inch Flat Rails.

Also—A STEAM PILE DRIVER, built by “Dunham & Co.” which has never been used, and cost originally \$5000 s20

RAILROAD IRON. 500 TONS HEAVY
T Rails, of an approved pattern, expected to arrive here during March, or early in April.

Apply to DAVIS, BROOKS & CO.
March 5, if 30 Wall street.

LARD OIL FOR MACHINERY, ETC.—Winter pressed, cleansed from gum, and manufactured expressly for engines and machinery of all kinds, railroads, steamboats, woollen and other manufactures; and for burning in any lamp without clogging the wick. Engineers of railroads and others who have used this oil, and to whom reference can be made, give it preference over the best sperm for its durability, and not requiring to be cleaned off like that, and costing about two-thirds the price. For sale by the barrel, and samples can be sent for trial, by addressing
C. J. F. BINNEY,
Agent for the Manufacturer,
Boston, Mass.

11 cop 1m

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.

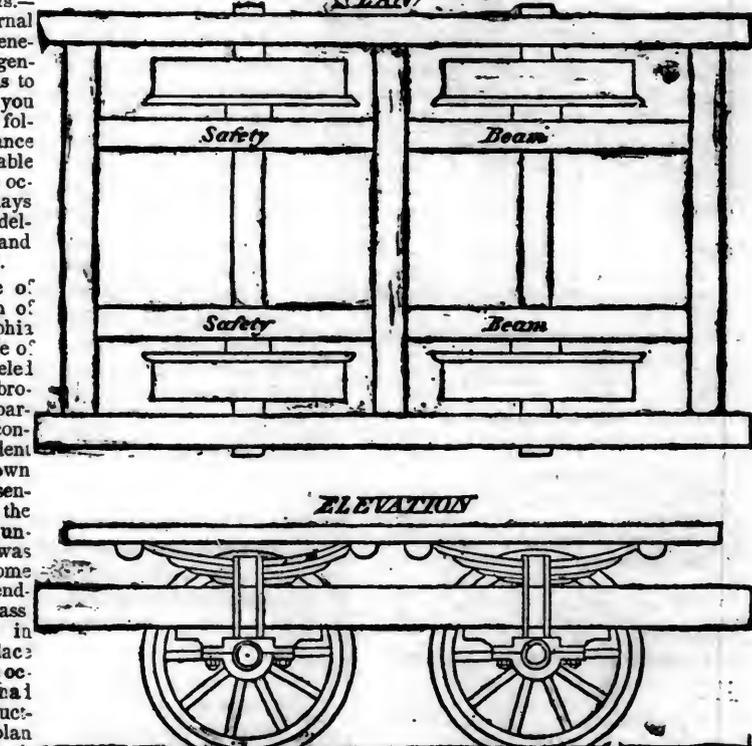


No 23 Pear street, near Third, below Walnut, Philadelphia.

KITE'S PATENT SAFETY BEAM.

MESSRS. EDITORS.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheeled passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.



Wilmington, Del., Sept. 28, 1840.
The undersigned takes pleasure in attesting to the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.

In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.

JOHN FRAZER, Agent,
GEORGE CRAIG, Superintendent,
JAMES ELLIOTT, Sup. Motive Power,
W. L. ASHMEAD, Agent.
A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 1 Hanover st., N. York. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janvier, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

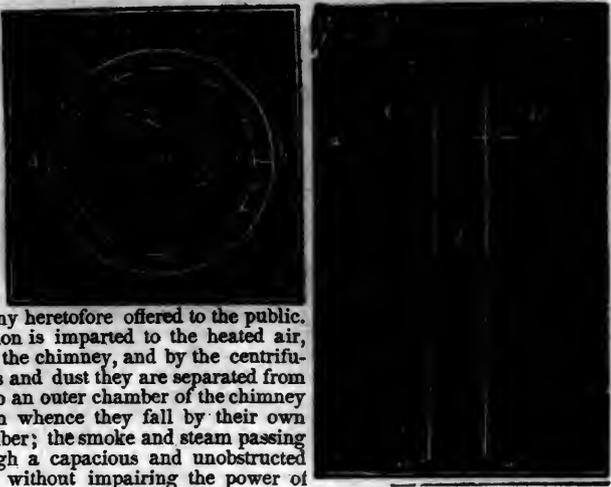
These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cnyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD. N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

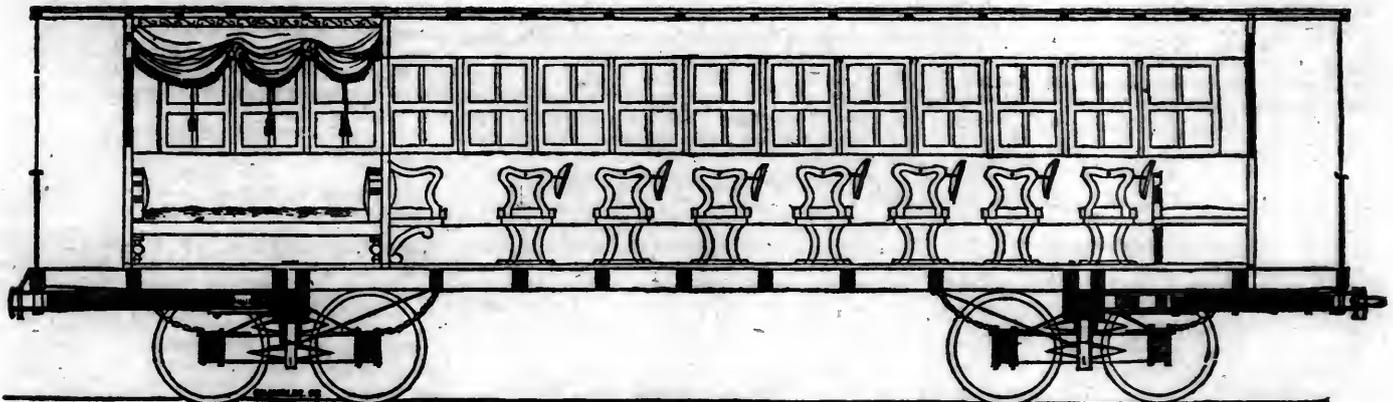
*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45



BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

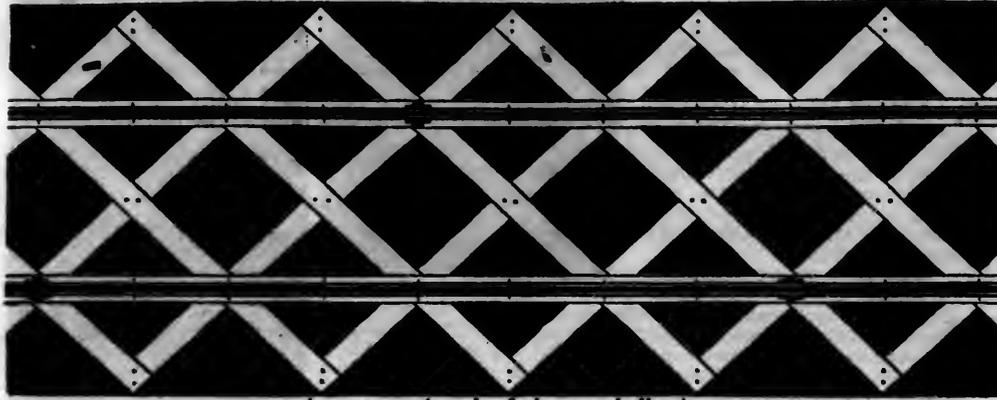
The article is complete in itself, occupies but little space, is perfectly portable, and requires no brick work, not even to stand upon. It is valuable not only in the saving of time and labor, but in the economy of fuel, as it has been ascertained by accurate measurement, that the saving in that article is fully two-thirds over other methods heretofore in use. They are now for the first time introduced into New York and Boston by the subscriber, who has the exclusive right for the New England states, New York and New Jersey, and are manufactured by CURTIS & RANDALL, Boston; and by FORCE, GREEN & CO. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for *Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.
Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made. 1y1

W. R. CASEY, CIVIL ENGINEER, NO. 23 Chambers street, New York, will make survey estimates of cost and reports for railways, canals, roads, docks, wharves, dams and bridges of every description. He will also act as agent for the sale of machinery, and of patent rights for improvements to public works.

TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 11f

C. J. F. BINNEY, GENERAL COMMISSION MERCHANT and Agent for Coal, and also Iron Manufactures, etc.

No. 1 CITY WHARF, Boston. Advances made on Consignments. Refer to Amos Binney, Boston. Grant & Stone, Brown, Earl & Erringer, } Philadelphia. Weld & Seaver, Baltimore. 1m 50

SCRIBNER'S ENGINEERS' AND MECHANICS' COMPANION. For sale at this office. Price \$1.50.

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa. Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/4 x 1/4 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/4 x 1/4 " Flange Iron Rails. 75 " 1 x 1/4 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/4 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, Albany Iron and Nail Works, Troy, N. Y. 11y

RAILROAD IRON WANTED. Wanted, 50 tons of Light Flat Bar Railroad Iron. The advertisers would prefer second-hand iron, if not too much worn. Address Box 364 Philadelphia P. O.—Post paid. 8 4t

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column "	50 00
One square "	15 00
One page per month	20 00
One column "	8 00
One square "	2 50
One page, single insertion.....	8 00
One column " "	3 00
One square " "	1 00
Professional notices per annum....	5 00

ENGINEERS and MACHINISTS.

- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- H. R. DUNHAM & Co., N. Y.
- WEST POINT FOUNDRY, N. Y.
- PHENIX FOUNDRY, N. Y.
- R. HOE & Co., N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.
- BALDWIN & WHITNEY, Philadelphia, Pa.
- THOMAS & EDMUND GEORGE, Philadelphia. (See Adv.)

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

BALTIMORE AND SUSQUEHANNA Railroad. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a.m., and arrives at 6 1/2 p.m. Arrives at York at 12 1/2 p.m., and leaves for Columbia at 1 1/2 p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62 1/2. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3 1/2 p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc.

Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day any passenger train.

D. C. H. BORDLEY, *Sup't.*
Ticket Office, 63 North st.

31 ly

CENTRAL RAILROAD-FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods... 13 cts. per cubic ft. On brls. wet (except molasses and oil)... \$1 50 per barrel. On brls. dry (except lime)... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery... 40 cts. per hundred. On hhd. and pipes of liquor, not over 120 gallons... \$5 00 per hhd. On molasses and oil... \$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, Gen'l. Sup't. Transportation.

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA to OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot... 16 cts. " Dry goods, shoes, saddlery, drugs, etc., per 100 lbs... 95 " " Sugar, coffee, iron, hardware, etc... 65 " " Flour, bacon, mill machinery, grindstones, etc... 33 1/2 " " Molasses, per hogshead \$9-50; salt per bus. 20 " " Ploughs and cornshellers, each... 75 "

Passengers \$10-50; children under 12 years of age half price. Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON, *Ch. Eng. and Gen. Agent.*

Augusta, Oct. 21 1845. *44 ly

FLAT BAR, ENGLISH ROLLED, RAILROAD Iron, 2 1/2 x 1/4—a large part suitable to relay. For sale by C. J. F. BINNEY,

Commission Merchant, 1 City Wharf, Boston, Mass

11 1m

WESTERN AND ATLANTIC RAILROAD. The Western and Atlantic Railroad is now in operation to Marietta, and will be opened to Cartersville, in Cass county, on the 20th of October—and to Coosa Depot, (formerly known as Borough's,) on the 20th of November.

The passenger train will continue, as at present to connect daily (Sundays excepted) with the train from Augusta, and the stage from Griffin.

CHAS. F. M. GARNETT, *Chief Engineer.*

43

LITTLE MIAMI RAILROAD. -- DISTANCE 65 1/2 Miles. Fare, \$1 50. From 1st November to 1st March Passenger Trains leave Cincinnati for:

Xenia at 11 o'clock, A.M. Returning, leaves Xenia at 8 1/2 o'clock, A.M. Freight Trains run daily, Sundays excepted. At Xenia, Passenger Trains connect with daily lines of stages to Columbus, Wheeling, Cleveland and Sandusky city.

W. H. CLEMENT, *Supt. and Engineer.*

ly 1

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them. It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. G. A. NICOLLS, *Reading, Pa.*

ja45

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Allaire, Peter Cooper, } New York.
- Murdoch, Leavitt & Co. } J. Triplett & Son, Richmond, Va.
- J. R. Anderson, Tredegar Iron Works, Richmond, Va. }
- J. Patton, Jr. } Philadelphia, Pa.
- Colwell & Co. } J. M. L. & W. H. Scovill, Waterbury, Con.
- N. E. Screw Co. } Providence, R. I.
- Eagle Screw Co. } William Parker, Supt. Bost. and Worc. R. R.
- New Jersey Malleable Iron Co., Newark, N. J.
- Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly. 35 ly

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron

Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. ja45 ly

TROY AND GREENBUSH RAILROAD. Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at 6 1/2 A.M.	Leave Albany at 7 A.M.
" " 7 1/2 " " " " 8 " "	
" " 8 1/2 " " " " 9 " "	
" " 9 1/2 " " " " 10 " "	
" " 10 1/2 " " " " 11 " "	
" " 11 1/2 " " " " 12 M.	
" " 1 P.M.	" " 1 1/2 P.M.
" " 2 " " " " 2 1/2 " "	
" " 3 " " " " 3 1/2 " "	
" " 4 " " " " 4 1/2 " "	
" " 5 " " " " 5 1/2 " "	
" " 5 1/2 " " " " 6 " "	
" " 6 1/2 " " " " 7 " "	

The 6 1/2 a.m. and 2 o'clock p.m. runs from Troy, to Boston runs.

The 12 m. and 6 o'clock p.m. trains from Boston runs.

Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT, *Superintendent.*

Troy, April 1st, 1846.

14 ly

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship. Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.

THE SUBSCRIBERS, AGENTS FOR the sale of

Codorus, Glendon, Spring Mill, and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L KIMBER, & CO., 59 North Wharves, Philadelphia, Pa.

Jan. 14, 1846. [1y4]

RAILROAD IRON AND LOCOMOTIVE
Tyres imported to order and constantly on hand
by **A. & G. RALSTON**
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gear- ing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.
The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

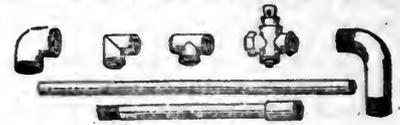
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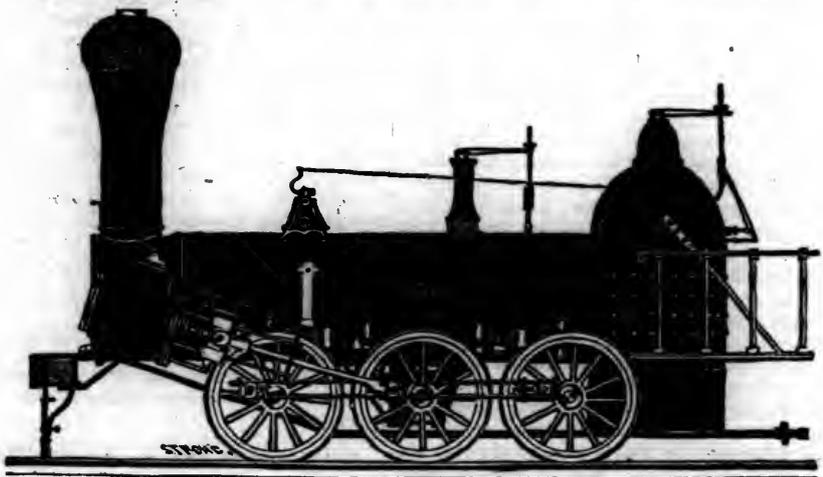
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Report of the Gauge Commissioners.

May it please your majesty.—We, the commissioners appointed by writ, under your Majesty's privy seal, bearing date the 11th of July, in the ninth year of your majesty's reign, to inquire whether in future private acts of parliament for the construction of railways, provision ought to be made for securing a uniform gauge, and whether it would be expedient and practicable to take measures to bring the railways already constructed, or in progress of construction, in Great Britain, into uniformity of gauge, and to inquire whether any other mode could be adopted of obviating or mitigating the evil apprehended as likely to arise from the break that will occur in railway communications from the want of a uniform gauge, beg dutifully to submit, that we have called before us such persons as we have judged to be, by reason of their situation, knowledge, or experience, the most competent to afford us correct information on the subject of this inquiry, and we have required the production of such books and documents, from the various railway companies, as appear to us to be the best calculated to aid our researches. We have personally examined into the usual course of proceeding on various railways both at home and abroad, especially those which are incident to a break, or interruption of gauge; and we have personally inspected several locomotive engines, as well as mechanical contrivances invented, either for the general use of railways, or for obviating the special difficulties presumed to arise from the break of gauge, or otherwise connected with the subject of our inquiry; and as we believe we have now carried our investigation to the utmost useful limits, we feel in a position dutifully to offer to your majesty the following report.

SECTION 1. ON THE BREAK OF GAUGE.—Our attention was first directed to ascertain whether the break of gauge could be justly considered as an inconvenience of such importance as to demand the interference of the legislature. Gloucester is the only place where a break of gauge actually exists at the present time. It is caused by the meeting at that place of the broad or 7 feet gauge with the narrow or 4 feet 8 1-2 inch gauge. There are other points, however, where a transfer of goods occurs similar to that which must result from a break of gauge, and persons well acquainted with railway traffic have no difficulty in foreseeing the nature of the inconvenience that would arise from any further intermixture of gauge; and we humbly submit the observations that occur to us as to the whole of this important part of the question.

We will divide the subject of the break of gauge under the following heads:—

1st. Fast or Express Trains.—We believe that the inconvenience produced by a break of gauge will, in some respects, be less felt in these than in any other trains, because the passengers travelling by fast trains are usually of a class who readily submit to many inconveniences for the sake of increased speed on the journey, and who are perhaps less incumbered with luggage than persons travelling by the slower trains; and as it is understood to be the general practice that no private carriages or horses are conveyed by these trains, the inconveniences of a break of gauge are reduced in this instance to the removal of the passengers and a moderate quantity of luggage; and although such removal may create delay and some confusion, as well as personal discomfort, especially at night and in the winter season, besides the risk of a loss of luggage, yet we do not consider the break of gauge, in this in-

stance, as being an inconvenience of so grave a nature as to call for any legislative measures, either for its removal or for its mitigation.

2ndly. Ordinary or Mixed Trains.—In these trains the passengers considerably exceed in number those who travel by the fast trains, and they have generally a much greater quantity of luggage. To such travellers a change of carriage is really a serious inconvenience, and it is a well known fact, that persons travelling by railways in communication with each other, but under different managements, endeavor to make such arrangements as to admit of their travelling by those trains which afford them the accommodation of occupying the same carriage from the beginning to the end of their journey. The managers and directors of railways are well aware of this feeling, and in some instances where they do not allow their carriages to run through, yet with a view of diminishing the inconvenience to which this exposes their passengers, they send a luggage van from terminus to terminus, to prevent the evil of a removal of the passengers' luggage; and some railway companies incur considerable expense in running trains of return empty carriages, in order to accommodate the public by enabling travellers to avoid a change of carriage on the journey. It is by the ordinary or mixed trains that private carriages and horses are conveyed, and the removal of either from one truck or horse-box to another, at any part of the journey, would be attended with inconvenience and delay; and with regard to the horses, it would involve considerable risk. We arrive, therefore, at the conclusion, that the break of gauge would inflict considerable inconvenience on travellers by the trains now under consideration, and that this inconvenience would be much increased at points of convergence of more than two lines. The change of carriages, horse-boxes, and trucks, and the transfer of luggage of an entire train of much extent, must, even in the day time, be an inconvenience of a very serious nature; but at night, it would be an intolerable evil; and we think legislative interference is called for to remove or mitigate such an evil.

3rdly. Goods Trains.—From the statements made to us by carriers on railways, and from our own observation, we are induced to believe, that not only a considerable degree of care, judgment, and experience is necessary in the stowage of merchandize in railway wagons, but also, that it is desirable, that when properly packed, the articles should, generally speaking, not be disturbed until the journey is accomplished. We find that in the arrangement of merchandize, the heavier goods are placed at the bottom, and the lighter at the top of the load, and so secured as to prevent friction as far as practicable, from the jolting of the wagons; and it is considered very desirable, with a view to prevent loss by pilfering, that the sheeting, which is placed over the load, should not be removed till the completion of the journey. Indeed, acting upon this principle, carriers find it profitable, to send their wagons partially filled from various stations on the line, thereby increasing their toll to the railway company, rather than incur the risk of loss by theft, to which they would be exposed by uncovering the wagon on the journey, to fill up with intermediate local goods, wagons that may have started with light loads from one of the termini. The stations for re-arranging the goods trains are therefore, as few as possible; thus, between Leeds and London, the points for unsheeting

the goods wagons are only Derby and Leicester, and between Liverpool and London, the re-arrangement is confined to Birmingham and Rugby; and even at those stations, the proportion of wagons which are uncovered is very small; indeed it is stated that at the important town of Birmingham five-sixths of the wagons pass without re-arrangement. In the conveyance of machinery and articles of a similar class, which are both heavy and delicate, it is of the utmost consequence that the load should not be disturbed between the beginning and the end of the journey; a change of carriage, such as would result in all probability from a break of the gauge, would altogether prevent the transport of such articles by this mode of conveyance. We believe that the traffic upon the line of railway between Birmingham and Bristol has been greatly restricted by the interruption of gauge at Gloucester. In respect to the conveyance of minerals, the inconvenience of a break of gauge would be very serious; the transfer being attended with an expense, which would be sensibly felt in consequence of the low rate of toll charged on such articles; moreover, many descriptions of coal, such as a considerable proportion of that of the Midland counties, are subject to a great deterioration by breakage. In regard to various articles of agricultural produce, the loss by removal would be less than on other classes of goods; much inconvenience, however, would be found in the transfer of timber; and the difficulty of shifting cattle would be so great as to present an insurmountable obstacle to such an arrangement, from the excited state of the animals after travelling by railway, and the resistance they in consequence offer when it is attempted to force them a second time into a railway wagon.

4thly. Conveyance of Troops.—There is another use of railways which we have deemed it necessary to consider: we allude to the transport of your majesty's troops, with their military stores, etc., either in the ordinary movement of corps through the country, in the time of peace or in the more pressing and urgent case of their movements for the defence of the coast, or of the interior of the country. We have carefully weighed the important information given to us by the quartermaster-general of your majesty's forces, as well as by the inspector-general of fortifications, both officers of great experience; and we deduce from their opinions, that although a break of gauge on the line of route would produce both delay and confusion, yet, that as in time of peace it is usually practicable to give notice of the intended movements of a body of troops, the inconvenience of the break of gauge might be so reduced as not to be an evil of great importance; but, in the event of operations for defensive objects against an enemy, the inconvenience would assume a serious character. It would appear, that for the defence of the coast, the proper course would be to retain the great mass of troops in the interior of the country to wait until the point selected by the enemy for his attack should be ascertained with certainty, and then to move upon that point such an overwhelming force as should be adequate to the emergency. It is obvious that the success of such a system of defence must depend upon the means of conveying the troops with great dispatch, and without interruption on the journey. The troops should be carried with their equipments complete in all their details, and with their artillery and ammunition; and it therefore appears indispensably necessary, in order to in-

sure the requisite supply of carriages, where perhaps little or no notice can be previously given, that the whole should be conveyed in the same vehicles from the beginning to the end of the journey. The effect of a break of gauge might, in this view of the case, expose the country to serious danger.

To all classes of merchandize, as well as to all military operations connected with railways, one general remark will apply, that in starting from any one point, it is usually practicable to obtain a sufficient number of wagons for whatever may be required to leave that point, however irregular the traffic may be; but, at the convergence of several lines, where the greater number might be of a gauge not corresponding to the gauge of the other lines, if it happened that all were unusually loaded at the same time, it would probably be impossible to provide on the latter an adequate number of wagons to carry off all the loads thus brought; the alternative would be, on the one hand, to submit to great confusion, delay and inconvenience, on all the converging lines having the majority on the same gauge; or, on the other hand, to maintain on the lines being in the minority, a very extensive stock of carriages, which in general would be totally useless. There is one point which forcibly presses on our attention, and the truth of which must be readily acknowledged, but of which the importance is not at first equally obvious; it is, that the greater part of the inconveniences to which we have alluded are not inconveniences of rare occurrence, and which would affect only a small number of persons, but, on the contrary, that many of them would occur several times in the course of every day, to a great number of persons, at each point at which a break of gauge might exist. The cumulative amount of such inconvenience would of necessity be very considerable; and we feel bound to sum up our conclusions by stating that we consider a break of gauge to be a very serious evil.

Section II.—REMEDIES FOR THE EVILS OF BREAKING OF GAUGE.—We are now brought to the second stage of our inquiry, which is, to discover the means of obviating or mitigating the evils that we find to result from the break of gauge.

The methods which have been laid before us, as calculated for this purpose, are as follows:—1st. What may be termed telescopic axles; an arrangement of the wheels and axles of carriages, permitting the wheels to slide on the axle, so as to contract or extend the interval between them in such a manner that they may be adapted to either of the gauges. 2dly. A form of truck adapted to the broad gauge, but carrying upon its upper surface pieces of rail 4 feet 8 1-2 inches asunder, so that a narrow gauge carriage may be run upon these rails without any disturbance of its wheels. 3dly. A method of shifting the bodies of carriages from a platform and set of wheels adapted for one gauge, to a different platform and set of wheels adapted to the other gauge. 4thly. A proposal to carry merchandize and minerals in loose boxes, which may be shifted from one truck to another, and of which one only would probably be carried upon a narrow gauge truck, while two would be conveyed on a broad gauge truck.

1. *Telescopic Axles.*—Of these various methods, the first, if it admitted of being used safely and extensively, would be, in its application, the easiest of all. By the operations of detaching the wheels from one limiting hold of pushing the carriage along converging or diverging rails, until its wheels were brought

to the required width, and of then connecting them by another limiting hold, the transformation of the narrow gauge carriage to the broad gauge carriage, or *vice versa*, would be completed. But this construction is liable to grave objections. It is stated to us as a matter of experience (and we believe it admits of satisfactory explanation), that a very small unsteadiness of the wheels of a railway carriage upon the axle renders the carriage liable to run off the rails. A far more serious objection, however, is, that the safety of a carriage, and the whole train with which it is connected, would depend upon the care of the attendant who has to make the adjustments of the axle-slide.

It is true that there are other cases, as in the attendance on the switches and signals, which depend upon the care of the person who is stationed to work them; but the circumstances differ very widely. In these cases, the attendant has a single act to perform (or at the utmost, two acts only), he is not hurried, and his whole attention is concentrated on very simple duties.

In respect to the shifting axles, the attendant would have to adjust a great many carriages in succession (as there are sometimes a hundred wagons in a goods train), the adjustment must be made hurriedly, and often in the night; and the attendant's thoughts would probably have been partly occupied with the loading of goods and other station arrangements.

On the score of danger, therefore, we think that this construction must be at once abandoned. But we think it proper to add, that if even there were no such essential ground of objection, a construction of this nature could not be adequately useful unless it were extended to every carriage which is likely to pass the station where the break of gauge occurs. Under the existing system of interchange of carriages, which is adopted by all the railway companies whose lines communicate, and of which the advantages are recognized in special clauses of the acts of parliament applying to several railways, carriages belonging to distant railways will frequently be found at the place of junction of the two gauges. This construction, therefore, would lose much of its utility unless every railway carriage were made in conformity to it, that is, unless a vast expenditure of capital, and a corresponding annual expense in replacing worn-out carriages, etc., were incurred even on railways very distant from the break of gauge.

2. *Broad Gauge Tracks for Narrow Gauge Carriages.*—The plan of placing a narrow gauge carriage upon the top of a broad gauge truck has, on the face of it, this obvious difficulty, that a broad gauge carriage cannot be placed in the same manner upon a narrow gauge truck; and therefore, unless not only broad gauge railway, but also all others communicating with it, be furnished with trucks proper for carrying narrow gauge wagons, and with narrow gauge wagons also, and unless the loads travelling towards the narrow gauge be placed only in these narrow gauge wagons, the system effects nothing as regards the passage in one direction. But even with regard to the passage from the narrow gauge to the broad gauge, the system will not bear examination. If the trucks are supported on springs, there is practically a difficulty in running the wagons upon them; and if they are not supported on spring, they will sustain great injury on the journeys. If they are loaded singly, there will be a great delay; if

they are placed in a row, and the narrow gauge carriages are run through the whole series, very great caution will be necessary to secure each carriage both in front and rear.—When heavy loads are thus placed in elevated positions, and when the security of each depends upon adjustments hurriedly made, there will be the danger to which we have alluded in noticing the first proposed construction.—Finally, an enormous amount of dead weight will be carried on the broad gauge line. We reject this proposal as entirely inapplicable to the traffic of railways.

3. *Shifting Bodies.*—The system of shifting the bodies of carriages from road wheels to railway wheels is practised successfully in France, where the diligences from Paris to distant towns, proceeding on road wheels from the Messagerie of Paris to the railway station, are carried on a peculiar railway truck as far as Rouen and Orleans, and are then again placed on road wheels to continue their journey. At the low speeds of the French railways this system is safe, but we doubt whether it would be safe with the speeds of the English railways. Moreover, it deprives the railway system of one of its greatest conveniences, viz: its readiness to receive almost any number of passengers without warning, and to carry them to any distance, small or great. Carriers' carts are also conveyed (but to no great amount) in the same manner. In France, as we understand, it is not thought likely that the system will be in any degree retained when those railways shall have been extended further. The same remarks, we conceive, would apply entirely, or in a great measure, to similar proposals for the shifting of the bodies of railway carriages; but as this plan has never been strenuously urged, it is unnecessary to criticise it more minutely.

4. *Loose Boxes for Goods.*—The system of conveying goods in loose boxes, carried upon railway trucks, has been seriously discussed. It has been repeatedly tried, and we are able, therefore, to give an opinion on it, founded on experience. The result of this experience is, that in one instance of a temporary character, where the whole operation was under the control of one engineer, it succeeded; in other instances, although always under the control of one engineer, or one company, it has usually failed; and these failures have occurred where from the deterioration, caused by hand shifting, to the mineral conveyed, it was matter of anxiety to avoid transference of the load from one box or wagon to another, and where no expense was spared in the erection of machinery proper for the transference of the loose boxes. These failures, it is to be remarked, occurred in a traffic which is comparatively regular, viz: that of coal; in traffic of a less regular character, the causes tending to produce failure would be very much more numerous. We consider that this method is totally inapplicable to remedy the inconvenience of a break of gauge. Some of the witnesses whom we have examined are of opinion that there would be less difficulty in unloading the wagons of one gauge and placing the articles in wagons of the other gauge, by having two rows of wagons on the different gauges, marshalled alongside of each other; but having witnessed this process at Gloucester, we are of opinion that such a system is totally inapplicable to an extended traffic. We sum up our conclusion on this head by stating our belief that no method has been proposed to us which is calculated to remedy, in any important degree, the inconveniences attending a break of gauge.

Section III.—ON UNIFORMITY OF GAUGE.—Considerations on the general policy of establishing a uniformity of gauge throughout the country. We approach this momentous question with a full conviction of its importance, and of the responsibility that rests upon us. That an uniformity of gauge is now an object much to be desired, there can, we think, be no question. In the earlier period of the railway history of this country, the great trunk lines were so far separated as to be independent of each other, and, as it were, isolated in their respective districts, and no diversity of gauge was then likely to interfere with the personal convenience, or the commercial objects of the community; but now that railways are spreading in all directions, and becoming interlaced with each other in numerous places, that isolation is removed, that independence has ceased, and the time has arrived when, if steps cannot be taken to remove the existing evil of the diversity of gauge, at least it appears to us imperative, that a wider spread of this evil should be prevented. If we had to deal with a question not affecting the interests of parties, who are not only unconnected, but who are opposed to each other in a spirit of emulation, if not of rivalry; or if we were dealing with the property of the public, and not of private trading companies, we should merely have to consider whether that uniformity of gauge which we deem to be so desirable, would be too dearly purchased by an alteration of one gauge to suit the other, or of both to some fresh gauge which might be considered preferable to either, if any such there be. But our position is different from this, since we have to consider not only the relative length of the different systems, the comparative mechanical efficiency of each, the general superiority of one above the other, their adaptation to the wants of the country, and the possibility as well as the policy of a change, but also the pecuniary means of effecting it. We have further to look to the consequences of an interruption of the traffic during the progress of an alteration. There is still another view of the question, and that is, the expediency of having, on lines of railway, additional rails, so as to afford the facility of using engines and carriages on both gauges. This expedient, in whatever form adopted, cannot be considered as free from difficulties. If two rails, forming a narrow gauge way, are placed between the two rails which form a broad gauge way, carriages of the different gauges may run in the same train, without alteration even of their buffers, which in the ordinary construction of the carriages correspond exactly on the broad and narrow gauges. But the expense of such an insertion would probably be not less than that of an entire change of gauge, including, in the latter, the change of engines and carrying stock; and the complication which it would introduce at the crossings might produce danger to rapid trains, unless their speed were diminished at approaching such points. The difficulty of packing the rails, if longitudinal sleepers were used, would also be much greater than if rails of only a single gauge were employed. If a single rail were inserted eccentrically in a broad gauge way, so as to form, in conjunction with one of the broad gauge rails, a narrow gauge way, the expense of the insertion, and the danger of the crossings, as well as the difficulty of packing the rails, would be somewhat diminished, but it would be imprudent to run carriages of the different gauges in the same train; and as it would probably be the policy of the railway company to adopt for their own stock of engines only one of the

two gauges, and to interpose those difficulties which amount to a prohibition of the use of other companies engines, the inconveniences of a break of gauge would exist in almost all their force at every junction of a branch railway on a different gauge. We consider, therefore, that the general adoption of such a system ought not to be permitted. We remark, however, that the difficulties to which we have alluded may be greatly diminished on any railway where the system of combined gauges is cordially taken up by the company; and we think that great respect ought to be paid to the rights which the companies may be supposed to possess in the methods or systems which they have devised or adopted. At the same time, we lay it down as the first principle, that inter-communication of railways throughout the country ought, if possible, to be secured. If, to obtain the last-mentioned object, it should be necessary to alter or make a change in any existing railways, we think that it may be left as a matter of ulterior consideration for the legislature, whether in these limited instances the combination of gauges may not be allowed.

ON THE BEST GAUGE.—Whatever may be the course which at the present time circumstances will permit, it will appear from the opinion we have expressed that we think, abstractedly, equalization desirable; and we shall, therefore, proceed to consider what gauge would be the best in such a system of equalization.

1. *For Safety.*—We are of opinion that experience will, in this matter, afford a better test by which to compare the systems of the broad and the narrow gauge than any theory; and we therefore have made inquiry into the nature of the accidents recorded in the official reports of the board of trade, as well as of such as have happened since the last report was published. We find that railway accidents arise from collisions, obstructions on the road, points wrongly placed, slips in cuttings, subsidence of embankments, a defective state of the permanent way, loss of gauge, broken or loose chairs, fractures of wheels or axles, etc., and, lastly, from engines running off the line through some other cause. Of these several classes of accidents, all except the last are obviously independent of the gauge; and with reference to this last class, we have thought it right to endeavor to determine whether the advocates of either gauge could fairly claim, in regard to these accidents, a preference for their respective systems on the score of greater security to the traveller. In these lists we find only six accidents of the kind we are considering recorded from October, 1840, to May, 1845, whereas there have been no less than seven within the last seven months, and these are all attributable to excessive speed, the majority having happened to express trains. Of the whole number of these accidents, three have occurred on the broad gauge and ten on the narrow; the former, however, differ in their character from the latter, the carriages only, in the two last cases, having been off the line, whereas, in all the ten narrow gauge cases the engines have run off, and the consequences have been more fatal. We must here observe, however, that the extent of the narrow gauge lines is 1,901 miles, and that of the broad only 274; therefore the comparison would be unfavorable to the broad gauge if considered merely with regard to their relative length; but it must be borne in mind that the general speed of the Great Western considerably exceeds that of many of the narrow gauge lines, and that some consideration is on this account due to the broad

gauge. The primary causes of engines getting off the rails appear to be over-driving, a defective road, a bad joint, or a badly balanced engine. If, in consequence of heavy rains or other unfavorable circumstances, any part of the road becomes unsound, the engine sinks on one side as it passes along such part of the rails, suddenly rises again, and is thus thrown into a rocking and lateral oscillatory motion, with more or less of violence, according to the rate of speed; and a very similar effect is produced in passing at high speeds from one curve to another of different curvature. A succession of strains is thus thrown upon the rails, and if, before the rocking subsides, the wheel meets with a defective rail or chair, which yields to the impulse, the engine and train are thrown off as a necessary consequence; but, as far as we can see, such casualties are equally likely to happen on either gauge, other circumstances being similar. It has indeed been stated by some of the witnesses whom we have examined, that the broad gauge is more liable to such accidents, from the circumstance that the length of the engine, or rather the distance between the fore and hind axle, is less in proportion to its breadth, than in the narrow gauge engines, and that therefore the broad gauge engine is liable to be thrown more obliquely across the lines, and in case of meeting with an open or defective joint, more liable to quit the rail; but we cannot admit the validity of this objection against the broad gauge lines. It may be, that the proportion between the length and breadth of the engine has some influence on its motion, and that the motion is somewhat less steady where the difference between the length and breadth is considerably diminished, but practical facts scarcely lead to the conclusion that the safety of the trains is endangered by the present proportion of the broad gauge engines; for it appears that on the London and Birmingham railway, where the engines hitherto employed have been, generally, short four-wheeled engines, the distance from axle to axle not exceeding 7 feet, or 7 feet 6 inches, no such accident as we are considering has been reported; and, we are informed by Mr. Bruyeres, the superintendent of that line, that no such accident has ever occurred. The same remark applies to some other narrow gauge lines; and if, as has been stated, exemption from these accidents has resulted from the close fixing of the engine and tender adopted on this line, the same system might be adopted on any other line, whether on the broad or narrow gauge. An evil may also sometimes arise in six-wheeled engines, by the centre of gravity of the engine being brought too much over the driving-wheels, and the springs being so adjusted for the sake of the adhesion of the wheels to the rails, that the front wheels would have little or no weight to support, and would be thus in a condition, by any irregularity in the road or other obstruction, to be more easily lifted off the rails. But here, again, if this fault in the construction or adjustment has been anywhere committed, it is a fault or defect wholly unconnected with the breadth of gauge.

Another cause of unsteady or irregular motion, dangerous to the safety of the train, has been stated to be the great overhanging weight beyond the axles of some engines of recent construction, and of the weight of the outside cylinder beyond the axle bearings. So far as this construction is concerned, it certainly appertains to narrow gauge lines only, but at the same time we must remark, that it is not essential to their working.

Upon the whole, therefore, after the most careful consideration of this part of the subject, we feel bound to report, that as regards the safety of the passenger, no preference is due, with well-proportioned engines, to either gauge, except perhaps at very high velocities, where we think a preference would be due to the broad gauge. On this part of the subject we would beg to point to the nature of the evidence of Mr. Nicholas Wood.

2. Public accommodation and convenience.

—We have now to advert to the question of the relative accommodation and convenience for passengers and goods. The first-class carriages of the broad gauge are intended to carry eight passengers in each compartment, and the compartments are sometimes subdivided by a partition and inside door. On the narrow gauge lines, the first-class carriages are usually constructed to carry only six passengers in each compartment, and we find that about the same width is allowed for each passenger on both gauges. Some of the original mail carriages were adapted for four passengers, and we believe that the public had a preference for these carriages over both the other descriptions. Until lately, the broad gauge carriages were altogether more commodious than those of the narrow gauge, but recently carriages have been introduced on several of the narrow gauge lines nearly as lofty as those on the broad gauge, and equally commodious; in short, we now see no essential difference as regards accommodation and convenience to individual passengers in the first-class carriages of the two gauges.

In the second-class carriages on the broad gauge, six persons sit side by side, each carriage being capable of holding seventy-two passengers. On the narrow gauge, generally, only four persons sit side by side, the total number in each carriage being thirty-two; in this respect we are inclined to consider the latter are more comfortably accommodated. With reference to the ease of the carriage, and the smoothness of the motion, we have had very contradictory evidence, and it must be admitted that great difference is experienced on the same line at different times, depending upon the state of the road, the springs of the carriage, the number of persons in a carriage, to bring the springs into action, the position of the carriage in the train, and the speed at which the train is propelled, all which conditions are independent of the breadth of gauge. We have, however, with a view of making our own observations on this question, travelled several times over all those lines having their stations in London, and after making, to the best of our judgment, every allowance for the circumstances above mentioned, we are of opinion that at the higher velocities the motion is usually smoother on the broad gauge.

It is now to be considered whether either gauge has a superiority over the other in regard to the conveyance of general merchandise. Under this head we class manufactured goods and their raw materials, mineral products, such as coal, lime, iron and other ores; agricultural produce, such as corn, hops, wool, cattle and timber. On these points we have taken the evidence of persons well acquainted with the carrying trade, and from their information, and our own observation it does not appear to be of consequence to the parties sending or receiving goods whether they are transmitted in the wagons containing five or six tons, or in wagons of larger capacity, provided that the cost and security are the same, and that the carriers undertake the responsibility of any damage that may result

from the size of the load. But Messrs. Horn & Chaplin and Mr. Hayward, who are largely interested, and have had great experience in the carrying trade, have expressed a strong opinion that the smaller wagon is far the more convenient and economical. The same opinion is still more strongly expressed by those witnesses we have examined, who have experience of our mineral districts. These persons state that the smaller wagon can be more easily handled, and can be taken along sharper curves than would be suited to a broader wagon; that such short curves are very common in mineral works and districts, and that the broken nature of the ground would render curves of greater radius inconvenient and expensive.

Another important difference between the two gauges, in this commercial view of the question, would present itself in localities in which there may be a difficulty of readily obtaining full loads for the wagons at road stations. Here the defect of the dead weight, which we find to apply more particularly to the broad gauge, would be greatly increased, unless another evil of still greater commercial importance were created, that of detaining the wagons to receive full loads. On the whole, therefore, we consider the narrow gauge as the more convenient for the merchandize of the country.

3. Comparative speed on the Gauges.—

With a view to form our judgment on this subject, we have examined the time-tables of the several companies having express and fast trains, and the returns furnished by those companies, of the actual speeds attained by the express trains, on thirty successive days, from the 15th of June to the 15th of July, 1845. We have also, on various occasions, travelled in the express trains, and noted the speed, mile by mile. The result has been, that we are fully satisfied that the average speed on the Great Western, both by the express trains and by the ordinary trains, exceeds the highest speed of similar trains on any of the narrow gauge lines. But some of the latter have trains which exceed in speed the corresponding trains of the Bristol and Gloucester line, and also of the Swindon and Gloucester line, both of which are on the broad gauge; but these latter, it is to be remembered, are still of recent construction, with unfavorable curves and gradients; and we have been informed by Mr. R. Stephenson, in his evidence, that at one period, the speed on the Northern and Eastern line even exceeded that of the Great Western.

In treating of a difference in the speed, other circumstances besides the mere gauge must be considered. The inclinations and curves of the Great Western Railway, between London and Bristol, and even for 40 miles beyond Bristol, are, with the exception of the Wootton-Bassett and the Box inclines, particularly favorable to the attainment of high velocities; and it is important to remark, that the inclinations and curves on that part of the Northern and Eastern railway, where the competition in speed with the Great Western was the most successful, are generally of a similar character. One of the principal motives professed for constructing the Great Western railway on the broad gauge was the attaining of high speeds, and the credit of the proposers and defenders of that construction has therefore been deeply engaged in maintaining them. The effect of gradients on the speed of the Great Western trains; even with the powerful engines used on that line, is shown in the time-table (page 24) where we find that, while the speed from Paddington to Didcot by the ex-

press train is 47½ miles per hour, from Didcot to Swindon it is only 41½; and from Swindon to Gloucester only 31½; from Swindon to Bath it is 48½, but returning only 37½; from Bristol to Taunton the speed is 46½, and from Taunton to Exeter only 39½.

We must observe, however, that while the Great Western company have not altered in any degree the plan of their engines, the higher velocities of the narrow gauge lines have been attained by the introduction of a more powerful kind of engine than was employed at an earlier period, and probably the new engines now used on the narrow gauge lines are as powerful as they can well be made within the limits of their gauge; whereas the broad gauge lines have still a means of obtaining an increase in the power of their engines, and of increasing their speed, provided the road be in a condition to sustain the great increased force which must result from any increased weight of the engine moving at such high velocities. Whether the permanent way is in such a state at present, is very questionable, or even whether it be possible in all vicissitudes of weather to maintain it in such a condition. We ought not to lose sight of the fact, that since the introduction of express trains the accidents arising from engines running off the line have been much more common than in former years; indeed, these accidents have been more numerous within the last seven months than within the preceding five years, and it is questionable whether this contest for speed ought to be carried to any greater length. We are, indeed, strongly inclined to the opinion stated by several engineers in their evidence, that it is the stability of the road, and not the power of the engine, that will prescribe the limits of safe speed.

On the first introduction of passenger railways, speeds of about 12 miles per hour only were anticipated: the rails then employed weighed only 35 lbs. per yard, and the engines about six or seven tons. As soon as speeds of 20 and 24 miles per hour were attempted, it was found necessary to have rails of 50 lbs. per yard, and engines weighing 10 and 12 tons. Since that time the rails have been increased in weight progressively to 65, 75 and 85 lbs. per yard, and the weight of the engine on the broad gauge exceeds 22 tons, and on the narrow gauge it now approaches 20 tons; indeed, we have seen a narrow gauge engine on six wheels weighing 30 tons. We doubt, however whether a corresponding stability has been attained in the road itself. Among other changes for increasing the power of the engine and the speed of the trains of the narrow gauge lines, there have been the giving an increased length to the engine, and the placing the cylinders on the outside of the framing; but it is the opinion of some of the witnesses we have examined, that this position of the cylinder has a tendency to produce a greater wear and tear of the journals, and a consequent rocking and irregular motion of the engine on the line. This, however, while the engine is of medium length, has been denied by Mr. Locke, who has had great experience in the working of outside-cylinder engines. But it is stated by Mr. Gray and Mr. Gooch, that where the length of the engine is greatly increased, this increased length, by causing the extremities of the engine to overhang very considerably the fore and hind axles, has a great tendency to increase the irregular motion produced by the outside cylinder. Mr. R. Stephenson admits that, in some of the later engines, this irregularity does exist, but he attributes it to the

weight of the piston and its appendages, observing, "I do not believe that it is the steam that causes the irregular action, but I believe it to be the mere weight of the pistons themselves, and therefore if we could contrive to balance the piston by the weight upon the wheels, we should get rid of that very much." At all events, from whatever causes the motion may arise, the oscillations are very considerable in some of these long engines, and such as can scarcely be considered safe at high velocities. This great length of engine is, however, by no means essential to the attainment of high speeds on narrow gauge lines.

We found by timing the express trains on four different journeys on the South Western line, in both directions, that the whole distance was performed very satisfactorily in about one hour and 52 minutes, including the time of two stoppages, being at an average rate of 41 miles per hour, on a line which, in one direction, rises for a length of more than 40 miles on a very prevailing gradient of 1 in 330, and in the other rises for several miles, on a gradient of 1 in 250. On each occasion a distance of five miles, on a level part of the road, was passed at the rate of 53 miles per hour. The length of the engine boiler was only eight feet seven inches; the driving wheels six feet six inches in diameter; the leading wheels had ooth inside and outside bearings. The diameter of the cylinder in one case was 15 inches, in the others 14 1-4 inches, both outside, and attached to the smoke-box.

In proceeding to compare the locomotive engines, we remark in the first place, that the fire-boxes, boilers, etc. of the narrow gauge engines still possess a smaller evaporating power than those of the broad gauge engines, although recent attempts have been made to raise the former to the level of the latter; but those attempts have not succeeded; and it is indisputable, that whatever can be done for the narrow gauge, in this respect, can be surpassed on the broad gauge. And we concur in opinion with many of the ablest engineers, who have stated, that the engines of both gauges have nearly obtained the speed and power which it would be justifiable to employ in reference to the present strength of the rails and the firmness of the earthworks. We remark in the next place, that the diameter of the driving wheels of the broad gauge engines is greater than that of the driving wheels of the narrow gauge engines; and although in many of the narrow gauge engines the use of the external cylinder has enabled the manufacturers to bring the boilers nearer to the driving wheel axles, and has thus permitted an increase of the diameter of the wheel, still it is always in the power of the constructors of broad gauge engines to make a corresponding change, and thus to maintain the superiority: for the larger diameter of the wheel is unquestionably favorable to high speed, both because the steam is used to greater advantage, and because the alternating shocks upon the machinery are less rapid. It is, however, extremely difficult to say at what speeds this advantage becomes appreciable. We think it likely, that as far as the speed of 40 miles an hour, there is no great difference between the two, but that for the speeds of 50 or 60

miles an hour, the difference may be worthy of notice. It becomes important, then, to inquire what may be the greatest speed that will probably be desired or maintained on railways for ordinary purposes.

It is certain that the wishes of the public will be limited only by considerations of economy and safety. The greater the speed the greater will be the cost, and it appears to be the opinion of many of the officers of railways that it would be difficult to maintain with safety the present express speeds upon the great trunk railways.

Impediments to maintaining the present express speed.—The chief of these are—1st. The difficulty of arranging the trains, where the traffic is frequent, so that the fast trains shall be entirely protected from the chance of interfering with or coming into collision with the slower trains, or those that stop at numerous stations. 2nd. The difficulty of seeing signals, especially in foggy weather, in time to enable the engine driver to stop the fast trains. We feel it a duty to observe here, that the public are mainly indebted for the present rate of speed, and the increased accommodation of the railway carriages, to the genius of Mr. Brunel, and the liberality of the Great Western railway company. As regards the applicability of the atmospheric principle of traction, or of any other principle differing from the locomotive, we see no difference between the two gauges.

4. *Comparative Economy.*—This next demands our attention. Under this head we have to consider the cost of construction, the purchase of the plant, which consists of engines, of carriages, and of other carrying stock; and lastly, the cost of working. There can be no question that in the *first construction* of a railway, the narrower the gauge, the smaller will be the cost of the works. This applies to tunnels, bridges, viaducts, embankments, cuttings, sheds, workshops, turn-tables, transverse sleepers and ballast, and the purchase of land; but it does not affect the rails, fences, drains and station-houses. The exact difference, however, must depend, in a great degree, upon local circumstances, and no opinion can be given of the precise ratio of difference without going into a very minute calculation of each line on which the two systems are to be compared: for instance, in a line free from tunnels or viaducts, and in a flat country, where there are neither cuttings nor embankments, the difference would be limited very nearly to the quantity of land to be purchased (the severance and damage being about equal in both cases,) the amount of ballasting, and some increase in the cost of the sleepers; whereas, in a very undulating country the difference would be more considerable. As to the cost of the *maintenance of way*, supposing the construction to be the same, that of the broad gauge must be rather the greater of the two.

In respect to the *cost of the engines and carrying stock*, we have to observe that they are generally more expensive on the broad than on the narrow gauge. But, on the other hand, it is asserted by the advocates of the

broad gauge system, that as the engines will draw greater loads, as the carriages will accommodate a greater number of passengers, and as the wagons are capable of conveying a larger amount of merchandize, the work can be and is done at a less charge per ton, and that a compensation is thus obtained for the increased outlay. How far this is found to be practically the case is the next subject for inquiry. We were very desirous, if it had been found possible, thoroughly to investigate this part of the subject by means of the official data called for by us, and furnished by some of the principal companies, containing a statement of their working expenses; but we find the circumstances so different, that very little satisfactory information can be thus obtained, that has strictly a reference to the economy of the two gauges. There are, of course, various matters that have an influence on the actual cost of locomotive power and general traffic charges, that are in no way connected with the breadth of gauge; such as the nature of the curves and gradients; the price of coke; the general nature of the traffic, the mode of working that traffic as adopted by different companies, the employment of engines of greater or less power, that increased accommodation to the public which involves an extra expense for return carriages, etc., etc.

The London and Birmingham, and the Great Western Railway, as metropolitan lines of great traffic and of considerable length, would at first sight appear to furnish the best means of comparison, and there is, in fact, no difficulty in comparing the actual expenses; but these lines differ essentially in the character of their gradients, and in the amount of traffic, estimated at per mile, and above all they differ in the character of the engines they employ. The London and Birmingham company have, from the commencement, persevered in the use of light four-wheeled engines, while the Great Western, availing themselves of the facilities their gauge affords have adopted large and powerful engines, which are worked at nearly the same cost per mile as the former; and if such engines as those on the London and Birmingham line were essential to the narrow gauge, the question as to the economy of working might be at once decided in favor of the broad gauge; but this is by no means the case; several narrow gauge lines employ engines of great power, and work, in consequence, much more cheaply than the London and Birmingham; therefore the comparison between the working expenses of this line and of the Great Western, can only be considered as a test of the principle of working with light and with heavy engines, and not as furnishing a test of the working economy of the two gauges.

(Concluded on page 236.)

Providence and Worcester Railroad.—The work on this road has been commenced.—Ground was first broken on the 23d of March, in north Providence. The whole road is to be completed on the 1st of April, 1847.—*Providence Transcript.*

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

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Broad and Narrow Gauges.

We have recently devoted much space to this question, as we deem it one of great importance in this country, as well as in England. The experiments made on the different lines, a part of which we have published, do not, in our opinion, show the capacity of either gauge. They certainly do not settle the question. We now give the report of the commissioners at length, which, together with the report made by Mr. Edwin F. Johnson, in 1842, and published in our two last numbers, places the subject fairly before our readers, where we intended to place it for discussion by the profession, without expressing an opinion either way; but as, during a short absence, an article was received from a friend—in whose opinions we have great confidence, and to whom we have been often indebted for able articles on various subjects—and published editorially expressing a decided opinion in favor of the broad gauge, especially on the New York and Erie road, we feel called upon to say that if the question was an open one—that is, if the railroads of this country were now all to be rebuilt and stocked with new machinery, we should be decidedly in favor of a wider track than that now in general use—say 5 feet 6 in.—or 6 feet—but, as that is not, and can never be, the case, we doubt exceedingly the policy and propriety of running a long main trunk line through the heart of the country, between which and the numerous other lines now made and making, there can be no connection—no interchange, under any circumstances, of machinery and cars.

This is an important question, and one upon which there may be an honest difference of opinion, a more favorable period for its full consideration can never occur; and we shall be highly gratified at all times to publish the views of gentlemen of the profession, or of experience in such matters, on both sides. Yet we must again say that we deem "uniformity in the width of track" so essential to the entire success of the system, that we should consider a large outlay of capital judiciously invested in effecting that object.

Troy and Greenbush Railroad.

The following statement shows the number of passengers carried over the Troy and Greenbush railroad, in the months of January, February and March:

January.....	10,729
February.....	9,581
March.....	12,908

Total.....33,215

The cars on this road do not run on Sundays.

Richmond and Ohio Railroad.

We have received a copy of the charter recently granted by the Virginia legislature, for a railroad from Richmond to the Ohio river. On looking it through, we find it, as it should be, an exceedingly liberal one. It authorizes the laying out of a railroad from Richmond, on the south side of James river, to some point on the Ohio river, at or below the mouth of the great Kanawha river. The line from Richmond to Lynchburgh is not to pass along the valley of James river—though it may cross to the north side if deemed necessary.

The amount of capital authorized is twelve millions of dollars; of which, not exceeding, two millions may be invested in lands, manufacturing and mining operations, when the road shall have been completed from Lynchburgh to the Ohio.—There is another important feature in the charter, viz: that the stock is not to be taxed, nor the dividends, until the income exceeds six per cent., which will be a strong inducement to capitalists to invest in a work which must eventually become a great thoroughfare for business and travel; and which will do more towards developing the resources of western Virginia than any other measure ever adopted by the people of Virginia.

The route, we perceive is entirely undefined, as well as the western terminus, except that it must be "at or below the mouth of Great Kanawha river, by the most eligible route." This is right, as many companies have learned in having their route, or important points, fixed by legislation—thus, not only throwing a burthen upon the company in the construction, but also upon the business of the line for all time, or until a change of location is made. Locating a railroad or a turnpike, or even a common road, over mountains or unnecessary elevations, to serve some personal or local interest, is a system of taxation upon the business of a community never yet properly estimated; and we hope a more rational system—that of allowing the instruments to decide the location—will prevail in this and, indeed, in all other important cases.

We shall probably have more to say in relation to this road soon, and close these remarks by giving the following extracts from sections 5, 6 and 9 of the charter.

Section 5 says, that—

"It shall and may be lawful for the said company from time to time, to appropriate and expend such portion or portions of its capital stock as may be deemed expedient, not exceeding at any time, one-third of the amount actually paid in, and not exceeding, in the aggregate, the sum of two millions of dollars, in the purchase of property, other than such as may be necessary for the construction and preservation of said road, for the general purpose of buying, settling and improving unsettled and waste lands west of the Blue ridge in this state, and for the establishment and carrying on of manufactories of iron, wool, cotton, and other articles, and for the purpose of mining for coal, iron and lead, but the said company shall not exercise any banking privilege under penalty of forfeiting its charter."

Section 6 says:

"The said company shall have the power of constructing such lateral railroads or branches from the main line of the said road, not exceeding in length in any one instance 20 miles."

And section 9 says:

"The capital stock of said company shall be exempt from taxation, nor shall any tax be imposed upon the dividends of the said company, arising from the income of the said railroad, unless the net income of the said road shall exceed 6 per cent. per annum, in which case the dividends arising from the profits of the company may be subject to the same taxation as shall be, at the time, imposed on the dividends of other companies."

Which we deem exceedingly favorable.

The bill for the sale of the Central Michigan railroad, has become a law.

"This bill," says the Free Press, "having received the signature of the governor, is now, so far as the state is concerned, the law of the land. That the company will accept its provisions we entertain not a doubt. As soon as we can procure a copy, which will be on to-morrow or the day after, we will lay it before our readers."

Of the precise features of this law we are not informed, but hope it is a liberal one, that a road of the very best character may be made over the route at the earliest possible period. We shall be gratified to learn that those gentlemen who have been professionally employed on the work, and who have persevered against many and serious obstacles, are to be retained and furnished with the necessary means to complete the work. They have not faltered during the dark days, and it is only just that they should be enabled to participate in the sunshine of its prosperity.

Connecticut River and Champlain Railroad.

The following extract from a letter dated "Bellows Falls, Vt., March 26," indicates greater progress in the affairs of this line than we were aware of. It is, however, only in accordance with our anticipations and views heretofore expressed in the Journal, that this line would be constructed. This connection has always appeared to us as the natural one between the Fitchburg road and Western Vermont, and the most profitable one for the Fitchburg and the Cheshire roads—securing, as it will, a portion of the business of Western Vermont, in addition to their full share of that of the valley of the Connecticut river; while the Central Vermont, and the Lebanon and Concord (New Hampshire) roads, will unite as natural almost as the Connecticut river with Long Island sound; and with such an arrangement, the two lines would have ample business, even though starting from, and terminating at, the same point. They would also be intersected and connected by a railroad up the valley of the Connecticut, at least as far as the mouth of the Passumpsic—and, we doubt not, quite to the Canada line—by which, travel and trade designed for that region, or the city of New York, will take that course, and that designed for the great manufacturing region of the Merrimack, will find its way in that direction by the shortest course.

We cannot divest ourselves of the opinion that there is ample business for both lines—yes, to give them rich returns—and that each will benefit the other by exciting a healthy competition, and at the same time give new life and energy to the people of Vermont; and both, therefore, should, and will, be constructed at the earliest possible period.

"We are now engaged in locating the Champlain and Connecticut river railroad (Rutland route). It is the intention to have the work ready for an early letting, at which time due notice will be given through the columns of your journal. So far as our location has progressed, the work will be quite as favorable as has been previously represented, and it is confidently believed that the 'devious windings and rocky ramparts' of this road will present as few obstacles to the cheap construction of a road, as that of any other route through the Green Mountain state. The present condition of our subscription places the success of this great enterprise beyond a doubt. As soon as the point of connection can be agreed upon with the Cheshire road, the work, from the Connecticut river to Rutland, will be placed under contract; but we have no idea of connecting with the Cheshire road eight or ten miles below its northerly terminus."

The following statement in relation to the different routes, is taken from a map got up to show their relative positions, and we suppose it to be correct,

though we do not vouch for it. We give it for the purpose of future reference.

RUTLAND ROUTE.

Burlington via Rutland to Bellows Falls. 116½
Bellows Falls via Keene and Fitchburg railroad to Boston. 115½

RUTLAND ROUTE.

Burlington via Rutland to Bellows Falls. 116½
Charlestown via Marlow, East Wilton, and Nashua and Lowell railroads to Boston. 102

CENTRAL ROUTE.

Burlington via Montpelier, mouth of White River, Windsor, Bellows Falls, Keene and Fitchburg railroads to Boston.

	Highest grade per mile.	Miles.
Burlington to mouth of White River.	50	102½
White River to Charleston.	—	30½
Charleston to Bellows Falls.	—	9
Bellows Falls to Keene.	68	22½
Keene to State line.	58	22½
State line to Fitchburg.	—	21
Fitchburg to Boston by railroad.	40	50
		257½

CENTRAL ROUTE.

Burlington via Montpelier, Lebanon, N. H., and Concord, Nashua and Lowell railroad to Boston.

	Highest grade per mile.	Miles.
Burlington to mouth of White River.	50	102½
Lebanon to Concord, N. H.	52	63
Concord to Boston by railroad.	16	74
		239½

RECAPITULATION.

	Miles.
Rutland route from Burlington by Marlow and Nashua and Lowell railroads to Boston, Rutland route from Burlington by Keene, and Fitchburg railroad to Boston.	218½
Central route from Burlington by Concord, N. H., to Boston.	232½
Central route from Burlington by Windsor, Bellows Falls, Keene and Fitchburg to Boston.	239½
	257½

Boston and New York Travel.

We perceive that the competition for the travel between New York and Boston, has commenced. There are now four distinct daily lines, viz: by the New Haven steamboats, and Hartford, Springfield and Western railroads; by steamboat to Stonington, and the Stonington and Providence railroads; by the Long Island and the Norwich and Worcester railroads; and by steamboat to Providence direct, and then by the Providence railroad. The fare by the Long Island route is put at \$3. We have not yet learned the rates by the other lines.

We give the following details in relation to each line, showing their present arrangements:

VIA STONINGTON AND PROVIDENCE.—REGULAR MAIL LINE.

By the fast and splendid steamers Oregon and Knickerbocker.

The steamer Oregon, commanded by Capt. A. P. St. John, and Knickerbocker, commanded by Capt. S. Thayer, will run throughout the season, from the first day of April, in connection with the Stonington and Providence and Boston and Providence railroads, leaving New York daily (Sundays excepted) from pier No. 3 North river, at 5 o'clock P. M., and Stonington at 9 o'clock P. M. or upon the arrival of the mail train from Boston.

These steamers are unsurpassed for speed, splendor and comfort, having each of them 60 large commodious private state-rooms, and berths for 500 persons, besides large private rooms for families and parties.

The steamers are officered by the most experienced men, and will shorten the passage between New York and Boston from 1½ to 2 hours, thereby arriving in ample time for all the lines running from New York, north, south and west, and all the lines from Boston, north and east.

The Oregon will leave New York—Tuesday, Thursday and Saturday.

Leave Stonington—Monday, Wednesday and Friday.

The Knickerbocker will leave New York—Monday, Wednesday and Friday.

Leave Stonington—Tuesday, Thursday and Saturday.

For passage or freight, inquire on board the boats at pier No. 3 North river.

VIA NEWPORT AND PROVIDENCE.—REGULAR MAIL LINE.

By steamers and railroad. Reduced fare and freight.

The daily Mail line, now re-established between New York and Boston, connecting with the Boston and Providence railroad, will run between New York and Providence direct every day, except Sunday. The steamers of the Navigation company consist of—

The Massachusetts, of 1000 tons.
Mohegan, " 400 "
Narragansett, " 600 "
Rhode Island, " 1000 "

All well known and popular first class vessels, built expressly for Long Island Sound, and by their construction, great strength, and powerful engines, are specially adapted to its navigation. They are all furnished with patent life-boats, and in addition to the extensive cabin accommodations, have pleasant private state-rooms.

Passengers will leave each place every afternoon, except Sunday. From Boston in the Mail train and take the steamer at 6 o'clock at the India Point depot, in Providence—arriving at New York early the following morning. Then from New York from the established pier, No. 1 Battery place, at 5 o'clock—reaching Providence also early the following morning, and proceeding without delay in the Mail train for Boston, after a comfortable night's rest on board the steamers, without the annoyance either of ferry or of being disturbed at midnight to change from boats to cars, so much complained of, especially by ladies and families travelling between New York and Boston.

The boats will land at Newport, going and returning.

For passage, berths, state-rooms or freight, application may be made on board. In Boston, to Harnden & Co., and at the depot of the Boston and Providence railroad. In Providence, to the agent, at the depot at India Point; and in New York, of the agents, on the wharf, and of Harnden & Co., No. 6 Wall street.

VIA LONG ISLAND, NORWICH AND WORCESTER, AND WORCESTER RAILROAD.

EXPRESS TRAIN TO BOSTON, OVER THE L. I. RAILWAY.

An express train, for passengers only, will leave New York daily, commencing on April 6, at 7 o'clock A. M., passing over the Long Island railway to Greenport, thence in the steamer New Haven to Allen's Point, thence by railway through Worcester to Boston. There will be no stopping except for wood and water, and the trip will be made in ten hours. Fare \$3.

Returning, the cars leave Boston at 8½ A. M.

VIA NEW HAVEN, HARTFORD, SPRINGFIELD AND WORCESTER RAILROADS.

Daily, (Sundays excepted) from East river steamboat place, Peck slip.

The steamboat Hero, Capt. R. Peck, will leave every morning at half-past 6 o'clock for New Haven. Returning, leave New Haven at half-past 12 o'clock, noon.

Railroad cars will be in readiness to convey passengers to Hartford and Springfield, etc.

The steamer Traveller, Capt. J. Stone, will leave every Tuesday and Thursday at 4 o'clock, and Saturday at 3 o'clock. Returning, a boat will leave New Haven every evening at 11 o'clock.

For Hartford, direct—The steamboat Globe, Captain Roath, will leave every Monday, Wed-

nesday and Friday afternoon at 4 o'clock. Freight taken.

The steamer Kosciusko, Captain Lefever, every Tuesday, Thursday and Saturday, at 4 o'clock.—Freight taken.

For further information, inquire of Geo. W. Corlies, 283 Pearl street.

These are strong indications of a warm competition for the rapidly increasing travel between these important points; and it will probably never be less than in 1846, but is sure to increase every successive year.

Coal Trade for 1846.

We have not given the weekly returns from the coal region since the 1st January, but shall endeavor hereafter to give them regularly, that our readers may see how nearly the estimates of the railroad company are met.

"The quantity sent by railroad is gradually increasing, and reaches 21,561 04 tons this week.—The estimates for the months of January, February and March were 40, 50 and 70,000 tons—making 160,000 tons. In January and February, the estimates were exceeded a little, but the heavy snow storms in March and the late freshet injuring the various lateral roads, caused the company to fall short about 8,000 tons of the estimate in March.—The estimate for April is 90,000 tons. Our impression is, that it will be exceeded from 5 to 10,000 tons."

"The weather has been very favorable for the improvements making on the Schuylkill Navigation, and the work, particularly on the lower end, is progressing very rapidly. A great scarcity of hands has retarded it a little at the upper end, notwithstanding the exertions of Mr. E. Morris, the engineer, who has been indefatigable in pushing it forward."

"The prices of coal on board at Philadelphia, are firm, and the demand is quite active. Sales of white ash lump are making at \$3 62½ to 3 75; broken and egg at \$3 87½ to 3 90; red ash, broken and egg, \$4 to 4 12½ per ton, cash."

"Coal Freight.—Vessels are plenty. We quote— to Boston, \$1 75 to 1 87½; New Bedford, \$1 55 to 1 60; Providence and Fall River, \$1 50 to 1 60; and to New York, \$1 12½ to 1 25 per ton."

"Sent to market for the week ending April 2d, 21,561 04. Total, 163,778 10."

Rates of Toll and Transportation.

	From Mt. Carbon.	S. Haven.	P. Clinton.
To Richmond.	\$1 40	\$1 30	\$1 10
To Philadelphia.	1 50	1 40	1 25

Reading Railroad and the Coal Trade.

We give the following statement from the Miners' Journal, (Pottsville, Pa.,) of 28th March, to show the influences of the railroad upon the coal trade; and to enable those who use fuel, within its reach, to see how much it has benefited them. We do not hesitate to say that its entire cost will be saved once in five years, in the expense of fuel alone, within the circle of its influences.

In 1840 the duty on foreign coal was about 30 per cent. and in 1842 it was only 20 per cent.—the market was overstocked, and the whole trade was reduced to a state of bankruptcy. It was at this period that petitions were presented to congress by those engaged in the trade, asking for an increased duty on coal, in which the petitioners pledged themselves that if a protective duty was placed on foreign coal, and the price was not reduced in the principal Atlantic markets after a period of five years from the imposition of the duty they would not ask for its continuance. Congress imposed a specific duty of \$1 75 per ton in 1842, and to show that the result has been as they anticipated, we have procured from the sale books of dealers a table prices, which we give below, showing the ave-

rage prices of coal in the three largest Atlantic cities during the past seven years, in order that it may be seen what the effect of the whig tariff of 1842 has been on the prices of coal. We give the wholesale prices at Philadelphia, and the retail prices at New York and Boston:

	Philadelphia. Average.	New York. Average.	Boston.
1839 per ton	\$5 50	\$8 00	\$9 a 10
1840 "	5 50	8 00	9 a 11
1841 "	5 00	7 75	8 a 9
1842 "	4 25	6 50	6 a 6 50
1843 "	3 50	5 75	6 a 6 50
1844 "	3 37½	5 50	6 a 6 50
1845 "	3 50	6 00	6 a 7

The above table shows that so far from the tariff having increased the price of coal, it has fallen during seven years in each of the cities instanced. In Philadelphia the reduction in price has been about \$2 per ton, in New York also about \$2, and in Boston from \$3 to \$4, making a saving to the consumers abroad of nearly four millions of dollars during the last year, and about ten millions of dollars during the last three years since the tariff has been carried into effect, over the prices of 1840, when we had a duty of only thirty per cent., the same rate as proposed to be charged in Walker's anti-American bill.

From 1838 to 1842, employment was very uncertain to the miner and laborer, and when employed, the wages he received was scarcely sufficient to procure subsistence, a large portion of which was paid in traffic.—During the last two years they have all had constant employment, and during the last year at an advance of at least 20 per cent. over the wages of 1839.

These are facts worthy of consideration.—They speak for themselves, and are worth more than the mere theories of all the free trade men in christendom."

Opening of the Canals.

At a meeting of the board of canal commissioners, held at their office in the new State hall, in the city of Albany, on the 25th day of March, 1846: present, Messrs. Earll, Clark, Bissell, and Jones.

Resolved, That the state canals be opened for navigation on the 16th day of April next.

By order, JONAS EARLL, JR. Pres't.
NATHANIEL JONES, Sec'y.

It will be perceived by the above official notification that the several canals of this state will be opened for navigation in a little less than three weeks.

The following table shows the dates at which the canals have been opened for several years past. It will be seen the period fixed upon for this season, is somewhat earlier than usual.

1846	April 16,
1845	April 15,
1844	April 18,
1843	May 1,
1842	April 20,
1841	" 24,
1840	" 20,
1839	" 20.

It is anticipated that the spring business will open with much activity. A large amount of produce remains at the west ready for transportation.

An unusual number of new canal boats have been built. The eastern cities are more bare than usual of wheat and flour. We look, therefore, to see great activity along the "big ditch" soon after the middle of next month.

Rates of toll on the New York and Ohio Canals Compared.

There is this marked difference in the policy of the Ohio board of public works, and that of the canal board of this state. The former discriminates in favor of both revenue and trade, while the latter discriminates against both the treasury of the state and the commerce of its canals, as a few plain figures will demonstrate.

The canal board of this state put down the toll on wool (which is a very valuable article per pound) to 4 mills per 100 lbs per mile. This would bear a toll, on revenue principles, if 5 or 6 mills; or one 25 or 50 per cent. higher than what the board has adopted.

To prevent the receipt of revenue from the transportation of fat cattle, fat sheep and swine, through the canals of this state, and especially those grown in western New York which the farmers would gladly send to tide water in the best possible condition, the canal board has imposed a prohibitory toll on these animals equal to that on wool. Reduce the toll on fat cattle, hogs, etc., one half, and the revenue from this source will be increased ten fold; while the farmers of the state can enrich their grain lands by keeping and fattening more stock, and making vastly more manure.

In Ohio, the board of public works pursue a different policy. The object there is to gain revenue by encouraging agriculture, trade and inland transportation.

The man that sends 1,000 lbs. of cattle 100 miles, pays 90 cents toll; if 100 miles further, he is charged 60 cents; and if still another 100 miles, he pays but 40 cents toll. The same principle is applied to corn, beef, pork, lard, tobacco, wheat, flour, cotton, and nearly all other articles. Thus the toll on 1,000 lbs. of corn 100 miles is 50 cents, while the toll on 300 miles is only \$1 11, instead of \$1 53½, as it would be on the system of our canal board. Cotton pays no more toll on going all the way from the Ohio river to Cleveland or Toledo, than is charged for the first 100 miles, whether it go on the Miami or Ohio canal.

The object of the board, in Ohio, is to discriminate in favor of business and revenue; for without business, it is obvious that no toll can be collected.

One thousand pounds of oats grown in western New York, are usually worth about \$8. To prevent these being sent to tide water, through the Erie canal, the canal board charge just as high toll on 1,000 lbs. of oats, as it does on 1,000 lbs. of butter, worth from \$100 to \$130. To prevent the farmers from using the Erie canal for the transportation of plaster [gypsum] and corn, the toll on these articles for 1846, is six times as high as it is on lead.

These facts, which might be extended to great length, are sufficient to indicate the in-

justice done to the farmers of this state, and to its legitimate source of revenue by a canal hating board of state officers.

This is a subject well worthy of attention, and should be well considered by the New York canal board, and by the people.—[Ed. R. R. J.]

The Iron Business.

The present indications in relation to the iron business are exceedingly favorable. The following article from the Philadelphia Ledger shadows forth its rapid progress. Give us five years of present demand and prospective increase, and the supply will be abundant from our own mines, and, we doubt not for railroad iron of a quality very far superior to most of that heretofore imported.

Messrs. Haywood and Snyder, the celebrated machinists of Pottsville, says the Ledger, are now engaged in putting up a rolling mill for our enterprising friends Messrs. Reeves and Whitaker, of Phoenixville on the Schuylkill. It is to be of the same size and construction as that extensive and beautiful mill put up at Danville by the same machinists, for Messrs. Murdock, Leavitt and co. which is the largest in the United States. It is designed for making railroad iron; Messrs. R. and W. having already a very large rolling mill at the same place for making assorted bar iron.

At the same workshop they are making the engines, blowing machine, etc., for two iron blast furnaces, to be erected on the banks of the Lehigh, for Messrs. Bevan and Humphreys of this city. A very large rolling mill for making railroad iron is just going operation in Providence, R. I. One at Trenton, N. J., has been furnished lately and one at Norristown, Pa. The most extensive preparations are being made in every direction to meet the great increase in the consumption of iron! It being clear that Great Britain has enough to do for a long time to supply the home demand.

It is evident that the fortunate spur given to this department of our industry, will result in making us very shortly independent of England for our supply of iron. The additional demand for our Pennsylvania coal for the manufacture of iron, beyond the regular annual increase of 25 per cent. is, we apprehend, not fully appreciated. When we consider that the Montour iron company at Danville requires 10,000 tons of coal per annum for that single establishment, we get the germ of an idea that may lead us to something like a conception of the immense consumption of fuel which must be promoted by the general extension of the iron manufacture that is now taking place.

Bill for Sale of the Southern Railroad.

—A bill was introduced yesterday in the house of representatives, for the sale of the Southern railroad and the incorporation of the "Michigan Southern railroad company."

The bill provides that within ten days after the passage of the act, the company shall have the right to contract with and purchase from the state the Southern road and all its appurtenances, shops, buildings, etc., including the Tecumseh branch, for the sum of \$50,000, of which sum \$10,000 is to be paid

into the treasury within ten days, and the further sum of \$40,000 within three months after the passage of the act. The company have nine years to pay the remaining sum of \$450,000, in equal semi-annual instalments of \$25,000 each, together with interest thereon at the rate of six per cent. per annum, to be paid semi-annually, and computed from the time when the said sum of \$40,000 shall have been paid.

Iron for the Reading Railroad.—We understand, says the *Miners' Journal*, that it is the intention to lay all the new branches of the Reading railroad with iron of American manufacture. We have recently observed a large number of wagons passing through our streets, laden with iron to be used for this purpose. The iron is manufactured at the Danville rolling mill, and is hauled across the mountains in wagons—a tedious and expensive method of transportation.

This is as it should be. Let every railroad company in the country seek, and obtain it possible, American railroad iron, and thus induce the investment of ample capital in the business to supply the demand. Their own interest will be largely promoted by it, as the increased manufacture of iron will make business for the railroads.

The following article from the same paper indicates that the people of Pennsylvania do not intend always to haul iron "across the mountains in wagons"—which we are right well pleased to see.

Philadelphia, Sunbury, and Erie Railroad.—A large meeting of the friends of this road was held last week, at the Philadelphia Exchange. The importance of securing the western trade is felt by the merchants of the eastern cities, and Philadelphia is beginning to see the necessity of taking some prompt and energetic measures that will enable her to compete with the rival cities. The only method by which she can prevent the loss of the greater part of the trade which she now possesses and compete successfully with Philadelphia and Baltimore, is by constructing a railroad which will afford easy and constant communication with the west, and the more the Northern route, through Pottsville and Sunbury to Pittsburg and Erie, is considered the greatest favor the project appears to find.

The Northern route possesses several advantages over any other proposed. The elevation to be overcome, is from two to three thousand feet less than it would be upon either the Central or Southern routes. The road would pass through a greater portion of the rich mineral region of Pennsylvania, and would furnish facilities for transportation which would enable us to supply the whole of western New York, with coal and iron, the consumption of which is constantly increasing in that region of country. The salt works alone consume a great deal of fuel, and the quantity used is constantly becoming greater.

The citizens of Buffalo have already held a meeting favorable to constructing a road from that city to connect with the Williamsport and Elmira railroad. This would cause travellers from the west going south to pass directly through to Philadelphia, instead of going on to New York, as it would be a much

shorter route. It would also cause the Philadelphia, Sunbury and Erie railroad to tap the New York and Erie road, and divert the trade from New York to Philadelphia. It will readily be seen that this must cause a large increase in the western trade of the latter city.

The Sandusky and Mansfield Railroad, [Ohio] is completed and in operation. It is 56 miles long, and takes passengers at \$1 25, and by express train at \$1 75. Great credit is due our Sandusky neighbors for the energy with which they are taking good care of their own interests in their own way.—*Cleveland Plaindealer*.

Report of the Gauge Commissioners.

(Concluded from page 232.)

It is a common practice with different railway companies, in their half-yearly reports to their proprietors, to state the percentage of their various expenses, under a few distinct heads, as compared with their revenue; and from these it appears that on the Great Western, the locomotive charges during a period of three years, have varied between 8.8 and 11.1, averaging 9.7 per cent. on their income, and on the London and Birmingham they have varied, within the same period, between 7.9 and 10.36, averaging about 8.6 per cent. on their income: and therefore on a superficial view of the question, the London and Birmingham would appear to have worked their line at a cheaper rate; but valid objections have been made to this comparison on the part of the Great Western; because it is obvious from the several returns we have received, that the London and Birmingham company has far the more abundant traffic per mile, and ought therefore to be expected to perform its work at a less per centage on its income. It has been stated by Mr. Gooch, that as locomotive superintendent on the Great Western, he is called upon to supply a certain amount of locomotive power, and that the cost of such power is almost entirely irrespective of the load or number of passengers it is made to draw; but that these numbers are of great importance in comparing the locomotive expenses with the revenue.

In page 27 of the appendix of this report an abstract and comparative table are given, founded on returns furnished by the Great Western and London and Birmingham railway companies, showing that the revenue derived from the passengers' trains is 64 per cent. greater per mile, worked on the latter than on the former line. It must therefore be obvious, that as a test of economy for working, we cannot adopt the principle of a per centage on the revenue, neither will the cost per mile run, give a more just comparison as to the economy of the two systems, because it is a well-known fact, that the London and Birmingham company have been conveying their traffic with engines of inadequate power, and that great economy would result to them by the adoption of larger engines. Other difficulties also occur in the comparison of these expenses on different lines, in consequence of the difference in the form of the accounts, and of the circumstance of one company adopting the principle of

having a reserve fund for renewals, and other companies having no such fund.

Working expenses of Great Western as a narrow gauge line.—We are therefore of opinion, that the most satisfactory comparison that can be made of the economy of working the two gauges, will be by applying to first principles, endeavoring merely to determine what the working expenses of the Great Western line, with their present amount of traffic, would have been, provided it had been made a narrow gauge line, and worked with such engines as those employed on the South Western and some other narrow gauge lines. The average weight of a passenger train on the Great Western railway (independent of the engine and tender, which weigh 22 tons) appears, by the returns sent to us, to be 67 tons; and the average number of passengers per train for the half-year ending the 30th of June 1845 is only 47.2, whilst the weight, including the luggage, may be estimated at about five tons. Mr. Gooch estimates each carriage and its passengers on the broad gauge to weigh about 9 1-2 tons, and therefore there would be seven carriages to make up the 67 tons above specified. The most commodious carriages on the narrow gauge lines, such as those on the South Western, weigh less than five tons: seven such carriages would therefore weigh about 34 tons, and being capable of containing 126 first class passengers, weighing, with their luggage, 12 1-2 tons, the total load would be only 46 1-2 tons. Now we find, that even with a traffic as large as that of the London and Birmingham railway, the average per train would only be 84.9 passengers, weighing about 8 tons; so that, under the supposition of a traffic of this extent, the load of the seven narrow gauge carriages so occupied would only be 42 tons. But Mr. Gooch estimates, from his own experiments, the relative powers of traction of the broad gauge engines, and of the narrow gauge engines of the South Western railway when working at the same speed, as 2,067 to 1,398, or as 67, the load of the broad gauge in tons, to 45 tons, which would be the corresponding load for the narrow gauge; so that the narrow gauge engine has more power over the 42 tons it would have to draw, than the broad gauge has over its average load of 67 tons, both exclusive of the weight of the engine and tender—the narrow gauge carriage in this supposition being supposed to contain 84.9 passengers, and the broad gauge only 47.2. If, however, it were necessary, 224 first-class passengers, might be placed in the seven broad gauge carriages, and, as it has before been said, 126 in the seven narrow gauge carriages; but it appears likely that this extent of accommodation would only be called for on rare occasions, that the question of providing for it, except by assistant power, cannot be taken into consideration in the present comparison.

It is obvious from the foregoing statement, that the narrow gauge engine of the class we have been considering has more power over the seven narrow gauge carriages, and a load of 126 passengers, than the broad gauge en-

gine has over the seven broad gauge carriages, and the load of the same number of passengers; and that therefore, if the Great Western had been a narrow instead a broad gauge line, the South Western engines would have the same command over the existing passenger traffic of the Great Western as its own engines now have with the present construction of that railway. We must remark, however, that this calculation is for trains consisting exclusively of passengers, and their personal luggage. In the Great Western average trains of 67 tons there is an allowance of about 16 tons for passengers and luggage, including gentlemen's carriages.—Allowing the same weight of luggage on the narrow gauge line, the train would still not exceed 50 tons, which is considerably within the power of the narrow gauge engine. For it appears, by the experiments that have been recently made on the Great Western railway, the details of which are given in the appendix to the evidence, that the Great Western engine is capable of propelling 83 tons at a greater speed than the average speed of that line; and consequently, by the proportion above stated, the narrow gauge engine would be capable of propelling 55 tons at the same rate. We conclude, therefore, that the work would be performed at about the same expense for locomotive power. That there may be cases in which not only the full power of a broad gauge engine is required, but even the assistance of a second engine, is quite certain, but such trains form the exception and not the rule in railway passenger traffic, and we doubt the soundness of a principle which involves a great expense in construction, for the sake of possessing capabilities so seldom called into action.*

It is proper to observe, that the foregoing comparison would have appeared to stand more in favor of the narrow gauge, had we taken for the engine of comparison one of those engines, of whose increased capabilities some of the supporters of the narrow gauge system have informed us; but we have preferred the comparison afforded with the South Western engine, from its being the one on which Mr. Gooch, of the Great Western railway, superintended the recorded experiments—hence, our deductions are made from data furnished by the advocates of the broad gauge system, without drawing anything from the evidence on the other side; and as these deductions sufficiently demonstrate that there is no economy in the locomotive expenses for passenger trains resulting from working a line on the broad gauge system, even on such lines as those which have at the present moment the most abundant passenger traffic, any analization of the evidence offered in support of the narrow gauge system appears to us to be quite superfluous.

There is one point however, stated in Mr. Gooch's comparative table, and repeated in

* It appears that during the half-year ending the 30th June, 1845, the number of miles run by coupled and assisting engines for passenger trains on the Great Western railway amounted to 11,628, and for goods trains to 51,155. The total number of miles run by the former trains being 761,483, and of the latter 159,324.

his evidence, which appears so much at variance with the results obtained from other data, as to require explanation. Mr. Gooch has asserted that the Great Western company work their passenger trains at half the expense per ton at which the London and Birmingham company work their passenger trains. The fact is, however, that Mr. Gooch's calculations refer to the gross and not to the net loads; and, therefore, the comparison is not applicable, so far as regards the profits of these companies, and affords no proof of economy in working the passenger traffic on the Great Western system.

There can be no doubt, judging both from Mr. Brunel's evidence given to us, and from his report to the directors of the Great Western railway company, that he originally expected there would be on the Great Western railway a demand for carrying a great number of passengers at high velocities; but from his own evidence it appears that the only heavy passenger traffic upon that railway is between London and Reading, and between Bath and Bristol, being a total distance of about 50 miles out of 245.

On the remaining part of the line, the passenger traffic per train is small.

If the convenience of the public would admit of the whole of the passenger traffic of this portion of the line being conveyed daily by two or three large trains, Mr. Brunel's views would have been perfectly correct in providing such powerful means; but experience has proved that the public require passenger trains to be run many times during the day, and with this frequency of trains such numbers of passengers as Mr. Brunel has provided for cannot be expected even on railways of the largest traffic, so that practically there is a waste both of power and of means. In the case of "goods traffic," the circumstances are not the same; railway conveyance for merchandize seems only to be required a few times in each day, and the trains are generally large. The "through" wagons have for the most part a full load, and the disproportion between the gross and net weight is consequently much less than in the passenger trains; still however, it appears from the evidence of Mr. Horne, and of other persons connected with the carrying trade, that on the London and Birmingham railway it frequently happens that wagons are forwarded to a considerable distance, to "road side station," containing not more than a ton of goods; and there can be no doubt that this must happen on any long line of railway. The same also occurs in wagons coming in front branches along the trunk line, and in all such cases the heavy large wagon of the broad gauge must be disadvantageous; but although the evil is not so great with goods wagons of the broad gauge as with their passenger carriages, still the loss by dead weight is greater with these than with smaller wagons, and we do not perceive any advantages in the broad gauge to counterbalance it; for where speed is not an object, and this is the case with goods trains, we believe from the evidence we have received, that engines of nearly the same tractive pow-

er are to be found on many narrow gauge lines as those in use on the broad gauge.

Thus far we have considered the question with reference to the railways as they now exist, and composed in a great measure of trunk lines of considerable traffic; but the railways to be made in future will in some degree be branches or lines in districts, having traffic of less magnitude than is to be provided for in the existing railways; and hence, if for the greater trunk lines a superiority were due to the broad gauge system, that superiority would be less for lines yet to be constructed of a smaller amount of traffic; and necessarily if the preference were given to the narrow gauge for the existing lines, that system would be still more entitled to the preference for the railways of smaller traffic to which we look forward.

Experiments on the Gauges.—We must here add, that towards the close of our inquiry Mr. Brunel requested, on the part of the broad gauge companies, to institute a set of experiments to test the power of their engines; and Mr. Bidder on the part of the narrow gauge companies, undertook, in consequence of such application, to make corresponding experiments on the narrow gauge. After sanctioning these trials, and being present at the performance of them, we may observe, without entering into a minute detail of the results of the discrepancies between the returns as furnished by the two parties themselves, that we consider them as confirming the statements and results given by Mr. Gooch in his evidence, proving as they do, that the broad gauge engines possess greater capabilities for speed with equal loads, and generally speaking, of propelling greater loads with equal speed; and moreover, that the working with such engines is economical where very high speeds are required, or where the loads to be conveyed are such as to require the full power of the engine. They confirm also, the evidence given by Mr. Bidder as to the possibility of obtaining high evaporative power with long engines for the narrow gauge, but under somewhat peculiar circumstances. It appears moreover, that the evaporation thus obtained does not produce a corresponding useful effect in the tractive power of the engine; a circumstance that would probably be differently explained by Mr. Gooch and by Mr. Bidder; but as we do not refer to the power of this description of engine in the deductions we have made, it is unnecessary for us to allude further to them.

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4 P.M., Philadelphia at 10 P.M., and Baltimore at 6 A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00
 " " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to
STOCTON & FALLS, Agents.

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846. Spring Arrangement. 1846 Commencing April 1st.

Passenger trains leave daily, Sundays excepted—
 Boston 7½ p. m. and 4 p. m. for Albany.
 Albany 6½ " and 2½ " for Boston.
 Springfield 7 " and 1 " for Albany.
 Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
 Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.
 Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Boston and New York, via Springfield: Passengers leaving Boston at 4 p. m., arrive in Springfield at 8 p. m., proceed directly to Hartford and New Haven, and thence by steamers to New York, arriving at 5 o'clock a. m.

For Buffalo: the trains for Buffalo leave Albany at 7½ a. m. and 7 p. m., arriving at Buffalo at 8 a. m. and 8 p. m. next day. Returning, arrive at Albany at 4 a. m. and 4 p. m.

New York and Boston, via Albany: the trains from Boston arrive at Albany in season for the 7 o'clock boats to New York. Returning, the boats, leaving New York at 5 and 7 p. m., reach Albany at 5 a. m., in ample season for the morning trains to Boston.—Steamboats also leave Albany at 7 a. m. and 5 p. m. and stop at the usual landing places upon the river.

The trains of the Springfield, Hartford and New Haven railroad, connect at Springfield, and passengers from Albany or Boston proceed directly on to Hartford and New Haven.

Montreal: through tickets to Montreal may be obtained in Boston, by which passengers may proceed to Troy, and thence by stage via Chester, Elizabeth, etc., and in the season of navigation by canal to Whitehall, and thence by the splendid steamers of Lake Champlain to St. John, via Burlington, and thence by railroad and steamers to Montreal.

The trains of the Hudson and Berkshire railroad connect at Chatham and State Line.

The Housatonic railroad connects at State Line. The trains of the Connecticut River railroad connect at Springfield, and passengers may proceed without delay to Northampton, and thence by stage to Greenfield, Brattleboro, Bellows Falls, Hanover, Haverhill, etc.

Stages leave West Brookfield for Ware, Endfield, New Baintree and Hardwick; also leave Palmer, for Three Rivers, Belchertown, Amherst, Ware and Monson; Pittsfield for North and South Adams, Williamstown, Lebanon Springs, etc.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES, Superintendent and Engineer.
 Western Railroad Office, Springfield, April 1, 1846. } 14 ly

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,** Agents. Corner of Cedar and Greenwich Sts. 43 ly

RAILROAD IRON WANTED. Wanted, 50 tons of Light Flat Bar Railroad Iron. The advertisers would prefer second-hand iron, if not too much worn. Address Box 384 Philadelphia P. O.—Post paid. 8 4 l

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.
PETER COOPER, 17 Burling Slip.
 New York, January 23d, 1846. 1y 10

C. J. F. BINNEY, GENERAL COMMISSION MERCHANT and Agent for Coal, and also Iron Manufactures, etc.
 No. 1 CITY WHARF, Boston.
 Advances made on Consignments. Refer to Amos Binney, Boston.
 Grant & Stone, } Philadelphia.
 Brown, Earl & Erringer, }
 Weld & Seaver, Baltimore.
 December 8, 1845. 1m 50

SCRIBNER'S ENGINEERS' AND MECHANICS' Companion. For sale at this office. Price \$1-50.

LARD OIL FOR MACHINERY, ETC.—Winter pressed, cleansed from gum, and manufactured expressly for engines and machinery of all kinds, railroads, steamboats, woollen and other manufactures, and for burning in any lamp without clogging the wick. Engineers of railroads and others who have used this oil, and to whom reference can be made, give it preference over the best sperm for its durability, and not requiring to be cleaned off like that, and costing about two-thirds the price. For sale by the barrel, and samples can be sent for trial, by addressing **C. J. F. BINNEY,** Agent for the Manufacturer, Boston, Mass.

11 cop 1m

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER,
 Surviving partner of **STANCLIFFE & DRAPER.**

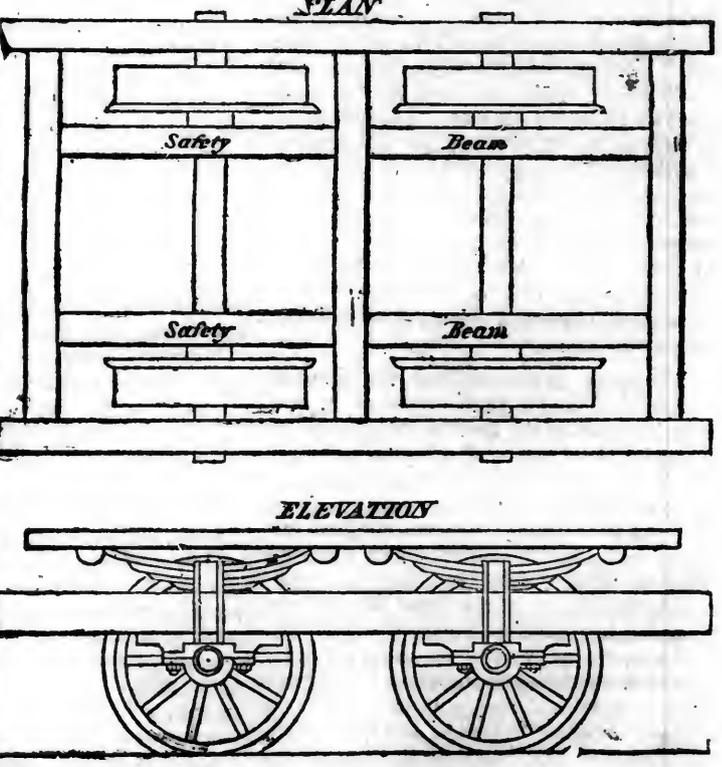


No 23 Pear street, near Third, below Walnut, Philadelphia.

KITE'S PATENT SAFETY BEAM.

MESSRS. EDITORS.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheel passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.



Wilmington, Del., Sept. 23, 1840.

The undersigned takes pleasure in attesting to the value of Mr. Joseph S. Kite's invention of the Safety Beam, Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.

In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.
JOHN FRAZER, Agent,
GEORGE CRAIG, Superintendent,
 A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 1 Hanover st., N. York.

JAMES ELLIOTT, Sup. Motive Power,
W. L. ASHMEAD, Agent.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co, Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.
Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

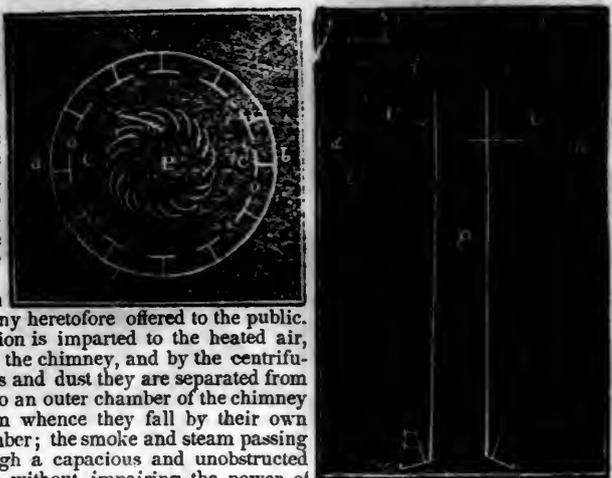
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45

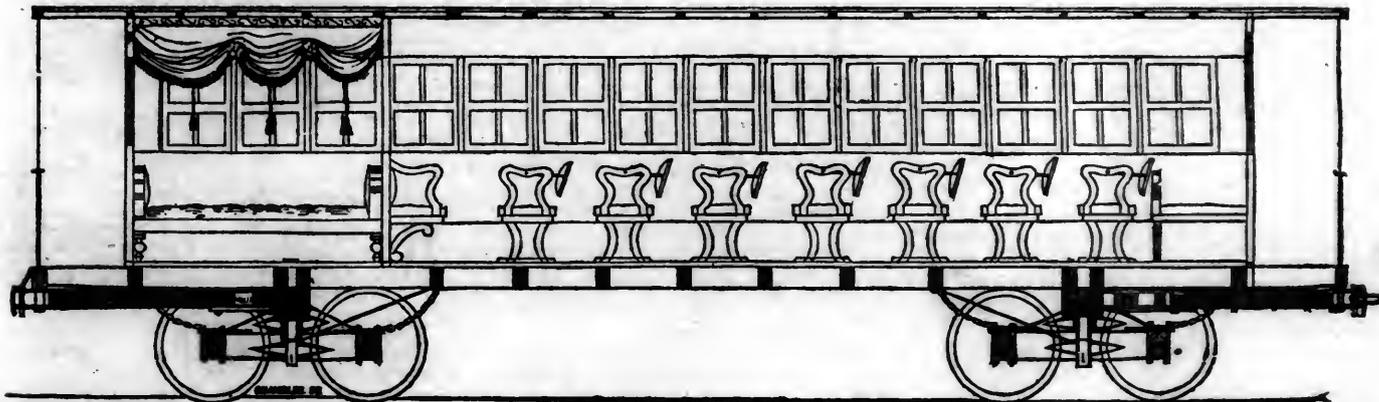


BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

The article is complete in itself, occupies but little space, is perfectly portable, and requires no brick work, not even to stand upon. It is valuable not only in the saving of time and labor, but in the economy of fuel, as it has been ascertained by accurate measurement, that the saving in that article is fully two-thirds over other methods heretofore in use. They are now for the first time introduced into New York and Boston by the subscriber, who has the exclusive right for the New England states, New York and New Jersey, and are manufactured by

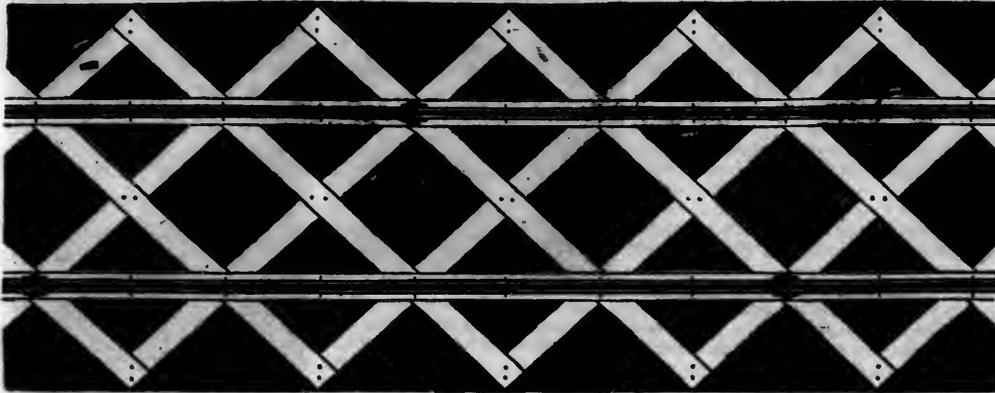
CURTIS & RANDALL, Boston; and by FORCE, GREEN & CO. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY Superstructure effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for *Two hundred dollars per mile per annum*. To insure the faithful performance of this contract, he will pledge one-fourth the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made. 1y1

W. R. CASEY, CIVIL ENGINEER, NO. 23 Chambers street, New York, will make surveys estimates of cost and reports for railways, canals, roads, docks, wharves, dams and bridges of every description. He will also act as agent for the sale of machinery, and of patent rights for improvements to public works.

LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 11f

LEXINGTON AND OHIO RAILROAD. Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 26 miles. Fare \$1.25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above. 35 1y

CYRUS ALGER & CO., South Boston Iron Company.

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/4 x 1/2 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/4 x 1/2 " Flange Iron Rails.

75 " 1 x 1/2 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/4 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, Albany Iron and Nail Works,

RAILROAD IRON.—THE MARYLAND AND NEW YORK IRON AND COAL COMPANY are now prepared to make contracts for Rails of all kinds. Address the Subscriber, at Jennon's Run, Alleghany County, Maryland. WILLIAM YOUNG,

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column "	50 00
One square "	15 00
One page per month	20 00
One column "	8 00
One square "	2 50
One page, single insertion.....	8 00
One column " "	3 00
One square " "	1 00
Professional notices per annum...	5 00

ENGINEERS and MACHINISTS.

- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- H. R. DUNHAM & Co., N. Y.
- WEST POINT FOUNDRY, N. Y.
- PHENIX FOUNDRY, N. Y.
- R. HOE & Co., N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.
- BALDWIN & WHITNEY, Philadelphia, Pa.
- THOMAS & EDMUND GEORGE, Philadelphia. (See Adv.)

LAWRENCE'S ROSENDALE HYDRATIC Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, NEW YORK.

Orders for the above will be received and promptly attended to at this office. 32 1y

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

BALTIMORE AND SUSQUEHANNA Railroad. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a.m., and arrives at 6 1/2 p.m. Arrives at York at 12 1/2 p.m., and leaves for Columbia at 1 1/4 p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62 1/2. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3 1/2 p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc. Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day.

D. C. H. BORDLEY, *Supt.*
Ticket Office, 63 North st.

31 1y

CENTRAL RAILROAD-FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods... 13 cts. per cubic ft. On brls. wet (except molasses and oil)... \$150 per barrel. On brls. dry (except lime)... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery... 40 cts. per hundred. On hhd. and pipes of liquor, not over 120 gallons... \$5 00 per hhd. On molasses and oil... \$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, 40 Gen'l. Supt. Transportation.

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES. AND WESTERN and ATLANTIC RAILROAD FROM ATLANTA to OOTHICALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot... 16 cts. " Dry goods, shoes, saddlery, drugs, etc., per 100 lbs... 95 " " Sugar, coffee, iron, hardware, etc... 65 " " Flour, bacon, mill machinery, grindstones, etc... 33 1/2 " " Molasses, per hogshead \$9 50; salt per bus. 20 " " Ploughs and cornshellers, each... 75 "

Passengers \$10 50; children under 12 years of age half price. Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON, *Ch. Eng. and Gen. Agent.*

Augusta, Oct. 21 1845. *44 1y

FLAT BAR, ENGLISH ROLLED, RAILROAD IRON, 2 1/2 x 1/4—a large part suitable to relay. For sale by C. J. F. BINNEY,

Commission Merchant, 1 City Wharf, Boston, Mass

11 1m

WESTERN AND ATLANTIC RAILROAD. The Western and Atlantic Railroad is now in operation to Martietta, and will be opened to Cartersville, in Cass county, on the 20th of October—and to Coosa Depot, (formerly known as Borough's), on the 20th of November.

The passenger train will continue, as at present to connect daily (Sundays excepted) with the train from Augusta, and the stage from Griffin.

CHAS. F. M. GARNETT, *Chief Engineer.*

43

LITTLE MIAMI RAILROAD. -- DISTANCE 65 1/2 Miles. Fare, \$1 50. From 1st November to 1st March Passenger Trains leave Cincinnati for Xenia at 11 o'clock, A.M.

Returning, leaves Xenia at 8 1/2 o'clock, A.M. Freight Trains run daily, Sundays excepted. At Xenia, Passenger Trains connect with daily lines of stages to Columbus, Wheeling, Cleveland and Sandusky city.

W. H. CLÉMENT, *Supt. and Engineer.*

1y 1

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them. It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable. Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. G. A. NICOLLS, *Reading, Pa.*

ja45

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to James P. Allaire, Peter Cooper, Murdock, Leavitt & Co. } New York. J. Triplett & Son, Richmond, Va. J. R. Anderson, Tredegar Iron Works, Richmond, Va. J. Patton, Jr. } Philadelphia, Pa. Colwell & Co. } J. M. L. & W. H. Scovill, Waterbury, Con. N. E. Screw Co. } Providence, R. I. Eagle Screw Co. } William Parker, Supt. Bost. and Worc. R. R. New Jersey Malleable Iron Co., Newark, N. J. Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly. 35 1y

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Trank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions.

ja45 1y

TROY AND GREENBUSH RAILROAD. Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at 6 1/2 A.M.	Leave Albany at 7 A.M.
" " 7 1/2 " " " 8 " "	" " 8 1/2 " " " 9 " "
" " 9 1/2 " " " 10 " "	" " 10 1/2 " " " 11 " "
" " 11 1/2 " " " 12 M.	" " 1 P.M. " " 1 1/2 P.M.
" " 2 " " " 2 1/2 " "	" " 3 " " " 3 1/2 " "
" " 4 " " " 4 1/2 " "	" " 5 " " " 5 1/2 " "
" " 5 1/2 " " " 6 " "	" " 6 1/2 " " " 7 " "

The 6 1/2 a.m. and 2 o'clock p.m. runs from Troy, to Boston runs. The 12 m. and 6 o'clock p.m. trains from Boston runs. Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised. Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT, *Superintendent.*
Troy, April 1st, 1846. 14 1y

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship. Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.

THE RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed. When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.

THE SUBSCRIBERS, AGENTS FOR the sale of Codorus, Glendon, Spring Mill and Valley, Pig Iron. Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted. They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied. SAM'L KIMBER, & CO., 59 North Wharves, Philadelphia, Pa. Jan. 14, 1846. [1y4]

RAILROAD IRON AND LOCOMOTIVE
Tyres imported to order and constantly on hand
by **A. & G. RALSTON**
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS.
etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
Albany, N. Y.

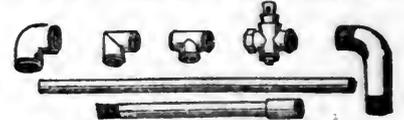
Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

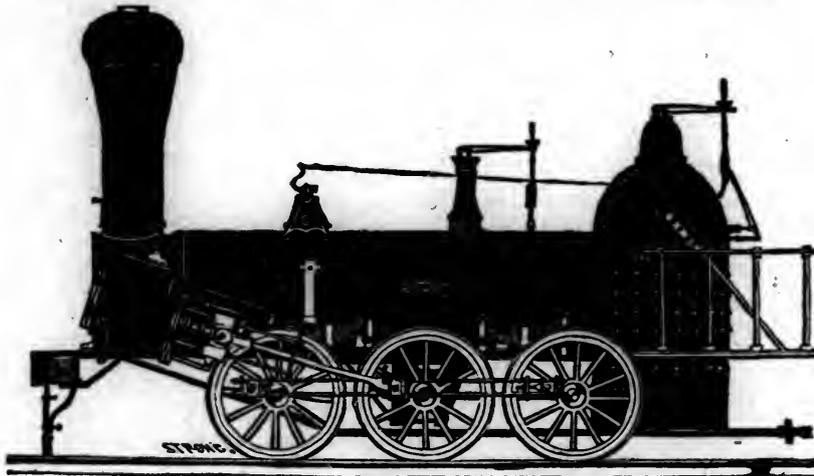
WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of	Cylinder,	× 20 inches	Stroke.
" 2,	14	"	"	× 24	"
" 3,	14 1/2	"	"	× 20	"
" 4,	12 1/2	"	"	× 20	"
" 5,	11 1/2	"	"	× 20	"
" 6,	10 1/2	"	"	× 18	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels or the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

TO IRON MASTERS.—FOR SALE.—MILL SITES in the immediate neighborhood of *Bituminous Coal and Iron Ore*, of the first quality, at Ralston, Lyoming Co., Pa. This is the nearest point to tide water where such coal and ore are found together, and the communication is complete with Philadelphia and Baltimore by canals and railways. The interest on the cost of water power and lot is all that will be required for many years the coal will not cost more than \$1 to \$1.25 at the mill sites, without any trouble on the part of the manufacturer; rich iron ore may be laid down still more cheaply at the works; and, taken together these sites offer remarkable advantages to practical manufacturers with small capital. For pamphlets, descriptive of the property, and further information, apply to Archibald McIntyre, Albany, to Archibald Robertson, Philadelphia, or to the undersigned, at No. 23 Chambers street, New York, where may be seen specimens of the coal and ore.

W. R. CASEY, Civil Engineer,

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft, with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry. Foundry, at end of main brick building, 60x45 1/2 feet two stories high, with a shed part 45 1/2 x 20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS,** 48 State st., or to **CURTIS, LEAVENS & CO.,** 106 State st., Boston, or to **A. & G. RALSTON & Co.,** Philadelphia. ja45

RAILROAD IRON—500 TONS T RAILS
—60 lbs. to the yard. Depth of rail, 3 1/4 inches; width of base, 4 inches; width of top, 2 1/4 inches; length of bars, 15 and 17 1/2 feet. Apply to

A Steam Pile Driver—built by "Dunham & Co."—in complete order; has never been used, and for sale a bargain. Cost originally \$5,000. Also 12 Railway Passenger Cars, that have never been used, which will be sold a bargain. 8 if

DAVIS, BROOKS & CO.,

April 11. 10 30 Wall street.

Oregon Railroad.

Memorial of A. Whitney, praying a grant of public land to enable him to construct a railroad from lake Michigan to the Pacific ocean, February 24, 1846.—Referred to the committee on public lands, and ordered to be printed.

To the Senate and House of Representatives of the United States in Congress assembled:

Your memorialist begs respectfully to represent to your honorable body that he presented a memorial to the last congress, praying for a grant sixty miles in width from lake Michigan to the Pacific ocean, to be held and set apart expressly to furnish, by sale and settlement, means to construct a railroad to communicate with the two points; and after the full and perfect completion of said work, should there be any lands remaining, your memorialist asked them for himself, his heirs, and assigns, as a reward for the work.

Want of time and hurry of business prevented action, except a report from a committee in the house of representatives, recommending it "to the deliberate attention of congress at a period of greater leisure," etc.

Your memorialist would now most respectfully represent to your honorable body that he has devoted all his time and attention since that period to an exploration of a part of the route which he proposes for the road; to collecting information of the entire route, with facts and information relating to the whole subject; and your memorialist is now fully persuaded in his own mind, and believes he can make clear to your honorable body beyond a doubt the feasibility of the project, as also the vast and incalculable results and benefits to flow from its completion to us as a nation and to the world, as well as the absolute necessity as a means of joining to and connecting Oregon with us, and as a security to us of the vast commerce of the Pacific (its many and yet to become important) islands, the Indian ocean, and the Chinese seas, throwing at once into our lap the commerce of more than 700,000,000 people; and as also the means, and only means, by which the vast wilderness between civilization and Oregon can be settled, being without timber for nearly twelve hundred miles, with no natural means of communication except the Missouri, which is not to be depended on, as it will never answer for any considerable commercial or other purposes of communication.

Your memorialist would respectfully represent to your honorable body, that his attention was first called to the importance of railroads as a means for the transportation of commerce as well as of passengers, from the Liverpool and Manchester railroad in 1830, when he passed over the distance of (he thinks) 34 miles in 42 minutes. He then saw clearly their present importance, and predicted their future importance to us as a means of communication with the Pacific. In 1842, while on a voyage to China, on the 27th day of October, in the Chinese sea, we fell in with an English barque from Singapore. The captain gave us a Singapore paper, under date of 30th September, containing

the first account of peace with China. Your memorialist saw that the results of such a peace (though the terms were not then made public) must make a great change in the commerce with China, as also the importance to us if we could have a more ready, frequent, and cheap communication than the present long and dangerous voyage around either of the capes; and your memorialist was led to a consideration and investigation of the whole subject. The geographical formation and position of our continent pointed out the way as clear as "the noon-day sun;" but the means to construct that way was wanting.—Our system of free government would not allow of an appropriation of money, or that such works should be carried on by the general government. The route was a wilderness, and it could not be accomplished by the people, as there were none there. It was beyond individual enterprize, as no individual would invest his capital in a work which could not promise any return for many years, and might be considered chimerical; and your memorialist was brought to the conclusion that there were no ways or means to accomplish this great work but from the public domain.

Your memorialist could not abandon a subject which, were it possible to accomplish, promised such tremendous results to all mankind.

During his residence of nearly two years in China, he had an opportunity of gaining much valuable information of that ancient, numerous, and most extraordinary people. One (the principal) object of inquiry and interest was to ascertain if our commerce with them could be increased and extended. The great difficulties which met your memorialist were the time and expense required to carry on that commerce, confining and limiting us to a few articles of exchange, and to comparatively small amount; whereas, with a cheap, easy, and frequent communication, the extent might be considered as almost boundless. He also looked at the vast commerce of all India, of all Asia, which has been the source and foundation of all commerce from the earliest ages to the present day, possessed and controlled by one nation after the other, each fattening upon its golden crop, till proud England at last holds it in her iron grasp. She holds on, and will hold on until our turn comes, which will be different, and produce different results from all. We do not seek conquest, or desire to subordinate. Ours is and will be a commerce of reciprocity—an exchange of commodities.

The power of England in India gives her an influence and control over the commerce of all Asia, which almost shuts out all nations of smaller interest; and she will be in no hurry to permit a fair competition, which time, distance, and expense now prevent, and will be unwilling to change the present channels or lessen the present time and expense, except for the transmission of intelligence to and from her armies in Asia. Such reflections and considerations led your memorialist to the full maturity of the project which he presented to the last congress, and which

after further and more mature deliberation, he now presents to your honorable body.

Your memorialist would respectfully represent to your honorable body, that during the past summer he passed over and examined the country for about seven hundred miles of the proposed route. His object was to examine the general surface and soil—find if there were suitable materials (timber, stone, etc.) for constructing the road; to ascertain if the streams could be bridged, and where, and to decide if the lands would be likely to sell, and settle and supply funds to build the road. And he would now represent to your honorable body, that from lake Michigan to the Mississippi, a distance of a little more than two hundred miles, he found a feasible route—that a railroad may be built on a grade not exceeding twenty-five feet to the mile.—There are no difficult streams to cross; there are sufficient timber and other materials. From Green Bay to Milwaukie are thirty miles in width of good timber; from thence to the Mississippi are small tracts, and what are called oak openings, scattering timber, which would not answer for a railroad, the prairie fires having so injured the growth as to cause a decay at the heart. The soil and surface of country good, and would sell and settle faster than the road can be built. That the Mississippi river can be bridged at or near Prairie du Chien. From the Mississippi, a distance of nearly five hundred miles, to the Missouri, the lands were found to be of first quality, and surface more even than from the lake to the Mississippi; that a railroad may be built on a grade of less than twenty feet to the mile. There are no difficult streams to cross, and there is a sufficiency of good building stone for bridging. From the Mississippi river to the Cedars, a distance of ninety miles, on the upper Iowa and Turkey rivers, are small tracts of timber; but your memorialist could not ascertain if the prairie fires had destroyed their usefulness for a railroad, which was found to be the case with all the scattering timber. On the Cedars he found a tract, fifteen by thirty miles, of good timber, then none on to the Missouri, and as your memorialist understands, none on to the rocky mountains. The land is of the very best quality for the entire distance; but as there is no timber and no fuel, (except coal on the Des Moines river, which is there abundant and of good quality,) your memorialist believes that this vast tract, four hundred miles in extent, of the very best lands upon the globe, cannot sell or be settled without a railroad through it, which would give to the settlers the only means of getting lumber for buildings, fences and fuel, until they can produce for themselves, which would require only ten to fifteen years. Timber being natural to all the prairies, springs up immediately when the fires cease. This immense tract of land your memorialist considers, in its present state, without natural means of communication with civilization or markets, as valueless, and must ever be useless; but, if the railroad is constructed through it, it will sell and settle as fast as the

road is built, and increase the value and demand for the government lands adjoining it.

Your memorialist passed down the Missouri river from where he first struck it, latitude $43\frac{1}{2}^{\circ}$, in a canoe to Weston, near Fort Leavenworth; then in a steamer to St. Louis; in all, a distance, by the river, of fourteen hundred miles, requiring in all 31 days—26 in the canoe, and 5 in the steamer. He examined the river closely and particularly, and found but three places where it can be bridged at all; one at latitude $42\frac{1}{2}$: one where the Vermilion or White Stone enters, and one at the mouth of the White river, in latitude 43. Below $42\frac{1}{2}$ north latitude, it cannot be bridged. He found the navigation dangerous, difficult, and not to be depended upon for any considerable commercial purposes, even from its mouth to Fort Leavenworth. The stream is rapid; the bed and bottom lands, which latter extend from bluff to bluff, two to five miles wide, are *quicksand*. The channel is so constantly changing, that the boat which passes up in the spring, under one bluff, often returns in the fall under the opposite.—The water in the channel was often found to be not over 18 inches deep. From Weston to St. Louis the steamer "John Golong," drawing $22\frac{1}{2}$ inches of water, was several times hard aground, and from all the information procured from boat masters, pilots and traders, such is the fact for at least nine months of the year; nor can its navigation be materially improved, as its channel can never be kept in any one place, showing, beyond a doubt, that this river cannot be depended upon as a means of communication with Oregon, for the vast commerce of the Pacific—of Japan, of China, and of all Asia.

Your memorialist found but little timber on the Missouri, down to Council Bluffs, and that (with the exception of a small quantity of red cedar) entirely useless for a railroad. From Council Bluffs down, there does not appear to be more than is or will be wanted for the agricultural purposes of the settlers. Above latitude $43\frac{1}{2}$ he learns from boatmen and traders that there is nominally no timber, and he learns from those who have been to and returned from Oregon, that there is no timber from the Missouri to the mountains, and that the lands, for the greater part of the distance, are very poor, of but little or no value, even with a railroad; but that there are no difficulties in the route for a road, being a regular ascent from the Missouri river to the "South Pass," of about six feet to the mile, which fact is confirmed by Capt. Fremont's report, by Col. Long, and many others.—From the "South Pass" to the Pacific, your memorialist is informed that the route is feasible.

Your memorialist would respectfully represent further to your honorable body, that in his opinion, formed from a thorough examination of the subject, the western shore of lake Michigan is the most desirable starting point for this road; because it is the only point where the public lands, suitable to produce funds to accomplish the work, can be had; because it is the only point where material (particularly timber) can be found, and

which must there be prepared and taken onward, as the road progresses, to the mountains; because it affords a cheap and easy water communication with the Atlantic cities, to take laborers, materials, and settlers to the starting point, which necessary and important advantages cannot be had from any other point except subject to long delays and great expense; because it is the only starting point which has a settled country around, such as Michigan, Illinois, Indiana and Ohio, to furnish provisions for the laborers and settlers until they can produce for themselves; because it has a direct water communication, by canal and lakes, with Pittsburg, where the iron must undoubtedly be made; because it is nearer to *all* the Atlantic cities than any other point; because it is more central and on the same or nearly the same parallel of latitude as the pass in the mountains, and gives to all a freer and better opportunity for a fair competition for its benefits. Your memorialist would also represent (and begs to submit herewith a map showing) that New England and New York, Pennsylvania, Maryland and Virginia are *all* pushing their railroads into or to the state of Ohio, where they will all meet and go on in one to join this road where it crosses the Mississippi, or between that river and lake Michigan; and when South Carolina shall have completed her road to Memphis, or through Nashville to the Ohio, the web will then be completed, and our vast country will be brought together at the grand centre in the short space of *four days*, allowing us not only to transport passengers, but *all* descriptions of merchandize and produce, from the grand centre to New Orleans, Savannah, Charleston, Richmond and Norfolk, Washington, Baltimore, Philadelphia, New York and Boston, and to the Pacific, in the same time, *four days*; and from the Pacific to any of the above cities in less than *eight days*; and to China in *twenty days*; so that your honorable body will see we bring our vast country together in *four days*, and the extremes of the globe in *thirty days*. A cargo of teas from China may then be delivered in any of our Atlantic cities, in *thirty days*, and in London or Liverpool in less than *forty-five days*. Comment is unnecessary. It must revolutionize the entire commerce of the world; placing us directly in the centre of all, and all must be tributary to us, and in a moral point of view, it will be the means of civilizing and christianizing all mankind.

Your memorialist would respectfully represent to your honorable body the great political importance of the project, affording a communication from Washington to the Pacific in about *five days*, at 30 miles per hour, and by telegraph almost instantaneously.—With Oregon settled in our possession, and with a naval depot at the Columbia river or some more desirable point, a comparatively small navy would command the Pacific, the South Atlantic, the Indian ocean, and the Chinese seas.

Your memorialist would further respectfully represent to your honorable body, that, from an estimate, as near accurate as can be made short of an actual survey of the entire

route, the cost of said road, to be built in a good, safe and substantial manner, will be about \$50,000,000; and, as the road cannot, from the now uninhabited situation of the country through which it will pass, earn anything, or but little, before its entire completion, therefore, a further sum of \$15,000,000 will be required to keep it in repairs and operation—making the total estimated cost of the road, when completed and in operation, 65,000,000 dollars.

Your memorialist can see no ways or means by which this great and important object can be accomplished for ages to come, except from a grant of a sufficient quantity of the public domain. And your memorialist believes that from a grant sixty miles in width, commencing at some point on lake Michigan, (where the lands are unsold except to small extent, and for such an equivalent in other unsold lands,) extending to the pass in the mountains, or so far as our right and title is settled and undoubted, and from thence to the Pacific, when our right and title shall have been settled, to some point then to be fixed upon. The whole distance from the lake to the ocean, in a straight line, is 2,160 miles, but necessary windings will make the road not over 2,400 miles; the sixty miles wide through, will make 92,160,000 acres of land. From all the information your memorialist can procure from Capt. Fremont's report, and from several very intelligent gentlemen, who have been to and returned from Oregon, there is nearly or quite one-half of the whole extent which is entirely useless, and could not sustain settlement. These poor lands commence soon after passing the Missouri, and continue to, through, and beyond the mountains for a considerable distance, are not at all suited for agricultural purposes, and could not sustain population except in limited places and to small extent. But your memorialist believes that the railroad through the good lands, from lake Michigan onward for seven hundred miles, making 26,880,000 acres, will increase their value for settlement; that they will sell and settle quite as fast as the road can be built through them, and produce an average of one and a quarter (\$1 $\frac{1}{4}$) dollar per acre, making a total of 33,600,000 dollars, sufficient to construct the road to the South Pass in the mountains. And your memorialist believes that the road through the poor lands will cause some settlements; and its great importance, with the facilities which it would afford, would induce sufficient settlement from the mountains to the Pacific to produce sufficient means for its accomplishment. And your memorialist prays that your honorable body will grant or set apart the said sixty miles wide of lands *expressly* for the construction, completion, and operation of the said railroad. And your memorialist respectfully represents the manner, form and conditions of said grant or appropriation, as are, in his opinion, feasible.

Let commissioners be appointed by the president and senate, whose duty it shall be, in conjunction with your memorialist, to give titles to said lands; your memorialist having authority to contract sales, either for money

or labor on the road and money; but no power to receive payment, and no power to give titles *alone*: the commissioners always receiving and holding the money, and never giving title until after having received payment, and being satisfied the labor had been performed. A commissioner, *alone*, not having power to give titles, one would be a check upon the other; the commissioners never paying money to your memorialist, except when, to their full satisfaction, it would be applied to the construction of the road.

The lands thus set apart would be entirely beyond the control of your memorialist; still be sold, settled, and furnish funds, and allow your memorialist to go on and construct the work as an individual enterprise, while the commissioners would act for the government, and congress would always have entire control over all. From thorough investigation of, and long deliberation upon, this subject, your memorialist is satisfied that he can accomplish this great work in a comparatively short period of time, (not exceeding fifteen years,) and the results of which would be far beyond the human mind to estimate or predict.

Your memorialist believes that the commencement of this work will open a field for industry and enterprise such as the world has not known, the great benefits from which must extend over our whole country. Here is a vast region of country—a wild, a waste—with a climate suited to the people of the north of Europe and of our own states, seven hundred miles of which, the most beautiful country, the richest and most fertile soil on the globe; capable of sustaining three times the population as the same space on any other part of the globe; exactly suited to the most necessary and important products of the earth—bread-stuffs and meat. Open this road through it—when it unites the two great oceans of the world, it becomes the centre of the vast globe, with the grand highway or thoroughfare of nations through it—it will be as a new-found world: the over-population of Europe must and will flock to it.

Our population is now 20,000,000, having doubled in the last twenty-two and a half years. In twenty-two and a half years more we shall number 40,000,000. This work, though great, compared with what our population was and will be, is small to what we have done—having now more than 5,000 miles of railroad in successful operation, (mostly built in the last fifteen years,) besides numerous canals—all from means drawn from the people; whereas this requires no money from them, but will supply itself; drawn mostly from Europe by emigrants, will add to, rather than take from the people; or, in other words, that which is now worthless, and must, *as it is*, remain useless, is exchanged for the homes of a numerous, industrious, producing, and consuming population, and becomes the centre and most important part of the globe; having yielded not only the means which created and sustains its own importance and value, but spreads its influence and wealth over our

whole country, producing results which must change the whole world.

Your memorialist, in his prayer to the last congress, proposed that, as the road would be built from the public lands belonging to the people, it should be free, except as to such tolls as would be sufficient to keep it in repairs and operation; leaving it, after completion, to the management of the general government and wisdom of congress; objections having been raised, that our institutions and form of government will not allow the carrying on or management of a work of such vast magnitude and results by the general government, creating and sustaining a power and influence which, if exercised as a political engine, would endanger our present perfect system. Therefore, your memorialist would now respectfully represent to your honorable body, that he, for himself, his heirs, and assigns, will contract and agree to keep said road in repairs and operation for any definite number of years, transporting the United States mails, and all government stores, munitions of war, troops, etc., etc., free from expense to the government for any part, or the entire distance of the road; and, for the first *twenty years* after its completion, will agree to transport for the public *all* merchandize and produce for one half ($\frac{1}{2}$) a cent per ton of 2,000 lbs. per mile, for all distances over two hundred miles; and for all distances under two hundred miles, for one-half the price charged for same distances on the principal railroads in the United States; and as Indian corn will undoubtedly become an article of export to China, and other markets, to an immense amount, he will agree to transport corn for twenty cents per bushel. Flour will also find markets at the ports on the Pacific, the many islands, Japan, China, etc., etc., to a very large amount, which he will transport from any point on the road to the Pacific, or its terminus, for \$1 25 per barrel; and for all passengers, one-half the price charged for same distance on the principal roads in the United States. The first twenty years being considered as experimental of its results; after which, congress shall have power to revise and alter the rate of tolls so as to produce no more revenue than will be absolutely required for the objects specified. The commissioners to continue the same after its completion, and report fully to each congress.

After the road is completed and in operation, should there be any surplus lands or money reserved, and remaining, for lands sold and not required for the said road, your memorialist proposes that they or their proceeds be held by the commissioners or the government in trust, as security for the fulfilment of the conditions specified, so that the entire grant of lands shall be held *exclusively* for the complete construction of said road, and its operation for the first twenty years; securing and guarantying to the government and to the people the entire avails of the said lands for not only the complete construction of the road, but also for its operation, should the commerce and travel upon it be insufficient.

Your memorialist would further respectfully represent to your honorable body, that the lands which he has prayed for are from lake Michigan to the Mississippi, under territorial government, over which the general government exercises its control and jurisdiction. From the Mississippi to the Rocky mountains it is an entire wilderness, in the occupancy of the *indians*, their titles not having been extinguished; but, from what your memorialist learned last summer from the principal tribe, (the Sioux,) they are ready and willing to sell at all that may be desirable for this object, and for a very small sum; so that we now have the lands entirely under the control of your honorable body; and this road would produce a revolution in the situation of the red as well as the white man. The Sioux Indians occupy and claim nearly all the lands from above latitude about 43° on the Mississippi to the Rocky mountains. They are numerous, powerful, and entirely savage. Below them, on the Missouri, are some small tribes, and the removed tribes, which we have been trying to civilize and bring to habits of industry, but so long as they can find game to hunt, the task will be more than difficult; settlements approach them; the animals, their game disappear, and they are forced on to the lands of the Sioux for buffalo, etc., which causes and keeps up a constant war between them, and will be kept up to the extermination of the small tribes. This road would put them assunder so that they cannot meet; the road and consequent settlement would drive the buffalo and the Sioux further north, and we can then succeed in bringing the removed and small tribes to habits of industry and civilization, and their race may be preserved until mixed and blended with ours, and the Sioux must soon follow them.

Your memorialist begs to represent further to your honorable body, that when this road is completed, and a city built on the Pacific, which will not require many years to accomplish, a free and frequent intercourse opened with all the coast of Mexico and South America, with all the islands in the Pacific, with Japan, with China, with Manilla, with Australia, with Java, with all the islands in the Indian seas, and with all India, it will be seen that the commerce of more than seven hundred millions of people must centre to that point, and be dependent upon it and the road. It is well known that a free, easy, cheap, and frequent intercourse and communication increases and extends commerce far beyond calculation; that it is by the exchange of commodities that the different nations of the world can continue commerce; therefore, the more frequent the intercourse, the more extended will be the exchange of commodities.

It now requires from ten to twelve months to perform a voyage to China and back; hence our commerce is so limited in the articles we take from them, and they from us; but build this road, and our commerce will extend and increase in the same proportion as the time, expense, and danger are diminished. And what would be the moral and

religious influence? The savage, the barbarian, and the heathen would be brought in.

This picture will show the importance of Oregon to us; that it is yet to the most important part of the globe. Without this road it is lost to us. The people of Oregon are now claiming the care and protection of our government, which cannot now be extended to them. A sea voyage requires six months, and to get to them over the mountains nearly the same time; therefore without this road, Oregon must become a separate nation, or belong to some of the powers of Europe, commanding the commerce of the world, and our most dangerous rivals. Prosperous republics around would soon produce the same results as monarchies, and would force us into the European system of a standing army to support a balance of power. The history of past ages, and Europe at this day, shows clearly this fact. Your memorialist hopes we may not imitate the past, but hasten on to the destiny which the future promises to us.

Your memorialist believes, that if your honorable body grant his prayer, one year will be sufficient to decide the success of his project, the responsibility of which he proposes to take entirely upon himself, so fully satisfied is he of its complete success. The lands being as now, always in the full and entire possession of the government, should sales be insufficient, or your memorialist unable of himself to procure means sufficient to authorize the successful commencement of the work, then it should be abandoned, and all money received for lands sold, paid into the treasury of the United States.

Objections may be raised, that as the route is an entire wilderness, laborers cannot be supplied with provisions, or sustained, and that the road cannot be supported and kept up, if finished.

The first, your memorialist has answered by fixing his starting point where an abundance of provisions and materials prevail, and can be taken onward by, as the road progresses. The latter can only be answered by building the road, which can be done only by sales of lands, followed by settlement, which, with the foreign commerce it will undoubtedly draw, would be a sufficient support, even at the low rate of tolls proposed.

Your memorialist begs to represent to your honorable body the amount of commerce or freights which would, in his opinion, pass over this road were it completed. Our commerce for 1845 was—with

	Ships.	Tons.	Men.
China.....	\$8,000,000	50	21,204
Dutch East Indies...	538,000	10	3,944
Spanish islands.....	633,000	9	4,025
British East Indies..	1,276,000	26	9,500
In the Pacific.....		192	70,600
	\$10,447,000	287	109,273

The above are entries at the customs, except in the Pacific, which are clearances, a greater part of which are engaged in the whale fishery, and altogether only about one-third of the amount of tonnage engaged in that important branch of commerce. The exact value of the returns of the 192 ships could not be ascertained. The whole import

during 1845, of the whale fishery, was estimated at \$8,300,956. The whole number of vessels employed January 1, 1846, appears to be 736; tonnage 233,149; officers and men employed 19,560; estimated value \$29,440,000; a greater part of which vessels cruise in the north Pacific; they are some two, three, and four years absent. With this road in operation, it would require but eight days to transport a cargo of oil from the Pacific to the Atlantic, costing half a cent per cent per ton weight per mile to lake Michigan, \$12; thence to the Atlantic at one cent per mile (which will be a fair price when all the roads from the different Atlantic cities are opened to this road with fair competition) for 1,000 miles, would be ten dollars more, making but twenty-two dollars for the transportation of one ton weight from ocean to ocean. The saving of time would compel to this route, when our whale ships would be built or all fitted out from the Pacific shore, saving the now long and dangerous voyage around the cape, out and home.

The ships in the above statement, except the whale ships, would average outward cargoes to half the amount of tonnage, and homeward full; and it would be safe to estimate, for both ways together, the 109,273 tons.

The English commerce which would immediately pass over this road is with China alone, 45,000 tons; homeward full and outward half full, would be 67,500 tons. An accurate account of the English commerce in the Pacific, as also with India, your memorialist will be able to present to a committee in a few days should it be necessary. Your memorialist believes that all this commerce, as also the English mail, and all passengers to and from China, as well as Calcutta, must and will pass over this road. A passage from England to China by this route would not exceed \$350, which now costs by the overland route over \$1,000, and not comfortable; and all extra baggage at three pounds sterling, equal to \$15, per one hundred pounds weight.

Your memorialist begs to represent to your honorable body the cost for freight of merchandize from China to the Atlantic cities on this route. From the mouth of the Yangtse-Keang (the Mississippi or Missouri of China, and where all its foreign commerce must centre,) to the Columbia river is 6,000 miles. The freight of one ton measurement would cost \$7: requiring two to two and a quarter tons measurement to make one ton weight of teas or the like merchandize, would cost to the lake, 2,400 miles, at one-half a cent per mile per ton weight, say six dollars; and from the lake to the Atlantic, 1,000 miles, at one cent per ton weight, would be five dollars more—making in all \$18, for one ton measurement of teas or like merchandize from China to any of the Atlantic cities, which varies by ships around the cape from 18 to 30 dollars.

It will be seen that your memorialist has not prayed for any pecuniary provision for himself until after the road shall have been completed and in-operation for twenty years, before which time he will in all human pro-

bability, be past the wants of this life. His object in bringing this project before your honorable body and the people is not for gain of wealth, or power, or influence, but because he has seen, and as he thinks, clearly seen its vast and incalculable importance to us as a nation, and to mankind. It has appeared to him as a part of our destiny, and that our destiny could not be accomplished without it, and now only is the time in which it can be done; and that some one's whole efforts, energies, and life must be devoted to it; and if he can be the instrument to accomplish, or put in the way of accomplishment this great work, it will be enough—he asks no more. And as in duty bound, will ever pray.

A. WHITNEY, of New York.

Washington, Feb. 17, 1846.

Railway Legislation--Sir Robert Peel's Plan for Expediting.

We gave in No. 9—February 29th—the views, in brief, of the British premier, at the opening of the session of parliament, in relation to the proper and most judicious mode of procedure with the numerous applications for charters for railways. We then gave the names of the gentlemen who were appointed to compose that select, and secret, committee, who are to have all the plans, with a map showing the extent and direction of them, and their bearing upon others. This article was prepared for the next number, but has been deferred by other matter.—The plans have all been classified: one class includes the plans for the completion of existing lines—that is, where a line is unfinished between the metropolis and distant parts of the country; another class includes those which are designed to accommodate sections of the country not now accommodated by railways; and a third class includes those which are more or less connected with the defences of the country—such as coast lines. It was our intention to accompany the plan and views of the premier with the excellent remarks of "Herapath's Railway Journal" upon them. We concur heartily in the views of the editor, especially with those paragraphs of which we have italicised a part. It appears to us that the proper plan would be to appoint a joint committee of the two houses, to whom all the plans should be submitted, with all the information possible in relation to each. Let this committee have the aid of an able engineer and legal adviser, not interested in localities or lines—if such can be found in the kingdom—to aid them in their examinations of the various plans presented for consideration. Such a committee, it seems to us, could, with such professional advice, soon determine which ought to be passed with the least delay, and so recommend to parliament—and then take up the others, throw out all those which are evidently designed as speculative and mere competing lines, and recommend parliament to charter all those which will evidently promote the interests of the people, develop the resources of new regions of country, and promote national defence. Let those who desire so to invest their capital, make railways if they will; other people—and especially the laborer, the manufacturer of metals, and the machinist, and the professional man—will be benefited, even if the capitalist is not; so will the proprietors of mines, and of various manufactures, be benefited. Good will result to all classes, unless, perhaps, to a few capitalists who may invest in unproductive lines: that, however, is their risk, as in every other kind of business; but better so, and have the capital expended

at home in the construction of railroads there, than to send it abroad for the same purpose. We say, therefore, let the people of Great Britain, as well as our own country, build as many railroads as they will at home, if, by so doing, they promote the general interest and enhance the value of property.

Stripped of all superfluous verbiage and extraneous circumstances, the views which seem to have influenced Sir Robert Peel in his proposition for a committee of selection, were that the number of bills applied for cannot be disposed of by parliament, and if they could, that the resources of the country are unequal to the demand they would create for labor and capital in addition to the railways already in course of construction. A committee of selection, therefore is necessary to weed the field of schemes not immediately wanted, and by that means to lighten the labors of parliament and protect the resources of the country from too large a drain.

In regard to the business of the house, we have no fear on that head. It is well known to those acquainted with railways, that owing to the amount of labor in getting up the plans there is not perhaps, more than one in ten of the whole schemes, or one in five of the present, that would stand a scrutiny before the standing orders or the committee on their merits.

We have seen several plans and sections, not one of which would pass standing orders if opposed. In truth, the plans have been so hurriedly and so badly got up, that except those branches and extensions, the surveys of which were made by the staffs of the companies, very few lines are properly surveyed.—Country schoolmasters and any one who could lay hold of a local or the Tithe commissioner's maps, were readily taken up as surveyors, which they performed ostentimes at the desk without going into the fields, or going out-of-doors at all. The cross staff, circumferentor, theodolite, plain table, chain, etc., were not seen, and perhaps, neither of them ever heard of. A ruler, compass, pens, and ink, were the only instruments of survey, and as to levelling, in more cases than one the eye was the alpha and the omega of the sections.

It is therefore highly improbable that the business of parliament would be at all in proportion to the number of plans deposited.

However, it must not be concealed that numbers of these defective plans would pass muster in consequence of amalgamations and non-opposition of rival companies; for the standing orders committees do rarely discover errors or defects, unless pointed out by some competitor. It is therefore not impossible that more schemes may pass the standing orders, and even the committees on the bills, than could on their own merits, if properly sifted. But supposing this to be the case, it would not increase but lessen the business of parliament, inasmuch as ten unopposed bills do not give anything like the trouble that one opposed one does.

Were the present schemes all to come before parliament and be opposed, their errors are so transparent, that they would melt away like snow in a midsummer day, and

very few of them would live in the atmosphere of the standing orders committee for an hour.

On no view, therefore, do we apprehend the house would have much to fear from the business the railroad bills would impose on it. On the whole we would say, that nothing like the number of bills which passed last year would pass this, and in none would the investigations be of that protracted and tiresome character. Men are wiser. They have learnt a lesson in the last session from opposition which they will not easily forget. Amalgamation they find far cheaper and more satisfactory than parliamentary warfare.

The very same reasons that will operate to prevent the heavy business of the two houses, will also save too heavy a drain on the wealth of the country. Nothing can be a better illustration of this than the deposits, which were expected to amount to thirty millions, have already dwindled to 10; and, as a correspondent of ours has observed, will probably not exceed eight. In the very height of the fever we repeatedly said, the amount for deposits would not exceed ten millions.—So that, if all the bills prepared with their deposits were to pass, the whole capital would not exceed much above eighty millions. But we have strong doubts that two-thirds of these if opposed, will be able to prove their cases, and establish their plans and sections. The three hundred and fifty millions, therefore, of Sir Robert Peel, will, in all probably, be sweated down to a reasonable sum.

We do not however, deny that if it were possible so to manage it, the country and the railway proprietors would derive much greater advantage by spreading the construction of future railways evenly over a much longer period. Railways would be made much cheaper, and the public thereby more benefited. Iron, which is now fetching £12 and £13 a ton, would be had at from £6 to £8.—Labor would also be much lower, and being continued for a longer time, would do the laborer more good. Everything, indeed, would work better for the public, and better for the enterprizing in railways. Of this there can be no doubt. The great danger however is, that by cramping enterprize at home, we all send it abroad, and benefit other nations, not simply, but in deed and fact, against ourselves. *Every million laid out abroad in railways tells like a voter changing sides in an election two against the country.* We are therefore, exceedingly averse to cramp enterprize at home, even though it be on an unsuccessful object. Viewed nationally, it is better, in our opinion, to lose one, two, or ten millions in labor at home than it is to spend half the money in prosperous works in a nation which may, for the merest trifle, make use of those very works to wage war against us. It is indeed, at all times a dangerous step to intermeddle with private enterprize, and more particularly when that enterprize is directed to the internal improvement and the augmenting of our wealth and our strength.

We quite agree with the right honorable

premier in wishing, if it could be done, to spread the present exuberant enterprize over a long period; but we doubt the possibility of doing so, while we dread the consequences of attempting it.

The premier, however, seems to be under mistaken notions when he supposes, that if lines representing one hundred millions pass this year, the whole capital is to be called up within three years. Such a circumstance, we think, has hardly ever arisen, of calling up the entire capital in any such time. After one-half of the capital is paid up, the companies are empowered to borrow the other half, which they invariably do, and renew the debentures (generally taken at a low rate of interest,) until they are in a situation to pay them off under a good dividend. It is only during the last year that the London and Birmingham line, which was opened throughout in 1839, capitalized the whole of their original capital. The Great Western and several others have not done so yet. If it be asked, where is the money borrowed to come from? We answer, from parties selling out of the funds to get a better interest. There never has yet been a difficulty in finding money when the interest and security have been good. It is a mistake, therefore, to expect the pressure so much dreaded.

But, as we were going to say, let us suppose the whole dreaded three hundred and fifty millions passed, and let us add to it a condition of excellence which we know does not exist, namely, that it is all for distinct independent schemes, but differing, as they must in the degrees of utility; and what would be the consequence? Why, the sagacity of the railway public—which is greater than our legislators imagine—would push forward the best schemes first, just as they did before with the London and Birmingham, Grand Junction, Manchester and Leeds, York and North Midland, Great Western, etc., and leave others less certain of success to more favorable times, as they did the Sheffield and Manchester and West London; or lop them off as in the Great North of England and Eastern Counties; or perhaps abandon them as the Thames Haven has been.

This is a feature of railway policy drawn from past experience, and therefore cannot be gain said. *We are hence more and more apprehensive of the wisdom of intermeddling with the progress of railways, even though it be to do that very thing we are desirous of seeing done.* Enterprize is like a delicate plant, which will generally accommodate itself to the season, and grow and flourish if left alone, but pine and die if handled.

As to the committee itself, we believe Sir Robert Peel's object is of the most commendable kind. He has seen the jealousy with which the board of trade was viewed by the house, and still is convinced of the necessity of some preliminary tribunal which, having collected the materials, should perform the office of a dressing mill, and separate the flour from the bran. We have, however, some misgivings as to its working usefully and satisfactorily to the public. How is it possible that the fifteen gentlemen, though

they applied themselves night and day to the subject, and assuming they have the railways as much at their finger's ends as their a, b, c. could, by any possibility, in reasonable time give an opinion on each of the schemes and the requirements of the several localities worth having? And if they do not, of what use, as guides to the committees, are they? *We quite agree with Mr. Hudson, that it would be a hard case for parties who were every way prepared to make a line for the service of their own locality, to be told by these gentlemen. "Oh! there are other parts of the country more in want of a railway than you, and you must therefore button up your breeches pockets and wait until they have made theirs."* This would be no palatable doctrine in England to Englishmen. If the committee could throw light on which is the better of two schemes for the same object, they might do some good; but we fear it would consume more time than they have at their command, and perhaps more knowledge than they possess.

We are favorable almost to anything that would contract the time and lessen the expense of inquiry; and if a committee is to be had, a parliamentary one would in some respects be better than any, and in others worse. Parliament itself would doubtless be more pleased with its decision, but parliament will also be more prejudiced in its favor and determined to support it. Consequently, should it go wrong, its errors will be less curable and more mischievous.

We think the best thanks of the country are due to the premier for his intentions; but we shall be greatly mistaken if next session he will not find himself in the same predicament with this committee that he was in last session with the board of trade, and is now with the corn laws. He will find it not work well, and will be obliged to alter if not entirely to abolish it.

One of the best measures for the despatch of business and the saving of expense would be that which we suggested last year, and which we see was mentioned in the house by Mr. C. Buller—namely, *to have the bills pass but one ordeal, and that before a mixed committee of both houses.* By this means half the time and half the expense might be saved, and each house might still retain, as to the several readings of the bills, its separate jurisdiction. *The public would, besides, if the committee acted improperly, have a better chance of getting those decisions reversed, because neither house would consider itself bound to support the decision of a committee which was not exclusively its own.*

Wherefore is the necessity of re-travelling over the same ground that had been gone over before, and proving the same facts again and again by the two houses? *It is a perfect waste of the time of the houses and an enormous expense to the country for no object but to fill the pockets of the lawyers, engineers, and witnesses.*

Besides, by this plan, half the number of members of each house might be on the committee, consequently double the number of committees, may sit, and one-half of the time

again be saved. Practically, therefore, the time would be reduced to nearly one-fourth.

If the right honorable baronet would bring forward some such a plan as this he would doubly merit the gratitude of the country; first, by saving the public expense; and secondly, by saving the public time.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

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Oregon or Atlantic and Pacific Railroad.

Among the many bold projects of the day, that of a railroad to the Pacific ocean stands out most prominent. Its magnitude is such that most people, on its first being presented to their minds, look upon it with entire incredulity; nor is it suprising that they should thus view it, when they see other projects of less than a tenth of its magnitude, in the midst of a comparatively dense population, and of great public necessity, lingering from year to year unfinished, or even *uncommenced*; yet its bold and intelligent projector, Mr. A. WHITNEY, has pursued his object for two or three years with untiring zeal, having presented it *twice* to the consideration of congress, and, during the summer of 1845, passed over near 700 miles of the proposed route, from Lake Michigan to the great bend of the Missouri, in latitude 42½ north and longitude 96½ west.

Of the *convenience* of such a work to many who are uneasy *where they are*, when constructed, few will doubt, and fewer still will hesitate to award to the projector of the scheme great boldness of views and energy of character; yet many will be likely to question the correctness of his views, and to doubt the policy of undertaking a work which, when completed, will tend to scatter so rapidly our still sparse, and somewhat inclined to roving, population.—It will naturally, and we think *justly*, be said, that the government should—if it contributes at all to the construction of the means of intercommunication—aid the construction of such works as will link more firmly together the different sections and various interests of the *settled and cultivated* portions of our already wide-spread country, rather than undertake an enterprise of which no man, however skilled or enterprising, can estimate, with any degree of accuracy, the cost of construction or of working.

We have no disposition to detract from the merits of this gigantic scheme, nor to throw a straw in the path of the gentleman who is its life and soul; yet we cannot, as we have before observed, view it in the same light, nor as being of as much importance, either national or individual—or rather as being as necessary to the prosperity of the *American people*—as Mr. Whitney, or indeed some others who have spoken of it through the journals under their

control, and therefore we have not been prominent in its advocacy, though we have published several articles in relation to it—as may be seen in the volume for 1845—and we now give the "Memorial of Mr. Whitney" to the present congress entire, long as it is, that our readers may have his views and arguments before them, and act understandingly in relation to it, if disposed to act at all. Indeed, we deem it quite as important, and as much a duty, to give the views and projects of intelligent gentlemen in which we do *not* as in which we *do* concur—as it is from a full and fair discussion of the merits of important questions that truth is elicited; and, therefore, it is that we ask for the memorial of Mr. Whitney a candid examination by our professional readers, and also ask them, or some of them, to give us an *estimate* of the cost of constructing the first 700 miles—say from Lake Michigan to the Missouri river—including the cost of transportation of *timber* mainly from the vicinity of the Lake or the cedars, and also the cost of constructing the next 700 miles beyond the Missouri, where there is no timber, which and the iron must be transported, upon the average, over a thousand miles. Can it be done for \$25,000 a mile?

We shall be greatly obliged by an estimate of the cost of working a continuous railroad, of 2500 miles in length, through a country where *fuel* would probably have to be carried long distances, perhaps 200, 300, or 400 miles? These are important considerations and should be thoroughly investigated by professional and practical skill, before entering upon a project which is sure to involve not less than *seventy* millions of property.

It is no way difficult to imagine, under some circumstances, almost anything one desires, and to make estimates or calculations in accordance with those desires, when there are no established *facts* to which others may refer to refute our positions; yet these are not always, if indeed, they are *ever*, safe estimates to commence even small enterprises upon; and we are of the opinion that the estimate of Mr. Whitney, in his memorial herewith presented to our readers, are by no means sufficient to construct a permanent road through such a wilderness, *without trees*, as is set forth, and especially not unless the iron can be made on or near the line of the road. We are not, however, disposed to hazard an opinion in relation to the cost of constructing the road, nor of keeping it in repair and working it when completed, as we prefer to receive and to give the opinions of those whose pursuits lead them better to understand the subject; and we shall look for a reply to the foregoing request, and shall be better pleased to be shown in the wrong than in the right, as our wishes and desires are, if our judgment is not, with every important projected work of the kind in the country; and therefore we again say, read the memorial.

Old Colony Railroad.

The Old Colony (Mass.) railroad corporation, at a stockholders' meeting, voted unanimously to build the branch railroad from Abington, through East Bridgewater to Bridgewater.

The object of this branch is, we understand, to connect with the Fall River railroad, and thus open another route for travel. *The Old Colony railroad* penetrates a region of country very little known to the majority of the people even of New England—yet it has commenced operations under very favorable auspices. The number of passengers travelling upon it is truly astonishing to those who witness for the first time, its train of well filled cars coming in, especially on Wednesdays and Saturdays, as we

can say from personal observation. Six or seven long cars, with seats for more than sixty each, literally crowded—the wonder is, where do they all come from. The road now terminates at Plymouth, though it *should* be extended to Wareham, or to some point on Buzzard's bay—and would be, probably, but for a rival line. The branch above alluded to is designed to compete for or to take the business of the Fall River railroad; and the present indications are that the "Old Colony" will have its full share of railroads—at least if all the projected roads in that direction should be constructed.

Horses for New York by Railroad.—Mr. Morgan, of Victor, Ontario county, started for New York on the cars on Wednesday, with sixteen very fine horses intended for this market.

What horse after this will find fault with railroads?

Railroads vs. Steamboats.

The Savannah Republican has a statement which we give below, in relation to the mails. Is it not time for the people of the two Carolinas to fill up the gap in the great southern line of railroad? We think it is, and call upon them to move in the matter speedily. The whole community has a direct interest in its early completion, and from the following extract from a letter from an intelligent friend, well acquainted with the subject, we are led to believe that something *will* now be done. He says, under date of "Camden, S. C., March 23," that

"It affords me much pleasure to answer your queries. The location across that swamp is not yet fixed, but the point of commencement is, viz: at the northeast edge of the Congaree swamp, about three miles from the bridge, or 104½ miles from Charleston, and 24½ miles from Columbia. From this point there are two routes—one running nearly due east for 8 or 9 miles, then nearly north to Camden; total distance, 40 miles. The other route runs a little north of east 4 or 5 miles, then northeast, between 4 and 5 miles more, in the direction of Manchester, until it intersects the first route about two miles west of Manchester. Thence the routes are common, and pass 1½ miles west of Statesburgh. The distance to Camden by the longest of these routes is 40 miles; by the shortest, 37.

There are several routes talked of between here and points on the North Carolina railroads. The Sumter and Darlington people say that the best route is from the point where the Camden branch crosses the Wateree (that is near the mouth) through Sumterville, Darlington, Courthouse, Society Hill, Fayetteville to Raleigh. The same persons say that a route from Camden is impracticable, or nearly so. Nevertheless, the engineer of the state of Georgia, Mr. Garnett, when engaged in North Carolina, made a reconnoissance of this route, that is from Raleigh to Camden, and reported favorably, and I take it for granted that he knew something about it. It will be the interest of the South Carolina railroad company to push it on from Camden, if possible; and the most probable route will be from Camden through Society Hill and Fayetteville to Raleigh. Some persons have suggested a route from here to the Wilmington and Roanoke road at either Wilmington or some other point. I have not at hand the distance from here to Raleigh by the route indicated above, but it must be from 160 to 180 miles.—This route would leave Cheraw some distance to the left. Mr. Garnett's route passed through Cheraw. I am not all acquainted with the country between Columbia and Aiken, but I suspect it is very rough. Aiken is very high, 513 feet above tide at Charleston, and 310 feet above the railroad depot at Columbia. A route from here through Columbia to Aiken

would be 40 miles shorter than by the present railroad; but neither you nor I will live to see a railroad on that route. Our country is not populous enough to sustain rival railroads, like old England, or even New England. Such a road would have to depend entirely on the travel; not a package of freight would take it, and freight is the most profitable part of the business of our southern roads."

"Contrary to expectations, says the Republican, we received a northern mail on Saturday, the boat detained at Wilmington for repairs, having been got ready for service sooner than was expected. She was met off Charleston bar, on Friday, about 12 m., by the steamer *Gen. Clinch*, Capt. BARDEN, who had left for this port, but returned and procured the mail.

"The Charleston papers of Friday state that the steamer *Gov. Dudley* left for Wilmington on Thursday evening, with three northern mails; but we learn from Capt. BARDEN, that the storm was so severe she had to return next morning. She no doubt left again on Friday evening with four northern mails

"The Charleston papers of Saturday, state that the *Gov. Dudley* left again on Friday, but found the weather so unfavorable that she was obliged *again* to return in a few hours. She probably made another attempt on Saturday evening, taking with her five mails for the north."

Salamander Safes--Rich & Co.'s Improved.

In these days of fires, robberies and burglaries, it is important to railroad companies, and others who are in the constant receipt of money, or have charge of valuable books and papers, to have an "iron safe," which shall not prove a libel upon its own good name, as many a one has heretofore done, when subjected to the intense heat of the one, or to the prying curiosity of those engaged in the above named honorable pursuits; and such an article we have reason to believe will be found in "Rich & Co.'s improved salamanders"—sold by Mr. A. S. Marvin, of this city, general agent; and we therefore refer our readers to his advertisement in this number of the Journal.

Drawing Inks and Pencils.

No tools are more necessary to the engineer and draughtsman, and, as they too often are found, none are more troublesome, than lead pencils. Those which are soft, are generally smutty, and give a rough mark, while the hard ones cut the paper rather than mark it. These difficulties have been most happily conquered by Messrs. Wolf & Sons, of London, who have introduced great improvements in the manufacture of these articles. The chief advantages possessed by their pencils over all others, are freedom from smuttness, a good, firm and clean black mark, while even the hardest partake of other desirable properties. But in this case we do not speak from the general reputation of the article; we have the testimony of our late associate, Mr. Geo. C. Schaeffer, who has given these pencils a thorough trial, and pronounces them most excellent. As an instance of their clearness and blackness, he assures us that by candle light, it is difficult to distinguish between their mark and that made by pen and ink.

Not content with improving the material, Messrs. Wolf & Son have bestowed their attention upon the form of draughting pencils, and have produced a most convenient article for the compass—it needs not cutting to fit, as all sizes are provided, and, having lead at both ends, with the blank in the middle, there is no waste.

While speaking of drawing materials, we may also mention the drawing ink of Stephens, which supplies a want often felt—that of a good drawing ink always ready for use, which does not corrode the pen, and consequently not liable to the inconveniences of India ink. The good qualities are preserved in the highest degree by Stephen's ink, while the good properties and color of India ink are retained.

We recommend these articles to our readers with the greatest confidence, as we are assured of their value by one who has made use of them, and upon whose opinion we can rely.

Mr. P. A. Mesier, No. 49 Wall street, is the agent for the manufacturers.

Increased Speed between Philadelphia and New York.

The following paragraph is from the United States Gazette of Saturday last, and it is to be hoped that such things will be so common this year, and hereafter, as not to excite remark for the rarity of the thing.

"The Pilot line from New York, via the Camden and Amboy railroad, reached this city at 9 o'clock and two minutes p.m., last night, being the quickest trip made by any line between the two cities."

The difference between that time, viz., 4h. and 2m., and the ordinary time of running heretofore, 5 1-2 hours, which would be saved to travellers during a single year would be equal to a long life—or more than forty years! in addition to the greater convenience and economy to business men. Is it not worth an effort then to keep up to that time?

Reduction of Fare on the Utica and Schenectady railroad.

At a meeting of the directors of the Utica and Schenectady railroad company on Friday the 10th inst., a resolution was adopted reducing their fare to \$2, on and after the 16th day of April inst.

A resolution was adopted at the same time prohibiting all "free" passengers. This prohibition extends to the directors and officers of all other companies.

This is as it should be—or rather as it *should have been*. Now let the directors adopt measures for increasing the speed, and accommodations for business, and give equal facilities to the Troy road as they do to that terminating at Albany, if they would disarm opposition. Their true interest lies in accommodating the people—"in giving the greatest amount of accommodation for the least amount of money," a system of management which has been eminently successful in Europe, and will surely be in this country when adopted and properly carried out.

Reading Railroad.

Comparative statement of the business on the Philadelphia and Reading railroad during the first week in April, for three years, viz:

	1844.	1845.	1846.
Travel,	\$1,524.56	\$1,860.75	\$2,600.37
Freight on goods,	946.91	1,144.92	3,533.96
Do. on coal,	5,014.20	11,180.25	28,019.66
	\$7,485.67	\$14,185.92	\$34,153.99

Coal transp'ted,
Tons, 5130 19-20 12,246 6-20 22,163 9-20

The above shows a rapid increase, it is, however, only the commencement of the increase of business on this road. The increase, in tons, will be greater in 1847, during the corresponding week, than it has been this year, and the company may well deem it necessary, or it least judicious, to adopt the course

Mount Holyoke Railroad.—The bill to authorize the extension of the Hampshire and Franklin railroad from Hockanum to Wilimansett has passed the legislature.

Encouraging to the Railroad Enterprize.
The following short but satisfactory account of the enterprize of our sister state, Georgia, which we take from the Banner of yesterday, will be examined with interest by those who are anxious to see Tennessee taking her proper position on this subject. It will be observed that Cross Plains at which the Western and Atlantic road terminates for the present is within thirty miles of Chattanooga, and nearly all of that distance is already graded. No reasonable doubt can be felt as to the completion of that road to Chattanooga, and in nearly all our movements here we may safely calculate that when we make the road to Chattanooga we shall have a continuous railroad to Charleston.

When we see what the state of Georgia has done in the way of railroads, we do not see why any one should be sceptical as to the ability of Tennessee to do the same. The following presents a most encouraging view of the progress of railroad projects in Georgia:—

Railroads in Georgia.—The Milledgeville Journal of the 17th instant, gives the following gratifying account of the enterprize which the state of Georgia has within the last two years manifested in her internal improvements:—

Of the railways already finished:

Central railroad, from Savannah to Macon,	192 miles.
Georgia railroad, from Augusta to Atlanta,	170 "
Western and Atlantic railroad, from Atlanta to Dawsonville,	80 "
	<hr/> 442 "

To be finished in six and less than twelve months:

Macon and Western railroad from Macon to Atlanta,	101 miles.
Western and Atlantic railroad, from Dawsonville to Cross Plains,	22 "
	<hr/> 123 "
Already finished, as above,	442 "
	<hr/> 565 "

It should be stated that the Macon and Western railroad has been in operation several years for the distance of fifty-nine miles, and is now undergoing thorough repair in the hands of a new and strong company.

The Macon and Western railroad is virtually an extension of the Central railroad.—Atlanta is the common point at which the Georgia railroad and the Macon and Western railroad terminate. The Western and Atlantic railroad is the extension of both to the westward, and when it reaches Cross Plains, the works of internal improvement in the state will be completed within fifteen miles of the southern boundary of the state of Tennessee.

From Cross Plains to the seaboard, by railroad, is as follows:—

From Cross Plains to Savannah,	395 miles.
" " " Charleston,	408 "
" " " Nashville,	160 "
via Chattanooga, is about,	160 "
	<hr/> 118

In order to illustrate more fully what this our colony has accomplished, let us suppose that a passenger leaves Washington for Nashville: From Washington to Charleston S. C., 48 hours. From Charleston to Atlanta, 21 " From Atlanta to Cross Plains, 10 " From Cross Plains to Nashville, 36 " being less than five days. The estimate of time is placed higher than it is supposed by many in which the distance may be overcome.—*Nashville Union.*

Wide and Narrow Railroads.—We presume it is the general opinion of the public, that greater speed may be allowed on a railroad of wide than of narrow gauge. Such was our opinion. But we were informed by Capt. Child, that the reverse is true.

A commission was appointed by the British parliament, to test the comparative merits of the wide and narrow gauge on railroads. After an elaborate investigation they have reported that the narrow gauge of four feet eight and a half inches, possesses superior advantages, and recommend its universal adoption.—*Hampshire Gazette.*

We take the above from the Hampshire, (Northampton) Gazette of 31st March, for the purpose of saying that the editor is somewhat mistaken in the remark that "the narrow gauge of 4 feet 8½ inches possesses superior advantages," as he will find by the report of the commissioners, published at length in this number of the Journal. The truth is they recommend its general adoption, because it has gone so far that they cannot change it to the wide gauge without incurring such an enormous expense and derangement of business that it is better upon the whole to adopt it the uniform width for all roads constructed hereafter.

A dividend of two and a half per cent. has been declared on the stock of the Washington Branch railroad.

Navigation of Pennsylvania Canals.

The navigation of the Pennsylvania canals has fairly commenced, as we learn from the "Pittsburgh Gazette," of the 6th inst.:

"D. Leech & Co.'s line of passenger packets commence running to Philadelphia this day. The great comfort of travelling by these elegant boats is well known, and we only wonder how any one can think of taking a stage seat when a passage to Philadelphia is to be had on them. The boats composing the line have been re-painted and refitted during the winter in a very handsome style. Families and ladies especially, will always give them the preference. We need not say any more than that the commanders are gentlemen, careful of the safety, and very attentive to the comfort of their passengers."

Boat Building in Rochester.

The business of building canal boats is largely carried on in this city, and is on the increase. The skill and ability of our artisans in that peculiar branch of architecture are known and appreciated throughout the state. The different boat yards are alive with the most active preparations for the approaching season of navigation, and so great has been the demand that nearly all the builders have, within the last week, been compelled to de-

cline contracts to a very considerable amount. The boat building business is one of the most important of the industrial interests of our city. It gives employment to a large number of hands, and adds materially to the prosperity of the place.

A cursory examination of the several establishments, a day or two since, enabled us to glean the following particulars:

Joel P. Milliner's Boat Yard.—This establishment is the most westerly on the canal in this city, being situated on the north side of the canal, near the Jay street bridge. Mr. Milliner's preparations and conveniences are on an extended scale. The joiner, paint, and blacksmith shops are on the premises, and all in the best order. A new railway, for raising boats out of the water for repairs, is in progress, and will greatly conduce to the convenience and safety of that operation. Mr. Milliner will have completed by the commencement of navigation, eleven new boats. They are of the largest size, and will average a freight of 700 barrels of flour. He employs 44 hands, and his expenses are upwards of \$300 per week. A portion of the above boats are already launched. We observed some very fine specimens of oak plank, 30 inches wide. Mr. Milliner built and launched four new boats late last fall.

S. C. Jones' Boat Yard.—Alderman Jones has four new boats nearly completed, and will have two more—six in all—ready for navigation. This enterprising citizen is devoting his attention in part to manufactures, in which he is largely engaged, and therefore does not carry on boat building so extensively as formerly. Two of Mr. Jones' boats are already launched. He employs about 30 hands in boat building.

Cram & Barhydt's Boat Yard.—Messrs. C. & B. have established a boat yard near the Brown street bridge, where they have three fine new boats nearly ready for business.—They employ about 20 workmen.

Benjamin's Boat Yard.—Z. H. Benjamin, at his old stand between the Genesee Valley canal and Canal street, has three new boats nearly in a state of readiness for launching.—Mr. B. employs about 20 workmen at his establishment. A number of packets are laid up in this yard for repairs and renovation, preparatory to the summer business.

J. Hildreth's Boat Yard.—Alderman Hildreth has built eight fine new boats of the largest class. He employs about 25 hands in the various departments of his business. Two of his new boats are already launched. Mr. H. has been compelled to decline contracts for building several additional boats, owing to the advanced period of the season.

W. W. Howell's Boat Yard.—Mr. Howell carries on boat building very extensively.—His establishment is on the feeder, near its junction with the Erie canal. Notwithstanding his arrangements were such that he did not commence till the building season was considerably advanced, he will turn out fifteen new boats for the spring business. Mr. Howell is erecting a shop in a new yard, adjacent to his old location, 70 feet long and 2 1-2 stories high. He furnishes employment to 62 hands. Besides his establishment in this city, Mr. Howell has another in Buffalo.

Frederick Silence's Boat Yard.—This yard is situated on the Erie canal, north of the mouth of the feeder, and near South St. Paul street. Mr. Silence has nearly completed nine fine new boats. He employs 35 to 40 hands, and his establishment is in excellent order.

Mr. Watson, near the first lock, has built one boat, and employs 4 hands.

This makes up the list of boat building in this city for the present spring.

The following is a summary of the operations of the different builders:

	No. hands.	No. boats.
J. P. Milliner	44	11
S. C. Jones	30	6
Cram & Barhydt.....	20	3
Z. H. Benjamin.....	20	3
J. Hildreth.....	35	8
W. W. Howell.....	62	15
F. Silence.....	40	9
Mr. Watson.....	4	1
	245	56

Boat building in this city has been more than doubled since last year. The whole number of new boats launched here in the spring of 1845, was twenty-three.

We learn that nine new canal boats are on the stocks at Syracuse. We have not ascertained the number at other points.

The price of new boats this season ranges from \$1300 to \$1500. The cost of oak and pine lumber for their construction, is constantly advancing. We have had occasion to notice heretofore the extraordinary pains and expense with which oak timber of large size and fine quality was procured for main walcs and other peculiar purposes.

Great improvements have, of late, been effected in the model and construction of canal boats. A specimen of those in vogue 20 years ago would indeed be a curiosity.—*Rochester American.*

Barton & Belden's Tool Manufactory.

This extensive establishment, in which edge and other tools of a very superior and elegant description are manufactured on a large scale, is creditable to its enterprising proprietors and to the city. It is situated on the Genesee river, at the west end of the bridge, and enjoys an abundant water power.

The old edifice on Buffalo street is 25 feet front by 55 feet deep; the new building which was erected last fall, and which stands adjacent to the other in the rear, is 56 feet by 50. The former is five stories high, and the latter four.

Messrs. B. & B. carry on the manufacture of almost every description of tools. Their work is universally admired and greatly sought after. Among the articles which they produce, are axes, drawing knives, hoes, coopers' tools of all kinds, augurs and planes. The basement stoses of the two buildings are devoted to forging. In the new edifice there are eighteen fires and two trip-hammers.

Messrs. Barton & Belden have recently commenced, on a large scale, the manufacture of hoes, which article they turn off with great rapidity and in high perfection.

Double plane irons are a principal branch of their manufacture. These instruments were, till recently, imported; but the discovery has of late been made that they could be manufactured here 20 per cent. cheaper than abroad, and we understand they are afforded by Messrs. B. & B. cheaper than at the east.—The screws for these planes are very ingeniously made by machinery.

In the upper stories, the wood work of tools—such as planes, augurs, hoes, etc.—is manufactured. The machinery throughout is propelled by water, and by this saving of labor a vast amount of work can be turned off at a cheap rate.

The second story of the new building is devoted to finishing and machine making. Hay and manure forks, of a superior

quality, are manufactured by B. & B. They are much sought after by the farmers in this region.

In the various departments of their business Messrs. Barton & Belden employ about fifty workmen.

We could wish that all the invaluable water power of the Genesee were put in requisition to assist the labor and skill of our artisans.—Large mechanical and manufacturing establishments—whether for working in iron, wood, wool or cotton—are a public as well as private benefit, and deserve public notice and encouragement.—*Rochester American.*

STEPHENS' RULING AND MECHANICAL Drawing Ink, for Engineers, Artists and Designers. This article will be found superior to the best Indian Ink for the above purposes. It does not smear with India rubber or wash off with water. It flows freely from the drawing pen, and never corrodes or encrusts it. It may be used on a plate or slab, with a camel's hair brush, diluting it with water, or thickening it by drying, as required. It has the advantage of being ready for immediate use.

Sold in conical-shaped bottles, convenient for using from, without any stand, at 15 cents each.

All the above articles are prepared by *Henry Stephens*, the inventor, No. 54 Stamford-street, Blackfriars road, London, and sold by Booksellers and Stationers in bottles of various sizes, and may be had wholesale from the agents in Boston, New York, Philadelphia, Baltimore, Washington, Charleston, New Orleans, and St. Louis.

Mr. Wm. W. Rose, Wall-street, New York, is my general agent in the United States.

ALSO,

STEPHEN'S WRITING FLUIDS.

These compositions, which have so remarkably extended the use of the STEEL PEN, are brought to great perfection, being more easy to write with, more durable, and in every respect preferable to the ordinary ink. In warm climates they have become essential.

They consist of a Blue Fluid, changing into an intense Black color.

A Patent Unchangeable Blue Fluid, remaining a deep Blue color.

A Superior Blue Ink of the common character, but more fluid.

A brilliant Carmine Red, for Contrast Writing.

A Carbonaceous Record Ink, which writes instantly black, and being proof against Chemical Agents, is most valuable in the prevention of frauds.

Also, a new kind of MARKING INK for Linen and Inkholders adapted for preserving Ink from evaporation and dust.

Sold in Bottles of various sizes, by all Stationers and Booksellers.

Be sure to ask for Stephens' Writing Fluid.

N. B.—These unchangeable Blue Fluids are Patent Articles; the public are therefore cautioned against imitations, which are infringements, to sell or use which is illegal.

Stephens' Selecit Steel Pens.

The utmost possible care having been bestowed upon the manufacture of these articles, so as to procure the highest finish, they can be confidently recommended, both for flexibility and durability.

16—1m

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4 1/2 P.M., Philadelphia at 10 P.M., and Baltimore at 6 1/2 A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00

" " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to

STOCTON & FALLS, Agents.

RICH & CO.'S IMPROVED PATENT SALAMANDER SAFES.—Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATAILLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat. (Signed.)

RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards. (Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of six hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's safe in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138 1/2 Water st., N. Y.

Also by Isaac Bridge, 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street, Charleston, S. C.

16 4f

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846. Spring Arrangement. 1846. Commencing April 1st.

Passenger trains leave daily, Sundays excepted—
 Boston 7½ p. m. and 4 p. m. for Albany.
 Albany 6½ “ and 2½ “ for Boston.
 Springfield 7 “ and 1 “ for Albany.
 Springfield 7 “ and 1½ “ for Boston.

Boston, Albany and Troy:
 Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Boston and New York, via Springfield: Passengers leaving Boston at 4 p. m., arrive in Springfield at 8 p. m., proceed directly to Hartford and New Haven, and thence by steamers to New York, arriving at 5 o'clock a. m.

For Buffalo: the trains for Buffalo leave Albany at 7½ a. m. and 7 p. m., arriving at Buffalo at 8 a. m. and 8 p. m. next day. Returning, arrive at Albany at 4 a. m. and 4 p. m.

New York and Boston, via Albany: the trains from Boston arrive at Albany in season for the 7 o'clock boats to New York. Returning, the boats, leaving New York at 5 and 7 p. m., reach Albany at 5 a. m., in ample season for the morning trains to Boston.—Steamboats also leave Albany at 7 a. m. and 5 p. m. and stop at the usual landing places upon the river.

The trains of the Springfield, Hartford and New Haven railroad, connect at Springfield, and passengers from Albany or Boston proceed directly on to Hartford and New Haven.

Montreal: through tickets to Montreal may be obtained in Boston, by which passengers may proceed to Troy, and thence by stage via Chester, Elizabeth, etc., and in the season of navigation by canal to Whitehall, and thence by the splendid steamers of Lake Champlain to St. John, via Burlington, and thence by railroad and steamers to Montreal.

The trains of the Hudson and Berkshire railroad connect at Chatham and State Line.

The Housatonic railroad connects at State Line. The trains of the Connecticut River railroad connect at Springfield, and passengers may proceed without delay to Northampton, and thence by stage to Greenfield, Brattleboro, Bellows Falls, Hanover, Haverhill, etc.

Stages leave West Brookfield for Ware, Endfield, New Baintree and Hardwick; also leave Palmer, for Three Rivers, Belchertown, Amherst, Ware and Monson; Pittsfield for North and South Adams, Williamstown, Lebanon Springs, etc.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES,
 Superintendent and Engineer.

Western Railroad Office,
 Springfield, April 1, 1846. } 14 1y

RAILROAD IRON.—THE “MONTOUR Iron Company,” Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sts. 43 1y

RAILROAD IRON WANTED. WANTED, 50 tons of Light Flat Bar Railroad Iron. The advertisers would prefer second-hand iron, if not too much worn. Address Box 384 Philadelphia P. O.—Post paid. 8 4t

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.

PETER COOPER, 17 Burling Slip.
 New York, January 23d, 1846. 1y 10

C. J. F. BINNEY, GENERAL COMMISSION MERCHANT and Agent for Coal, and also Iron Manufactures, etc.

No. 1 CITY WHARF, Boston.
 Advances made on Consignments.
 Refer to Amos Binney, Boston.
 Grant & Stone, } Philadelphia.
 Brown, Earl & Erringer, }
 Weld & Seaver, Baltimore.
 December 8, 1845. 1m 50

SCRIBNER'S ENGINEERS' AND MECHANICS' Companion. For sale at this office. Price \$1-50. 1

LARD OIL FOR MACHINERY, ETC.—Winter pressed, cleansed from gum, and manufactured expressly for engines and machinery of all kinds, railroads, steamboats, woollen and other manufactures, and for burning in any lamp without clogging the wick. Engineers of railroads and others who have used this oil, and to whom reference can be made, give it preference over the best sperm for its durability, and not requiring to be cleaned off like that, and costing about two-thirds the price. For sale by the barrel, and samples can be sent for trial, by addressing C. J. F. BINNEY, Agent for the Manufacturer, Boston, Mass.

11 cop 1m

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER,
 Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, near Third, Philadelphia. below Walnut, Philadelphia.

KITE'S PATENT SAFETY BEAM.

MESSRS. EDITORS.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

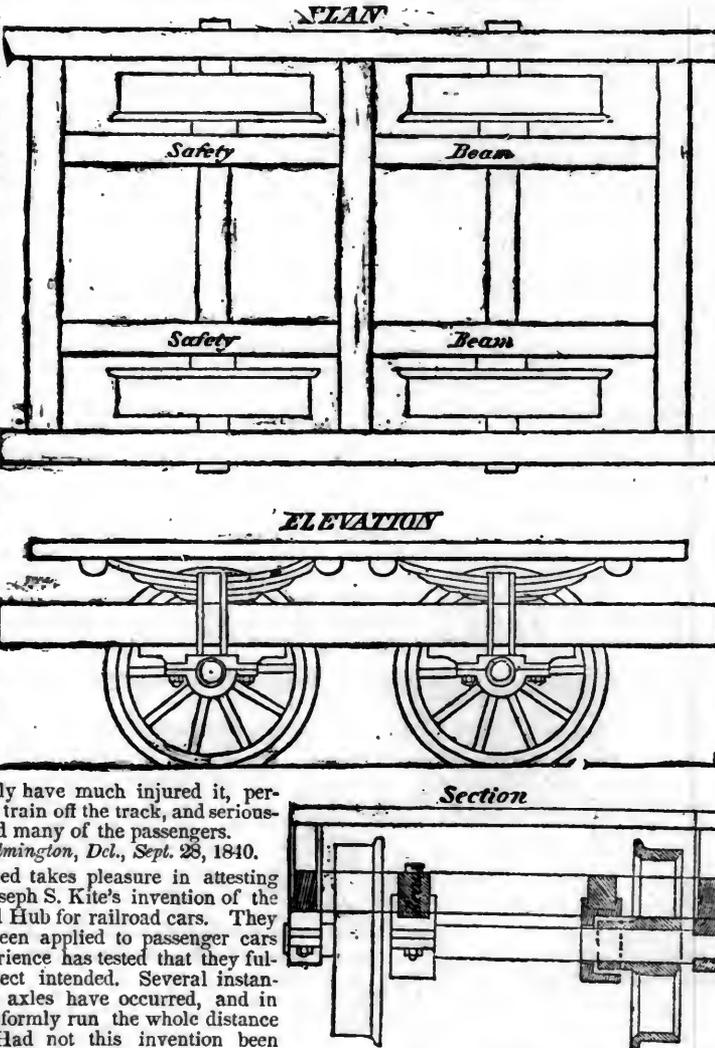
On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheeled passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.

Wilmington, Del., Sept. 28, 1840.

The undersigned takes pleasure in attesting to the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.

In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.

JOHN FRAZER, Agent, JAMES ELLIOTT, Sup. Motive Power,
 GEORGE CRAIG, Superintendent, W. L. ASHMEAD, Agent.
 A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 1 Hanover st., N. York. ja45



FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston; S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

** The letters in the figures refer to the article given in the Journal of June, 1844. ja45

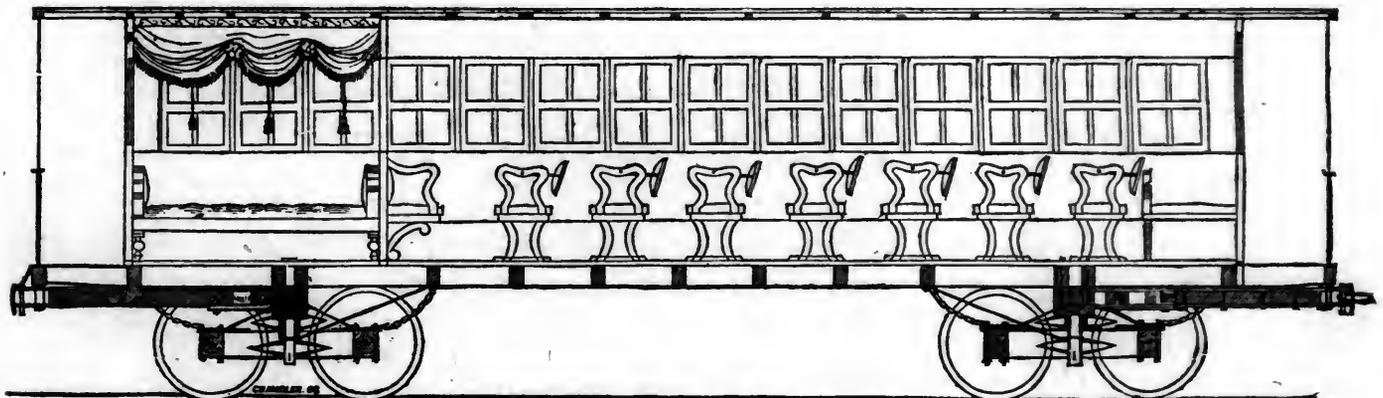


BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

The article is complete in itself, occupies but little space, is perfectly portable, and requires no brick work, not even to stand upon. It is valuable not only in the saving of time and labor, but in the economy of fuel, as it has been ascertained by accurate measurement, that the saving in that article is fully two-thirds over other methods heretofore in use. They are now for the first time introduced into New York and Boston by the subscriber, who has the exclusive right for the New England states, New York and New Jersey, and are manufactured by

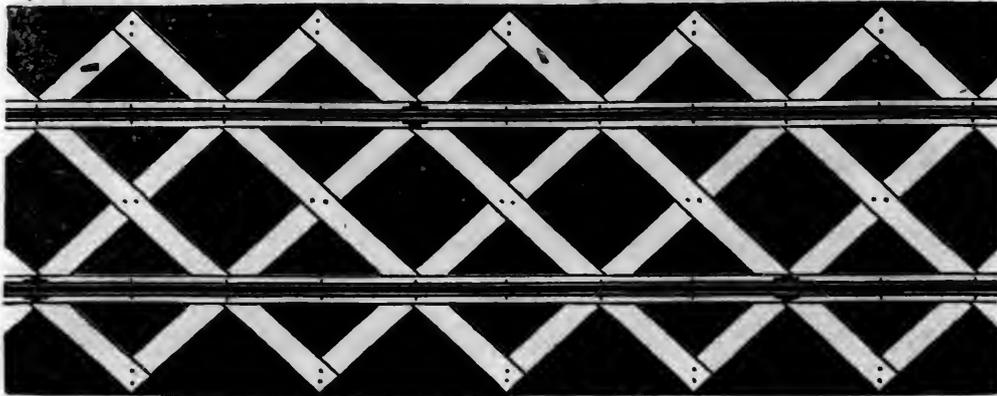
CURTIS & RANDALL, Boston; and by FORCE, GREEN & CO. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum. To insure the faithful performance of this contract, he will pledge one-fourth the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON,
Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made. 1y1

W. R. CASEY, CIVIL ENGINEER, NO. 23 Chambers street, New York, will make surveys, estimates of cost and reports for railways, canals, roads, docks, wharves, dams and bridges of every description. He will also act as agent for the sale of machinery, and of patent rights for improvements to public works.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
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One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum....	5 00

ENGINEERS and MACHINISTS.

- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM and GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- H. R. DUNHAM & Co., N. Y.
- WEST POINT FOUNDRY, N. Y.
- PHENIX FOUNDRY, N. Y.
- R. HOE & Co., N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.
- BALDWIN & WHITNEY, Philadelphia, Pa.
- THOMAS & EDMUND GEORGE, Philadelphia. (See Adv.)

TWO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 1t1

LEXINGTON AND OHIO RAILROAD. Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 25 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above. 35 1y

CYRUS ALGER & CO., South Boston Iron Company.

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/4 x 1/2 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/4 x 1/2 " Flange Iron Rails. 75 " 1 x 1/2 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, Albany Iron and Nail Works,

RAILROAD IRON.—THE MARYLAND AND NEW YORK IRON AND Coal Company are now prepared to make contracts for Rails of all kinds. Address the Subscriber, at Jennon's Run, Alleghany County, Maryland. WILLIAM YOUNG,

LAWRENCE'S ROSENDALE HYDRATIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

BALTIMORE AND SUSQUEHANNA Railroad. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a.m., and arrives at 6 1/2 p.m. Arrives at York at 12 1/2 p.m., and leaves for Columbia at 1 1/2 p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62 1/2. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3 1/2 p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc. Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day any passenger train.

D. C. H. BORDLEY, Supt.
Ticket Office, 63 North st.

CENTRAL RAILROAD-FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods..... 13 cts. per cubic ft. On brls. wet (except molasses and oil).....\$150 per barrel. On brls. dry (except lime)... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred. On hds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd. On molasses and oil.....\$6 00 per hhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, Gen'l. Supt. Transportation.

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHICALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot.....16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs.....95 "
" Sugar, coffee, iron, hardware, etc.....65 "
" Flour, bacon, mill machinery, grindstones, etc.....33 1/2 "
" Molasses, per hogshead \$9 50; salt per bus. 20 "
" Ploughs and cornshellers, each.....75 "
Passengers \$10-50; children under 12 years of age half price.

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON, Ch. Eng. and Gen. Agent.
Augusta, Oct. 21 1845. *44 1/2 y

FLAT BAR, ENGLISH ROLLED, RAILROAD Iron, 2 1/2 x 1/4—a large part suitable for sale by C. J. F. BINNEY, Commission Merchant, 1 City Wharf, Boston, Mass 11 1m

WESTERN AND ATLANTIC RAILROAD. The Western and Atlantic Railroad is now in operation to Martietta, and will be opened to Cartersville, in Cass county, on the 20th of October—and to Coosa Depot, (formerly known as Borough's,) on the 20th of November.

The passenger train will continue, as at present to connect daily (Sundays excepted) with the train from Augusta, and the stage from Griffin.

CHAS. F. M. GARNETT, Chief Engineer.

LITTLE MIAMI RAILROAD.—Distance 65 1/2 Miles. Fare, \$1 50. From 1st November to 1st March Passenger Trains leave Cincinnati for Xenia at 11 o'clock, A.M.

Returning, leaves Xenia at 8 1/2 o'clock, A.M. Freight Trains run daily, Sundays excepted.

At Xenia, Passenger Trains connect with daily lines of stages to Columbus, Wheeling, Cleveland and Sandusky city.

W. H. CLEMENT, Supt. and Engineer.

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. G. A. NICOLLS, Reading, Pa. ja45

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to James P. Allaire, Peter Cooper, Murdock, Leavirt & Co. } New York: J. Triplett & Son, Richmond, Va. J. R. Anderson, Tredegar Iron Works, Richmond, Va. J. Patton, Jr. } Philadelphia, Pa. Colwell & Co. J. M. L. & W. H. Scovill, Waterbury, Con. N. E. Screw Co. } Providence, R. I. Eagle Screw Co. William Parker, Supt. Bost. and Wofc. R. R. New Jersey Malleable Iron Co., Newark, N. J. Gardiner, Harrison & Co. Newark, N. J. 25,000 to 30,000 made weekly. 35 1/2 y

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective iron and Brass Castings of all descriptions. ja45 1/2 y

TROY AND GREENBUSH RAILROAD. Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at 6 1/2 A.M.	Leave Albany at 7 A.M.
" " 7 1/2 " " " 8 " "	" " 8 1/2 " " " 9 " "
" " 9 1/2 " " " 10 " "	" " 10 1/2 " " " 11 " "
" " 11 1/2 " " " 12 M.	" " 1 1/2 P.M. " " 1 1/2 P.M.
" " 2 " " " 3 1/2 " "	" " 3 " " " 4 1/2 " "
" " 4 " " " 5 1/2 " "	" " 5 1/2 " " " 6 " "
" " 6 1/2 " " " 7 " "	

The 6 1/2 a.m. and 2 o'clock p.m. runs from Troy, to Boston runs.

The 12 m. and 6 o'clock p.m. trains from Boston runs.

Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT, Superintendent.
Troy, April 1st, 1846. 14 1/2 y

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Patterson, N. J., or 60 Wall street, N. York.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.

THE SUBSCRIBERS, AGENTS FOR the sale of Codorus, Glendon, Spring Mill and Valley, Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L KIMBER, & CO., 59 North Wharves, Jan. 14, 1846. [1/4] Philadelphia, Pa.

RAILROAD IRON AND LOCOMOTIVE
 Tyres imported to order and constantly on hand
 by **A. & G. RALSTON**
 Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
 Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
 a45 President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS.
 etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
 Albany, N. Y.

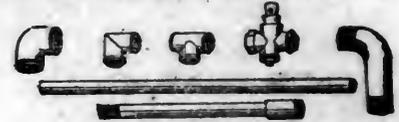
Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

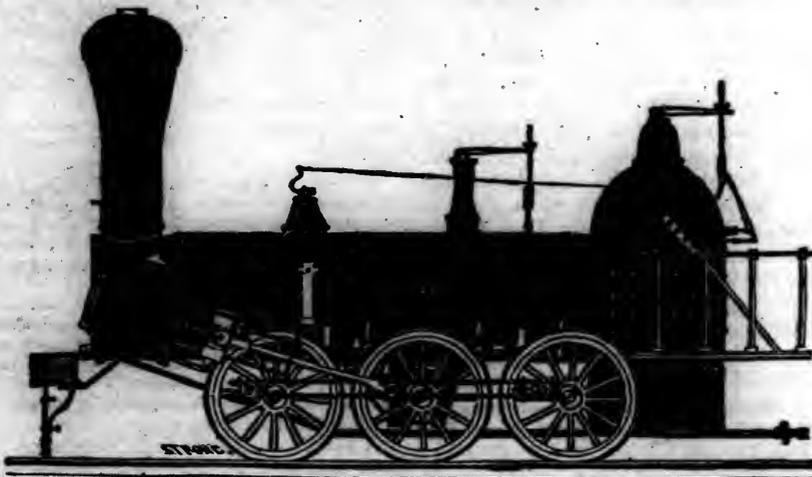
WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
 Warehouse S. E. Corner of Third & Walnut Streets,
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NORRIS' LOCOMOTIVE WORKS.
 BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following description, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14 1/2	" " " × 20 " "
"	4,	12 1/2	" " " × 20 " "
"	5,	11 1/2	" " " × 20 " "
"	6,	10 1/2	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels or the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4 1/2 P.M., Philadelphia at 10 P.M., and Baltimore at 6 1/2 A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00
 " " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to
STOCTON & FALLS, Agents.

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,457 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches; Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 1/2 feet two stories high, with a shed part 45 1/2 x 20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 230 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 51x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide

For terms, apply to **HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia.** j45

RAILROAD IRON—500 TONS T RAILS

R—60 lbs. to the yard. Depth of rail, 3 1/4 inches; width of base, 4 inches; width of top, 2 1/4 inches; length of bars, 15 and 17 1/2 feet. Apply to A Steam Pile Driver—built by "Dunham & Co."—in complete order; has never been used, and for sale a bargain. Cost originally \$5,000. Also 12 Railway Passenger Cars, that have never been used, which will be sold a bargain. 8 1/2

DAVIS, BROOKS & CO.,

April 11. 10 30 Wall street.

Another Bold and Important Project.

We gave in our last, the memorial of Mr. Whitney, in relation to the project of a railway from lake Michigan to the Pacific, for the purpose of opening a more direct and a cheaper communication with China and the islands of the Pacific as well as to provide a more convenient mode of settling the fertile plains of Oregon. And we now give from the Kingston, (Jamaica,) Morning Journal of 11th March, the outline of another project by which it is designed to bring the east and the west nearer together by steamboats and railroads. The projector of this route is *Edward McGeachy, Esq.*, crown surveyor of the island of Jamaica, a gentleman of science and much professional experience, who visited the United States and Canada, and examined most of our public works last year.

We are informed by a letter from Mr. McGeachy, that he forwarded for our use by the brig *Glamorgan*, which left Kingston the latter part of February, a full description with maps, etc., of the proposed route, but we regret to say that they have not yet come to hand, nor had we heard of them until the receipt of his letter now before us dated March 12. We therefore give the article above alluded to, and shall look with same interest for the more detailed description of the project.

The following is the article alluded to:

The present packet takes home the details and plans in illustration of, perhaps, the most comprehensive yet simple scheme, for facilitating intercourse between extensive and distant parts of the world, that has ever been laid before the public. The project originates with *Edward McGeachy, Esq.*, crown surveyor in this island; and the documents are forwarded to Sir Robert Peel with a view to their being laid, through him, before the home government. This gigantic undertaking will bind together, as it were, with an iron clasp, China, the Sandwich islands, the isthmus of Panama and the adjacent countries, Jamaica, Cuba, the United States, the Canadas, and Great Britain, by a regular and certain course of interchangeable railway travelling and steam navigation, promoting intercourse immensely between the respective countries, and materially abridging the periods of transit. The countries enumerated above are those lying in the direct course through which it is contemplated that the line of transit shall pass; but almost the whole western world and the numerous islands of the Pacific, will participate collaterally in the advantages of the scheme. We have scanned over the details of the scheme, and have seen the plan of the route proposed to be adopted and will briefly describe the latter. We think that a reference to a map will convince any one of the practicability and simplicity of the enterprise, extensive as it is. It is proposed to adopt Canton, in the east as a starting point—to traverse the Pacific by steamers passing through the Sandwich islands, a group rapidly growing into importance to reach the isthmus of Panama, and cross it by a railway—to reach Kingston, Jamaica, by steamers—

to cross by railway to the northwestern extremity—thence by steamer to Batabano, in Cuba, and across by railway to the Havana—from the Havana by steamer to Tampa bay, on the southeastern coast of Florida, and thence northward along the seaboard, by means of railways to be formed and those already in existence, to New York—from New York to Boston, whence passage may be taken by the Cunard line to Halifax, or the progress may be continued by railway northward to the bay of Fundy, opposite Annapolis; to Annapolis by steamer, then across by railway to Halifax, and thence by steamer to Bantry bay, in Ireland—across to Dublin by railway—from Dublin by steamer to Holyhead, and from Holyhead to London. By this route, the passage from Canton to England, at present occupying eleven weeks, will be reduced certainly to nine, and probably to eight: and from Jamaica to Bantry bay to fourteen days and a few hours. These conclusions as to the length of passage are not conjectural; but are deduced from existing facts by simply adding together the time in which it is known that certain distances can be, and have been traversed by means of railways and steamboats. To the British public the above are the most important results. There are many benefits to the United States attendant on the plan, the most marked of which is the facility of intercourse which it will create between the more northern states, and those situated on the gulf of Mexico.

The plan however, does not stop here; for it is proposed to connect with this route the great Canadian railway now projected.—Steamers will also proceed from New Holland, Van Dieman's Land, New Zealand and the several islands and coasts of the Pacific to Panama.

There is a collateral project to connect Buenos Ayes, Montevideo, Brazil, and in fact, almost the whole southwestern coast of South America with the coast of Africa, at their narrowest points of separation, by railways along the South American coast, and steam navigation to Sierra Leone or its vicinity; and to continue the connection by railway up to the straits of Gibraltar, across by steam, and onwards through Spain and France by the Leviathan railway, upwards of two thousand miles in length already in operation, and so on to London. There is we apprehend little likelihood of this part of the scheme being carried out, at least for a long time to come, on account of the social and political condition of the South American, and particularly, of the African continents. Mr. McGeachy does not, however, himself expect the immediate realization of this portion of his scheme.

The steamers already running on the Pacific and centreing their destinations at Panama, will by an adequate increase, supply the means of transit from China and the islands of the Pacific ocean to that port. The vessels of the Royal Mail Steam company will accomplish that portion of the scheme included in Mexico, central America, and the West Indies, and furnish passage and carriage to Tampa bay. To carry out the ob-

jects of Mr. McGeachy's plan, it will be necessary to form a railway from Tampa bay to Charleston. Mr. McGeachy has, by personal observation, and by information drawn from authentic and reliable sources, ascertained that the route proposed is quite practicable. An American company has projected a railway from Charleston to Wilmington; and from thence there already exists almost a continuous railway to Portland in the state of Maine. By a comparatively short line the route will reach the bay of Fundy at a point in the state of Maine, opposite Annapolis, where the connection will be kept up by steamers; and another short line will connect Annapolis with Halifax. From Halifax the Cunard line will supply conveyance to Bantry bay. A comparatively short continuation northward from the bay of Fundy will connect the proposed route with the projected Atlantic and St. Lawrence railroad of Canada; and it is proposed to continue the last mentioned line from its eastern termination through Truro down to Halifax. It will thus be seen that the machinery of this extensive plan is in a great measure already provided.

For the accommodation of those who might be disposed to avoid the hazards of a winter passage from Halifax, it is proposed to put on a line of steamers from Charleston to Bermuda from whence passage might be obtained to England in the vessels of the Royal Mail Steam company.

The general advantages of the first part of the plan are at once apparent. What will be its benefits to us in particular? They must be immense. Almost every European and American proceeding to the numerous coasts and islands of the Pacific, or China, would pass through Jamaica—a quantity of eastern goods, destined for the supply of North America and Europe, would be carried through the island—she would become the *entrepot* for the supply of such goods to almost the whole of the West India islands, and to a part of the North and South American continents—and we should at almost whatever cost, secure a railway running from the southeastern to the northwestern coast. These are the direct benefits which one perceives at a glance. There are indirect advantages too, following in the train of those enumerated, many of which are obvious enough, while many others it is impossible to foresee.

An undertaking so vast in design will necessarily require the co-operation of many states and of a great number of individuals; and it must require, too, a very large capital. Much time must also be consumed in putting it into shape, and in securing the coadjutancy of the nations and the individuals on whom its success depends, before even the initiatory steps for forwarding it can be taken. A much longer time will elapse before the project can be in operation. But taking all these preliminary obstacles into contemplation, and making due allowance for every lapse of time whether necessary or expedient, we think that from the obvious utility of the scheme, many years will not have passed over before it will be in full play.

We do not consider that the uncertain nature of our relations with the United States can affect or retard the undertaking; for in the first place, we are almost convinced that there will be no war; and in the next, if there be a war, it will be at an end long before it is time

to lay a plank for a single steamer, or to shape a sleeper for one of the contemplated railways.

We cannot in a newspaper article, enter more into detail; and our readers must therefore be contented with the foregoing outline of the project. Mr. McGeachy however, intends publishing, for general information, a pamphlet explaining at length the nature of his plan and the data on which it is grounded, accompanied by maps and plans delineating the proposed route. The pamphlet we believe, will be published in London, almost immediately after the packet arrives in England.

The public announcement of this scheme by Mr. McGeachy, convinces us that he can have had no personal or interested motives in its concoction, for it must be at once apparent, that his laying it unrestrainedly before the public may lead to its adoption by any other parties. We therefore consider that for this reason, the inhabitants of Jamaica and the British public in general, will be the more indebted to him for his plan in the event of its being successfully carried out.

The Great Chain of Southern Railroads.

We republish another article on this important subject, from the National Intelligencer, as it is quite time that the people of the country were aroused to its consideration, and to action upon it. We are pleased to see the subject agitated, and by an able hand at Washington, where it will meet the eye and ear of the assembled wisdom of the nation. The writer says:

"On the importance and necessity of a continuous line of railroads, connecting the Potomac and the Mississippi, and leading from the seat of government, to the great commercial emporium of the south, (New Orleans,) nothing more need be said by the humble correspondent of the Intelligencer. But, as distinguished members of congress have lately sustained his views of the constitutional power of this government to construct works of internal improvement, he may be permitted to quote from one or two speeches, of signal ability, that might have application to the southern chain of railroads leading towards New Orleans. "It is generally known," said Mr. EWING, of Tennessee, "that a series of railroads from Charleston, in South Carolina, to Chattanooga, on the Tennessee river, have either been completed, or are now under contract, with the immediate prospect of completion. By these railroads and the southern rivers a chain of connection is effected from the Tennessee river with the states of South Carolina and Georgia, and with a portion of the state of Alabama; and it only needs a railroad from Nashville to Chattanooga to effect a still more important connection. By such a railroad, the great desideratum, so long looked upon as visionary, or at least remote, of bringing together the south Atlantic seaboard and the great west would be effected—a consequence, the importance of which in a social, political, commercial, and military point of view, is nearly incalculable. In view of the immense results to be affected by such a chain of communication, for all parts of the Union, but especially the southeast," Mr. Ewing spoke of his deep regret at the opposition or lukewarmness of southern members of congress to works of improvement so advantageous to

their constituents. If measures of internal improvement were carried out, Mr. Ewing added:

"We should hear no more complaints from the southeast of her isolated condition, of the neglect of her just rights, of nullification, and of tariff injustice. Her interests would soon become common with those of the rest of the Union. That such a connection can be formed is now, I think, beyond a reasonable doubt. The legislature of Tennessee, at its last session, granted a most liberal charter for the construction of a railroad from Nashville to Chattanooga, and I have every confidence that in a few years this communication between Nashville and the seaboard will be complete. The advantages to all parties are in fact so obvious, the cost of the railroad comparatively so insignificant, that I must believe the people of Nashville and of Charleston recant to their best interests if the measure should fail; and this I am not prepared to believe."

Mr. E. went on to observe, that the small appropriation demanded for the Cumberland river, in connection with private enterprise, would soon remove every serious obstruction between the southern cities and St. Louis and Cincinnati. He dwelt upon the advantages of the establishment of such a communication:

"They are so obvious, and indeed so generally admitted, as to render this almost unnecessary." "He adverted, with regret, to a spirit of alienation existing between the south and the northwest, both social and political, arising doubtless from their lack of social and commercial identity, to convince me of the necessity of tying them together by additional and stronger bonds. Their mutual interest and dependence is, I apprehend, the strongest chain by which they can be held together. It is this which secures the peace of nations; it is this which, if anything, will preserve from wreck our mighty republic. The constant interchange, then to arise, of commodities, of opinions, of society, of intelligence, between these two sections of the confederacy, I deem of the highest importance, and I believe this may be greatly advanced." "I might not improperly, perhaps, say a word of the importance of this chain of communication" [is not that through the interior of North Carolina to New Orleans equally important?] "in a military point of view. Tennessee and Kentucky * * * will ever be found ready to afford assistance in time of war to their more exposed brethren, if the opportunity of doing so with effect shall be afforded to them."

He adverted to the importance of internal improvements for the speedy transportation of troops and munitions of war. "Might not Charleston at some day need the same defenders as New Orleans? Are not both the south and the northwest interested in receiving aid by the shortest and the most expeditious route, in case of sudden invasion?" or in case of insurrection, might be added. Yet the main opposition to works of internal improvement, that the southern states omit to have executed, in which the aid of the general go-

vernment is needed, comes from the south itself. "I would fain hope," says Mr. E., "that the south would rid herself of those narrow scruples in the construction of the constitution which have been the main obstacle to her advancement in prosperity and political consideration."

The town of Nashville, being situated about two hundred miles from the mouth of the Cumberland river, navigable for a large part of the year for the largest class of steamboats and for small steamboats nearly the whole year as high as Nashville, a place of considerable trade and the metropolis of the state, this becomes an important link in the scheme of internal improvement:

"By nature, and without reference to any artificial improvement in other quarters, the Cumberland river forms one of the main connecting links for a large portion of Tennessee and Kentucky with New Orleans, St. Louis, Pittsburg, Cincinnati, and, through these, with most of the south, and with all on the western and northeastern states."

Senator Benton, in his speech in reply to Gen. Cass, referred to the route that may hereafter form our connection with Eastern Asia; that—

"From the South Pass (across the Rocky mountains) and through it the overland line of travel will forever be; but the return route of Lewis and Clarke will be the route of commerce. It presents but two hundred and ten miles of land carriage between the Great Falls of Missouri and the Upper Falls of Columbia, passing the mountains through a low gap and a fertile country, long marked by a large Indian and buffalo road."

This points to the importance of the links of connection by water from St. Louis to Nashville, and from Nashville by railroads to Charleston and other cities on the seaboard. The link in the railroad connection between Raleigh, North Carolina, and Camden, South Carolina, becomes of importance, not only for North Carolina interests, and especially to connect Raleigh and Nashville, but with a view to a continuous railroad from Washington to New Orleans, by Mobile, and from Washington to Vicksburg, on the Mississippi, by Jackson.

If these works be not done by the states most interested in them, or by the enterprise of private associations, it becomes the duty of the general government, out of regard for "the general welfare," to have them executed. The Hon. Andrew Stewart, of Pennsylvania, in his late able speech on internal improvements, said: "The execution of works strictly national had been improperly cast upon the states; and if they were ruined it was because the general government had refused to exercise its own legitimate powers and to perform its own legitimate duties."

AN OBSERVER.

Southern Railroads.

We give another well written article on the importance of completing the chain of railroad from Washington to New Orleans, from the National Intelligencer. It may well be asked "how can congress expend the public money better, in preparing for national defence, than

in the construction of the railroad from Washington to New Orleans?" In no way, it appears to us, can so much be accomplished in the way of defence and at the same time for the general business of the country, as by the construction of railroads—as they will be found efficient in war and still more so in time of peace, without being a burthen to the people.

"The 'observer' in the Intelligencer acknowledges his obligation to 'Carolina,' for the satisfactory and interesting information concerning South Carolina enterprize in her construction of railroads, especially that 'to Camden, in the direction to Raleigh, now under contract and rapidly progressing to completion.' 'Observer' is indebted to 'Carolina' for details of which he had been 'ignorant; having perhaps strangely imbibed the idea that the railroads in South Carolina, leading from Charleston, were the fruits of private enterprize, and that the state of Georgia was entitled to the credit of the system of railroads in that state, and 'now in progress to Tennessee in one direction and to the Chattahoochie in another.' The 'Observer' would not rob South Carolina of a single leaf of the chaplet she has earned by her glorious public works; on the contrary, he wishes her good speed, and that she may soon undertake the remaining 'sixty miles in the direction of Raleigh she is prepared at any time' to do 'if North Carolina can only be awakened from her slumbers.' Is there no way to wake up 'old Rip Van Winkle?' Surely North Carolina will construct the 'one hundred miles' in that state. Her intelligent and patriotic citizens cannot be so insensible to the interests of the 'old north' as to leave that link alone unprovided for in the great chain of railroads between the Potomac and the Mississippi. This link once under way, much time would not elapse before there would be a continuous railroad from Washington to New Orleans.—The entire distance might be then travelled with safety in less than 4 days!

I now learn that to supply the deficient links between Washington and Vicksburg, on the Mississippi, would not require more than five hundred and seventy-five miles of railroad.—Six millions of dollars would be a liberal allowance for its construction, and to put it in operation the entire distance. According to the data for the construction of southern railroads at this time, the cost might be considerably less. The links in the great chain unprovided for and unfinished are as follows:

From Washington to Aquia creek, on the Potomac, about	50 miles.
From Raleigh (N. C.) to Camden (S. C.)	160 "
From 'Portsmouth' towards Montgomery, (Ala.)	135 "
From Montgomery to Jackson, (Miss.)	230 "
	575

From Jackson to Vicksburg, on the Mississippi, there is a railroad now in use. If the Carolinas, or private associations, construct the railroads that are needed in those states, it is not unreasonable to conclude that the three hundred and sixty miles allotted to Alabama and Mississippi will be done also, as the cost would scarce exceed half that of the railroad between Boston and Albany, constructed by the enterprize of the citizens of Boston.—In Massachusetts alone there are now upwards of seven hundred miles of railroads in use, and other railroads are being constructed and are

in contemplation. Their cost per mile has averaged more than three times as much as the estimate of railroads in Alabama. Yet the investment in every instance has proved to be advantageous. If the Yankees would but lend a hand, the hundred and sixty miles of railroad needed in the Carolinas would be speedily constructed, and at a cost not much exceeding one million of dollars. Perhaps their aid is not needed on the route from Georgia to Jackson, in Mississippi. On the completion of the railroad to that point it would probably be extended southward, by Baton Rouge to New Orleans, about two hundred and seventy miles at a cost perhaps of \$1,900,000; assuming as data the estimate for a railroad from Mobile to Pascagoula, at \$7,000 a mile. For less than eight millions of dollars it is very likely a continuous railroad might be made from Washington to New Orleans, in connection with the roads already constructed, that would lead from the seat of the national government and pass through those southern capitals—Richmond, Raleigh, Columbia, Montgomery, Jackson, and Baton Rouge. Why should not such a work be constructed? may be asked in these days with amazement. So soon as a continuous railroad shall be in operation as far as Montgomery, in Alabama, it is likely it would be continued in the most direct route to New Orleans by Mobile. Advantage however, might be taken of the Jackson railroad nearly as far as Demopolis. From the intersection with it of the railroad to Mobile might be about one hundred miles; the cost of this branch might be about a million of dollars, but probably less.

From Mobile to Pascagoula, on the gulf of Mexico, forty miles, the route has been surveyed for a railroad, and an estimate made, amounting to \$286,458 04

"Upon inspecting the map of Alabama," says the report, "it will be perceived that Pascagoula is nearly in a direct line between New Orleans and Mobile. A railroad is now, 1840, in course of construction from New Orleans to Cat island, distant from Pascagoula about 35 miles. In the event of the completion of these two lines, a continuous chain of railway communication will be afforded between two of the most important commercial cities in the south, with the exception of thirty-five miles of unavoidable steamboat travel."

But that would be along a bay, sheltered by the island in the gulf of Mexico. The distance by this route would not much exceed one hundred and twenty miles. A friend of the undertaking is of the opinion that—

"When the Mexican gulf railway and that from Mobile to Pascagoula shall have been completed, the distance between New Orleans and Mobile will be travelled in six to seven hours, and the great communication between the north and New Orleans shortened by these roads near twenty-four hours. How important then, that the public mind be directed to this road to Pascagoula?"

The want of capital at Mobile, the depression of the price of cotton, and commercial embarrassments since 1840, have hitherto prevented the prosecution of the railroad to Pascagoula, notwithstanding the entire confidence that it would be a profitable investment. The writer quoted adds:

"The estimate of cost would now be much less than at that time, 1840, labor and materials of all kinds having fallen. At the same time, that the expense of building the road would now be less, the travel would be greater. From the new state alone to the north and east, on business would be a large item;

and as the rapidity and facility of getting to the east by this route is increased, so must the travel by the west be diminished."

Supposing the railroad from Montgomery to New Orleans by Mobile, to cost a million and a half of dollars, (a liberal estimate, "ten millions of dollars," might nearly complete a continuous route from Washington to New Orleans, both by Mobile and Baton Rouge. In case of war these roads would be of the first importance, as connected with the defence of the country. The Hon. A. STEWART, of Pennsylvania, in a late speech in congress on internal improvements, oppositely and forcibly remarked:

"As a means of national defence, a general system of railroads, connecting our cities on the seaboard and penetrating the interior, was better and more effectual in an extended country like ours than any system of fortifications that could be devised. Should the enemy make a demonstration at any point on the seaboard, before he could approach and effect a landing, troops would be collected sufficient to prevent the success of the enterprize. Had we possessed such roads last war, this city (Washington) would never have fallen into the hands of the enemy; in two hours, troops might have been brought from Baltimore, who would have effectually checked the march of the invaders, and they never would have wrapped the capitol in flames. But forts, except in very particular cases, may be avoided."

* * * "In time of peace forts are useless; costing millions to erect them, they are utterly without value; while at the same time, they continue to cost large sums to keep them in a state of repair and suitably manned. But railroads are as useful in peace as in war. They are well worth all they cost for the purposes of commerce and intercourse." * * * "If railroads are a better means of defence than forts, then they are more constitutional, being more 'necessary and proper' for carrying out the defensive powers conferred upon congress. "The military power in the constitution empowered congress to make military roads for the transportation of armies and the munitions of war. And so the commercial power authorized congress to make commercial roads, whether over land or by the channels or course of rivers." * * * "Whether the road be five or five hundred miles long, is a matter perfectly immaterial: the true question is, what is its purpose? 'Congress' says the constitution, 'shall have power to establish postoffices and post roads.'"

And suppose a continuous line of railroads, direct from Washington to New Orleans, be the established post road, we shall no longer hear of "six mails" at a time being "due at New Orleans," no intelligence having been received there for more than a fortnight from Washington.

Concurring with the honorable member from Pennsylvania in the right under the constitution, I beg leave to inquire how can congress expend the public money better, in preparing for national defence, than in the construction of the railroad from Washington to New Orleans?

While this railroad is in progress south, I should be glad to see the Cumberland road in progress west, and that it also start as thought to do, from the seat of government. It appears to me very strange that the link of railroad should be wanting between Washington and Aquia creek; and of the Cumberland road, about the same distance, between Washington and Frederick. Should such things be?

AN OBSERVER.

ENGLISH RAILROAD SHARE-LIST.

NAME OF RAILWAY.	Miles opened.	Total sums, in pounds, authorized to be raised by shares.	Total sums, in pounds, authorized to be raised by loan or mortgage.	Total sums, in pounds, expended at dates of latest balance sheets.	Cost of working in pounds for six months as stated in latest balance sheets.	Total earnings, in pounds, for six months as stated in latest balance sheets.	Dividend at last meeting:		Paid on share.	Value of share.	NEW AND PROPOSED RAILWAYS.	Share Capital.
							Per share.	Per cent. per annum.				
Arboath and Forfar.....	15	102,000	35,000	138,870			0	12 6 2	10 0	25 20	Aberdeen.....	1,000,000
Birmingham and Gloucester.....	55	1,187,500	407,336	1,500,806	39,261	53,203	1	5 0 2	10 0	100 100	Barnsley Junction.....	200,000
Brandling Junction.....	23	161,700	365,470	481,452						50 54	Belfast and Ballymena....	385,000
Bristol and Gloucester.....	37	400,000	211,000	657,825					nihil.	30 59	Blackburn and Accrington..	400,000
Chester and Birkenhead.....	14	750,000	143,170	518,980	5,856	13,148	0	10 0 2	0 0	50 60	Birk. and Ches. Junction..	1,000,000
Dublin and Drogheda.....	31	450,000	150,000	582,254					nihil.	60 115	Bolt, Wigan and Liverpool	800,000
Dublin and Kingston.....	6	200,000	152,200	349,736				0 0 0	0 0	100 251	Caledonian.....	1,800,000
Dundee and Arbroath.....	16	100,000	49,445	153,416	2,989	6,993	1	5 0 5	0 0	25 36	Cambridge and Lincoln....	1,250,000
Durham and Sunderland.....	18	169,350	124,055	270,392	9,889	17,702			nihil.	50 25	Chatham and Portsmouth..	5,000,000
East County and North and East.....	86	4,443,900	341,155	3,931,905	47,885	118,726	1	6 6		45 57	Chester and Wrexham....	120,000
Edinburg and Glasgow.....	46	1,125,000	375,000	1,649,523	29,429	55,866	1	5 0 5	0 0	50 78	Churnet valley.....	1,800,000
Glasgow, Paisley and Ayr.....	51	937,500	1,071,258	12,446	36,736	1	5 0 5	0 0	50 72	Direct Northern to York...	4,000,000	
Glasgow, Paisley and Greenock.....	22	650,000	216,666	797,643	11,830	23,447	0	5 0 2	0 0	25 21	Dublin and Belfast.....	950,000
Grand Junction.....	104	2,478,712	2,503,671	64,309	195,080	5	0 0 10	0 0	100 239	Dundee and Perth.....	250,000	
Great North of England.....	45	969,000	581,017	1,307,487	12,201	36,189	3	0 0 6	0 0	100 230	Edinburg and Northern....	800,000
Great Western.....	221	4,650,000	3,679,343	7,445,689	143,279	440,046	4	0 0 8	0 0	80 215	Ely and Bedford.....	270,000
Hartlepool.....	15	438,000	155,540	719,206					8 0 0	100 100	Glosow, Dum. & Carlisle..	1,300,000
Leicester and Swannington.....	16	140,000	140,000	140,000	2,207	6,317	1	5 0 5	0 0	50 50	Gt. South and West Ext....	1,200,000
Liverpool and Manchester.....	32	1,209,000	497,750	1,785,000	64,885	141,252	5	0 0 10	0 0	100 214	Gt. Grimsby and Sheffield.	600,000
Llanelli.....	27	200,000	44,000	221,624					0 0 2	0 0	Harwich and E. coun. Jun.	160,000
London and Birmingham.....	202	6,874,976	1,928,845	6,614,005	96,413	456,937	5	0 0 10	0 0	100 245	Huddersfield & M. r. & c.	600,000
London and Blackwall.....	3	804,000	266,000	1,768,851	15,978	23,870	0	3 0 1	10 0	16 10	Kendal and Windermere..	125,000
London and Brighton.....	56	1,935,000	705,000	2,637,753	30,490	130,156	1	10 0 6	0 0	50 77	Leeds and Dewsbury.....	400,000
London and Croyden.....	8	550,000	229,000	761,885	7,583	10,545	0	8 0 4	0 0	14 23	Leeds and Thirsk.....	500,000
London and Greenwich.....	3	759,383	233,300	1,040,930	15,193	28,933			nihil.	13 11	Liv. Ormskirk and Preston	600,000
London and South Western.....	92	2,222,100	630,100	2,604,405	89,439	190,631	2	0 0 10	0 0	41 82	London and Portsmouth..	1,750,000
Manchester and Birmingham.....	31	2,100,000	690,586	1,923,699	15,397	58,162	1	0 0 5	0 0	40 62	London and York.....	5,000,000
Manchester and Bolton.....	10	778,100	197,730	773,743	8,585	21,140	2	2 0 4	10 0	93 169	Londonderry & Enniskillen	500,000
Manchester and Leeds and Hull.....	87	2,937,500	1,943,932	3,921,593	46,653	156,761			8 100	60 170	Lynn and Ely.....	200,000
Midland railway.....	179	5,158,900	1,719,630	6,279,838	75,227	276,129	3	0 0 6	0 0	100 192	Manchester, Bury and Ross	300,000
Newcastle and Carlisle.....	61	878,240	188,563	1,135,069	26,499	46,745	5	0 0 5	0 0	100 113	Manchester and Buxton...	250,000
Newcastle and Darlington.....	23	500,000	405,728	405,728					1 0 0	8 0 0	Mullingar and Athlone....	100,000
Newcastle and North Shields.....	7	150,000	153,876	309,629	8,943	18,466			6 9 0	50 69	Newcastle and Berwick...	700,000
North Union.....	39	739,201	308,306	1,028,593	24,788	37,794	2	10 0 6	5 0	100 176	Richmond & W. End Jun.	100,000
Paris and Orleans.....	82	1,600,000	400,000	1,978,415				0 16 0	8 0 0	20 45	Scottish Central.....	700,000
Paris and Rouen.....	84	1,440,000		31,247	98,171				8 0 0	20 40	Sheffield and Lincolnshire.	650,000
Preston and Wyre.....	19	830,000	179,852	355,161	4,191	7,066			4 0 0	50 32	Shrewsbury and Gd. Jun.	400,000
Sheffield and Manchester.....	19	1,150,000	311,759	951,455	11,895	14,876			nihil.	87 135	Shrew. Wolv. Dudley & B..	900,000
South Eastern.....	88	2,996,000	1,530,277	3,464,172	69,288	139,042			3 1 4	33 48	Trent Valley.....	900,000
Taff Vale.....	30	465,000	195,000	595,089	9,115	22,692	1	17 7	3 15 0	100 104	West London Extension...	64,000
Ulster.....	25	519,150	20,000	348,626	5,401	13,856	0	15 0 5	1 8	32 52	West Yorkshire.....	1,000,000
Yarmouth and Norwich.....	20	187,500	62,500	230,036	5,186	10,008	1	0 0 5	0 0	29 29	Whitehaven and Maryport	100,000
York and N. Mid. and Leeds and Selby	28	1,062,500	167,500	1,107,146	31,349	75,474	2	10 0 10	0 0	50 115	FRENCH RAILWAYS.	

ENGLISH STEAM AND MISCELLANEOUS COMPANIES.

Steam and Miscellaneous.						NAME OF COMPANY.						
NAME OF COMPANY.	Num. of shares.	Am't of share.	Amount paid.	Div. p.c. per ann.	Last price.	Present price.	Num. of shares.	Am't of share.	Amount paid.	Div. p.c. per ann.	Last price.	Present price.
Anglo Mexican Mint.....	10,000	10	10		15	15	Loughborough.....	70	142	142	70	1140
Anti Dry Rot.....	10,000	18	18		2	2	Monmouthshire.....	2,409	100	100	10	160
Australian Trust Company	5,700	100	35		34		Melton Mowbray.....	250	100	100	10	117
General Steam Navigation	20,000	15	14	10	27	27	Mersey and Irwell.....	500	100	100	10	15
Gt Western Steam Pa.....			100		25		Macclesfield.....	3,000	100	100	2	35
Metropolitan Wood Pav.....	15,000	10	6	5	6		Neath.....	247	100	100	17	165
Patent Elastic Pav.....	10,000	1	1	5	1		Oxford.....	1,786	100	100	30	505
Peninsular and Oriental..	11,493	50	50	7	64	65	Regents or Loncon.....	21,418	33	33	2	25
Ditto.....	3,900	50	40	7			Shropshire.....	500	125	125	6	120
Polytechnic Institution				6			Somerset coal.....	800	150	150	7	123
Reversionary Int. Soc.....	5,387	100	100	4	104	104	Stafford and Worcester...	700	140	140	25	480
R. Mail Steam Packet.....	15,000	100	60		36	37	Shrewsbury.....	500	125	125	12	230
South Western Steam.....	4,000	25	5				Stourbridge.....	300	145	145	14	360
Ship Owners' Towing.....	3,000	10	7	10	15		Stroudwater.....	200	150	150	19	360
Thames Tunnel.....	4,000	50	50				Swansea.....	533	100	100	15	240
University College.....	1,500	100	100				Sewern & Why & Rail Av.	3,762	26	26	5	30
Canals.						Trent and Mersey.....						
Ashby de la Zouch.....	1,432	113	av.	4	70	70	Thames and Medway.....	8,149	19	19		10
Barnsley.....	720	100	100	14	180	180	Warwick and Birmingham.	1,000	100	100	10	167
Birmingham, 1-16 share..	3,000	118	79	10	150	160	Warwick and Napton.....	980	100	100	8	122
Do. and Liverpool Junction	4,000	160	100		13	13	Water Works.					
Coventry.....	500	100	100	20	365	365	Birmingham.....	4,800	25	25	3	28
Cromford.....	460	do.	do.	24	250	250	East London.....	4,433	100	100	8	223
Derby.....	600	do.	do.	9	105	105	Grand Junction.....	5,500	av.	41 2-3	7	88
Erewash.....	231	do.	do.	32	440	440	New River L. B. Ann....	1,500			2	57
Forth and Clyde.....	1,297	400	40	4	440	440	Manchester and Salford..	6,486	av.	30	8	57
Grand Junction.....	11,600	100	100	7	162	161	Vauxhall, lt. S. London...	1,000		100	5	55
Grand Surrey.....	1,500	do.	do.		20		West Middlesex.....	8,294	av.	63	6	126
Gloucester and Rerkley....	5,000	do.	do.		8	8	Docks.					
Grantham.....	749	150	150	8	185	185	Commercial Dock.....	1,065	100	100	3	80
Lancaster.....	11,699	47	47	3	40	40	East and West India...		sto.		5	137
Leeds and Liverpool.....	2,897	100	100	34	640	640	London.....	3,238,310	sto.		4	114
Leicester.....	545	140	140	9	139	139	St Katharine.....	1,352,752	sto.		5	116
							Southampton.....	7,000	50	50		171

Repairs of the Canals--as was anticipated.

Mr. Dennison yesterday reported against the bill of Mr. Chamberlain, to let out the repairs of the canals by contract.

As we have before stated, the central power here are in favor of no reform which diminishes its own powers or weakens its own privileges. The change in the repairs of the canals would at once break up that centralization of power at the capital, which is now so earnestly condemned by every sound democrat.

The expenditure of \$500,000 annually under the direction of the canal board—gives the central power an influence over the venal and trading in every county through which the canals run, at war with the purity of the elective franchise.

Be it known, then, to the democracy of New York, that the central power have declared open and undisguised war against this proposition to abolish numerous offices dependent upon the state officers at Albany, and to enable the whole people to compete for the repairs of the public works. This is the position which the central power have deliberately taken; but we shall see whether the legislature will not respond to the public sentiment, rather than to the demands of official dictation. *[Alb. Argus.]*

Probable Business of the Erie Canal.

It is known that the sudden and eager demand for produce, especially wheat and flour, which existed last fall, induced universal activity along the line of the Erie canal. New boats were built, old ones resuscitated, and idle ones hired at almost any price. Transportation received an unprecedented impulse, and as the belief was quite prevalent that the market would be high in the spring, great preparations were made to meet the enlarged carrying business, upon the opening of navigation.

The statement published by us on Wednesday last, shows that fifty-six new canal boats will be launched, in this city, this spring, to twenty-three in the spring of 1845. We understand that in other places boat building has received a similar increase from like causes. It is a question of no little interest, whether the means of transportation thus greatly enlarged are likely to find full and profitable employment. The following article from a well informed and judicious source will afford valuable, and as we cannot doubt reliable information.

That great agricultural Eden, of which Chicago may be regarded as the central point, is almost boundless in its capacity of production, and will soon furnish an incalculable amount of exports. The following statement speaks for itself:

From the Chicago Daily Journal, of March 10.

The carrying trade on the lakes the coming season, will be of great importance. Never has there been a season when so large an amount of produce has accumulated on lake Michigan for re-shipment, as the present.

In the early part of the season, we ventured upon an estimate of the aggregate quantity of wheat which would be on hand at this point on the 1st of April, fixing it at 1,000,000

bushels. This amount it is now clear will not be reached; various causes having operated to check the free arrival from inland during the season when the state of the roads would warrant bringing it forward.

For the month of December the aggregate receipt of wheat was 116,000 bushels; on an average price for the month, at 90 cents per bushel. At this time the market was in an unsettled and feverish state, and this amount fell off the succeeding month to 55,000 bushels, on an average price of 79 cents, much of what came forward, going into store on producers account at those figures. Country dealers, when prices were up bought freely on a trifling margin for profits, and placed the larger share in store at home, in anticipation of still higher prices, when it was to be brought forward. The market, however, gave way, leaving these amounts on hand, where they still remain to a greater or less extent waiting the opening of navigation.—Producers, also held back their surplus, because the market here could not be depended upon at any fixed figure—prices being governed by a speculative demand, based upon European news as it arrived from time to time and operated upon the market. Had the market been ordinarily steady, the amount of produce on hand at this point would doubtless have been greatly augmented, though we do not believe our estimate would have been reached in any event, short of the commodity commanding a full dollar a bushel. The fact is, the farmers of Illinois are no longer forced by their necessities to bring forward their crops at the earliest possible period as heretofore; hence it is more difficult to reach correct estimates of quantities than formerly.

There is still a large surplus in the country, more particularly at the greater distances: for instance, more in proportion on Rock than Fox river, etc.; the larger share of which will probably come forward between this and the next harvest, though considerable will be held over.

The quantity of produce in store at present at the several points on this lake will probably not vary materially from the following—which we will give in round numbers, the figures being rather below than above the actual amounts.

	Wheat bush.	Flour bbls.	Prov. bbls.
Chicago,	700,000	8,000	14,000
Michigan city,	400,000	4,000	2,000
St. Josephs,	100,000	80,000	3,500
Milwaukie,	120,000	18,000	
Racine,	100,000		
South Port,	75,000		
Little Fort,	70,000		
Total,	1,565,000	102,000	19,500

It is estimated that there will be at least 2,500,000 bushels of wheat, (after reducing flour to wheat) to go forward from lake Michigan, which allowing 6,500 bushels to each vessel, will occupy 128 vessels for three trips each—leaving the balance of the stuff to be taken by steamboats. This state of affairs needs no comment. It speaks well for the growing industry; the increased trade; the peace and plenty of the teeming west, looks well for the shipping on the lakes, and

reminds us that we are in the hands of a bountiful and beneficent Providence.

We find the foregoing article in the Rochester American of 4th inst. It shows the rapid increase of business on the lakes—as it is but a few years since Chicago relied upon the east for its supplies of flour.

Later News.--Arrival of the Unicorn.

This long-looked for steamer has at length arrived, after a passage of 29 days; having been delayed by heavy weather and fields of ice. There was much anxiety felt in consequence of her unusually long passage,—so it is with us, whenever we have become accustomed to an enjoyment or a pleasure, a little deprivation or delay annoys or alarms us. It would be amusing to see the *utter misery*, and *curious antics* that would be exhibited if there should be an embargo on all railway travelling for the space of 30 days!

We have received our London railway and mining Journal to the 7th and 14th of March inclusive. There is not quite as much activity or confidence in the railway world as last fall. Money is rather tight, iron is still high, and the parliamentary committee on railroads are very precise in their investigations; and throw out a bill upon slight grounds.

We give such matters as we think will be interesting to our readers and useful to the cause.

Iron Trade in Great Britain.—There has been considerable depression, or rather *inaction*, in the iron trade in England. The quotations in London on the 6th of March, vary little from those of 30th January, published by us on the 28th of February. Rails were then quoted at £12, now at £11 10s. 15s. per ton; bars, then and now, at £11; Scotch pig and Clyde then £4, and Welsh cold blast foundry at £5 10s. now £3 15s. and £5 15s.

IRON.	£.	s.	£.	s.	d.
Bar a. Wales	0	0	9	0	0
" London	9	15	10	0	0
Nail rods	10	10	10	15	9
Hoop (Staf.)	11	15	12	0	0
Sheet	12	15	13	0	0
Bars	0	0	11	0	0
Welsh cold-blast foundry pig	5	0	5	15	0
Scotch pig, Clyde	3	15	3	15	0
Rails	11	10	11	15	0
Russian, CCND e	0	0	—	—	—
" PSI	0	0	—	—	—
" Gourieff	0	0	14	10	0
" Archangel	0	0	13	12	6
Swedish d, on the spot	11	10	11	16	0
" Steel, fag t	0	0	16	5	0
" kegs e	15	0	15	5	0

A correspondent of the Mining Journal says "this has been another dull week in iron, as well as in other metals; but the prices of Welch and Staffordshire continue to be maintained as quoted in last week's Mining Journal. Scotch pig is also about the same price, but some second hand parcels sent into the market induce buyers to withhold their orders, in anticipation of a further decline.

Messrs. Whitcomb and Barton, old Broad st., say that "English iron continues firm, notwithstanding the very limited demand which has existed for the past few weeks. In Scotch but little doing we quote the price 77s. 6d.—75s. cash free at Glasgow, having been repeatedly offered and refused. Foreign iron and steel dull of sale.

Glasgow Iron Trade.—March 3.—The market continues in the same depressed state, but few transactions taking place. The price may be quoted at 79s. 6d. Present prices have given rise to several inquiries for export orders, which trade is expected to be large this spring.

By the reports of the 13th March, we perceive a falling off in prices. Rails are quoted at £10 15s. to £11, and bars at £11 per ton; and business, says the Mining Journal, during the week has been languid; Welch and Staffordshire are maintained, but Scotch pigs have fallen off 2s. to 5s. per ton.

The Glasgow National, under date of March 10th

says that "Considerable transactions have taken place this week, but at reduced rates. Irregularities have taken place among some of the dealers, which has created a want of confidence, and thrown a gloom over the market: 70s. in store for the usual proportions of Nos. cannot be obtained—the general impression being that it will recede to 60s.

Iron Manufacture in France.—We find the following account of the progress of the iron manufacture in France, in the Mining Journal of 7th March.—We are not surprised at the facility with which capital is obtained for this purpose there, when we see iron quoted at £8 to £9 per ton for cast, and £15 to £16 per ton for merchant iron and rails.

"The railway share market during the week has been unusually dull, and even the old established lines had considerable difficulty in maintaining their prices. This may, perhaps, be accounted for in some measure by the unsettled state of the Oregon question, but the depression that generally prevails in the money market is the principal cause. The transactions which have been entered into either in old or newly projected lines have been on a very limited scale, and seldom has the share market presented so stagnant an appearance.

Railway business has been rapidly progressing through both houses and the sub-committees, and a large number of the bills for several of the leading projected lines, having complied with the standing orders, have been read a first and second time.

Price of Iron in France.—"It appears," says the London Mining Journal, "that there is a tendency to a slight reduction in the price of iron. One of the high furnaces of the Upper Marne has offered flattened iron (blasted by coal) at the rate of 15*l.* 10*s.* per ton, delivered at St. Dizier. Cast metal still retains its price at 8*l.* 600,000 lbs. were sold last week in two lots, taken at the furnaces for a foundry, at the rate of 9*l.* to 12*l.*

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.

Saturday, April 25, 1846.

WANTED, the following numbers of the RAILROAD JOURNAL, to complete volumes, viz:

- No. 44 of volume four, for 1835;
- Nos. 44 and 45 of volume five, for 1836;
- No. 1 of volume six, for 1837;

Or the entire volumes of those years will be purchased at subscription price, if in good order; or the current volume will be cheerfully given in exchange for volume four or five, to any gentleman who prefers a new book to an old one; and we shall be very much obliged to those who will aid us in obtaining these numbers.

The numbers may be forwarded by mail, accompanied by a letter, stating when forwarded, and the volumes may be sent by express, or other safe conveyance, at our expense.

Will our Subscribers at a Distance, who have not already done so, do us the favor to remit the amount of subscription for the Journal by mail, at our risk? We have endeavored, and shall not remit our efforts—at least during the current year—to make the Journal useful; but our success depends mainly upon those to whom we send it as published. If they encourage and sustain us by frequent communications to its pages, also by prompt remittances of the necessary lubricating material, we can work with more spirit and serve them more effectually.

For the American Railroad Journal. Reading Railroad, Schuylkill Navigation Co., and the Coal Trade.

It is becoming every day more apparent that the great work of enlarging the Schuylkill canal cannot be completed before the latter end of August, and some are of the opinion that September will be here before the work is ready to pass the larger boats.—This becomes more certain when the amount of work that is actually done is compared to what has been done; it will take, according to this calculation, at least three months to finish a lock, as there are several in the neighborhood of Pottsville which have been under way that length of time, and are about half finished, while there are others which have not been commenced at all. It is well for the coal trade that the Reading railroad has its present facilities of transporting coal, which are on the increase every week. They receive from the engine manufactory of Baldwin, a new engine every week—two of which are of the most tremendous size, weighing twenty-two tons, having eight drawing wheels, and are capable of drawing a load of 650 tons of coal, exclusive of weight of cars. They have also a large number of iron cars being built at Reading, Pottsville and Wilmington, Del., and are placing about forty new cars per week upon the road. The estimate for this year is 1,250,000 tons, and the only cause why they cannot do more is the want of power sufficient to do it. They have thus far carried an increase on the estimate for the first four months of the year. The other business of the road is increasing in the same proportion—the miscellaneous freight for the last two months having increased 150 per cent. on the same months last year; and the company have been under the necessity of renting warehouses at both ends of the line, for the accommodation of the large amount of produce which is taken over the road.

It is expected by the railroad company, that the Navigation company will take all the New York trade next season, but they expect and will retain the eastern trade and to all those places which are reached by coasting vessels. It is confidently anticipated by those interested in the trade that not less than 1,700,000 tons of coal will be sent to market next year, and if the duties on foreign coals is kept up, the supply will tully equal this amount. There is a basin of coal of 36,000 acres which has scarcely been touched as yet—the only outlet for it being by the Union canal. The new improvement, however, in that quarter, which gives it an opening to the Philadelphia market by way of Reading railroad and canal, will have a great tendency to induce operations to be commenced in that region, which will add at least from 300,000 to 400,000 tons of coal to the shipments made by those two works.

SCHUYLKILL.

We are sorry to hear that the works on the canal are not progressing as rapidly as was anticipated; we are not disappointed, however, in the result, as we have had some experience in this state in the en-

larging of canals in winter—and summer, too, for that matter—and have learned that, with the greatest care and effort on the part of those in charge, unexpected difficulties will arise to delay operations; we are, however, highly gratified to learn that the railroad company are more than realizing their estimates, and we feel quite at liberty to ask coal consumers, and the Philadelphians especially—many of whom so strenuously opposed this magnificent work—what would be the price of coal per ton next winter if the Reading road should not be in successful operation during the next four months? Let the company put their engines under shelter and lock up their doors during May, June, July and August, and coal could not be got in New York under nine dollars a ton, and in other places in proportion—and thus take more than four millions of dollars extra for fuel out of the pockets of the people in one year! Yet how few duly appreciate the value and necessity of this railroad, or justly estimate the extent of its future operations.

War Steamers.

It is stated in Herapath's Journal of the 7th March, that contracts have been made by the British government for war steamers, on the screw principle, to the extent of 8,000 horse power.

The Welland Canal.—By the following, from the "St. Catharines Journal" of the 19th inst., it will be seen that the lengthening of the locks on the Welland canal has been completed, and that that improvement will be ready for the passage of vessels by the 1st of April:

"We understand that the large new lock No. 2 is finished, as also the lengthening of the two old locks No. 1 and 2, rendered necessary by the non-completion of the new lock No. 1 at Port Dalhousie; and that the canal generally is in such a state as to admit of the opening of navigation on the 1st of April should the weather prove favorable, and of that the prospect now appears satisfactory. Vessels measuring 138 feet, or even 141, in length can then pass—the locks being 26 feet 6 inches wide."

Last year, the canal was not opened till the 1st of May.

Western Vermont Railroad.

The following extract from the report of Mr. Harbach, which was read at a meeting of those interested, held at Pittsfield, Mass., on the 18th of March last, is from the Pittsfield Sun, which we do not see. From hearing the report read, and an examination of the maps exhibited at the meeting, which we had the pleasure of attending, we formed a very favorable opinion of this route for a railroad. The surveys were made with a good deal of care, though at an unfavorable season and the time somewhat limited, and the maps were got up in a very superior manner, doing much credit to the engineer, Mr. Harbach and his assistants; and we heard opinions expressed, by gentlemen of great experience and good judgment in such matters, that the estimates were ample. The meeting at Pittsfield, from the bad state of the roads and short notice of its assembling, was not as large as we hoped to see; yet the actors in such matters were there, if the listeners were not. Rutland, Bennington, Manchester, and other places in Vermont—and Boston, Springfield, Pittsfield, and other places in Massachusetts—and Bridgeport, and other places in Connecticut—were represented; but New York had no delegate to speak for her, and say what she would do in aid of a work which will, if rightly managed, draw many thousand tons of freight to her wharves and stores! and no one spoke for her, except to say that the friends of railroads have one consolation in relation to the matter, and that is, that her citizens will be obliged, at no distant day, to go to work in the construction of railroads in self-defence.

"The Pittsfield Sun gives an account of a meeting of the friends of the Western Vermont railroad, which was held at that place last month, and which evinces a good deal of determination to prosecute the work to its completion. At this meeting the report of the engineer, Mr. Harbach, was read, and gives the following favorable estimates:

"Upon about 47 miles of this line the extremes of either cutting or filling will not exceed 10 feet, averaging about 5 feet embankment, made principally from the sandy alluvion, the composition of the flats over which the line passes. About 33 miles have grades from level up to 20 feet—the maximum being 45 feet per mile. Thirty-six miles are straight, and 20 curved—minimum radius 1432 feet. The route would be unquestionably much improved in grades and alignment on a more thorough examination."

ESTIMATED COST.

Graduation.....	\$162,777 70
Masonry and bridging.....	172,297 00
Superstructure.....	579,202 20
Land damages, fencing and contingencies.....	113,678 00
Buildings and fixtures.....	66,000 00
Motive power, etc.....	138,800 00
Engineering, instruments, superintendence, etc., estimated at 5 per cent....	61,637 73

Total cost..... \$1,294,392 63

Or \$22,909 60 per mile, including motive power, cars, fixtures, etc.

The estimates for the construction of the road proper, without furniture, etc., amounts to \$18,193 89 per mile.

REVENUE.

From passengers I have estimated only one half as much in proportion to length of line as the receipts upon the Western Massachusetts road for 1845—say..... \$63,000

From freight estimated as follows:

Bennington county in part.....	20,000
Rutland county, ".....	14,000
Addison county, ".....	11,000
Chittenden county, ".....	15,000
Washington county, N. Y.,.....	7,000
Clinton and other counties on the lake.....	5,000
Montreal and New York.....	5,000

Total..... 77,000

At the extreme low average rate of \$1 pr ton, \$77,000

Total for passengers and freight.....	\$140,000
Deduct † revenue for expenses.....	47,000

Net income, 7 per cent. on \$1,300,000. \$93,000

The above is exclusive of any increase of business throughout western Vermont, which, in five years after the opening of this road, would swell the amount 50 per cent, at least.

Thus far we have only considered this road as a project by itself. But if taken in connection with the Pittsfield and Adams road on the south, and the Rutland and Burlington road on the north, forming a part of the great northern line of railway from New York to Montreal, and making a clean sweep of the whole trade of western Vermont, it assumes a character of vastly greater importance, not only to the section of country through which it passes, but also to those disposed to invest their capital in this enterprise.

The estimated cost of the entire route from Pittsfield to Burlington, in parts, to be operated separately, is as follows, to wit:

Pittsfield and Adams road, 18½ miles.....	\$400,000
Adams and Bennington, 18 miles.....	400,000
Bennington and Rutland, Western Vermont, 56½ miles.....	1,360,000
Rutland to Burlington, 65 miles.....	1,500,000

Total..... \$3,600,000

I assume that the whole route can be built for at least \$150,000 less than this estimate, if it were all under one administration; (there would be also a saving of expenses in operating, of the interest of a like sum) reducing the first cost to about \$3,350,000—or about \$21,000 per mile for a road of the very best character.

The elements, from which a revenue is to be derived, are first, a local population of about 150,000 best accommodated by this road; from which, and from the New York and Montreal travel, I estimate an amount equal to only one-half the income of the Western Massachusetts railroad from the same source—equal to \$183,375.

Second—The actual existing tonnage upon the line of this road, obtained from reliable sources, is as follows:

Berkshire county, Mass., in part.....	9,000 tons.
Bennington county, Vt.....	30,000 "
Rutland county, Vt.....	28,000 "
Addison county, Vt.....	22,000 "
Chittenden county, Vt.....	29,000 "
Rennselaer county, N. Y., estimated..	3,000 "
Washington county, N. Y.....	7,000 "
Clinton and others, on lake, a winter business.....	10,000 "
Montreal and New York.....	5,000 "

Total..... 143,000 "

The average transportation would be equal to about 100 miles. If we assume then the same average price per ton per mile as the average upon the Western railroad, (which for the year 1845 was about 3 cents*) we shall have an income for this source of \$429,000; making a total of \$612,375. I find on examination that the expenses of transportation on the Western Massachusetts road are about 4-9 of the total income. I think 3-9 would be a safe estimate for this road, say \$204,125; leaving a net income of \$408,250, or more than 12 per cent. on \$3,350,000. This is exclusive of any increase of business, which would undoubtedly be very great in the event of the construction of this road, especially in the iron and marble trade, and supposing that the road between Rutland and Bellows Falls should not be built.

The question whether this line can compete successfully with water navigation from Burlington, for that part of the trade destined for Boston, was settled finally the year the Western railroad was opened, from tide water on the Hudson to Boston.

It now remains to be shown whether this line can compete with the Vermont Central railroad or the Connecticut River and Lake Champlain road, (the route across Mount Holly) should that line be built. We contend that it can; first, because we believe that the lowest rate at which freights can be transported at a profit is as yet unknown; that the rates now charged on all roads are

* The average rates upon this road are lower than any in the United States except the coal transportation on the Reading road.

arbitrary; being fixed at as high rates as the traffic will bear and yield a fair income on the outlay, which rates depend more upon the quantity carried than upon the length of the road; that no double track road has as yet reached anything near its full capacity for doing business, and that those roads which approach nearest to their full capacity do and always will transport the cheapest. Hence we find the Western railroad successfully carrying freights from Albany to Boston (a distance of 200 miles) at the extreme low rate of \$2,50 per ton, or about four and one-fourth cents per ton per mile. Simply because at this rate the road can secure a large quantity and approximate nearer to its full capacity for business. Second, because either of those roads can only take from a portion of Western Vermont so much of her trade as is destined for an eastern market; while the route from Burlington via Pittsfield will take from the whole of Western Vermont not only her full share of the eastern trade, but also the southern and western business, and at the same time open the most direct winter communication from New York city to Montreal and Northern New York. With all these resources for a revenue we believe that this line can afford and will successfully compete with any other route from Burlington to Boston.

FREDERIC HARBACH,
Civil Engineer.

Atmospheric Railway.

This new system appears to be progressing gradually, but, it would appear, *surely*. The following remarks by the editor of the Mining Journal, under date of 14th March, will be read with interest; and the editor is not alone in entertaining those views, as we have the opinion of an intelligent American merchant, residing in England, who has taken much pains to investigate the matter, and he expresses himself equally strong as to their ultimate success, as will be seen on reading his remarks on the subject, which follow those of the editor of the Mining Journal.

"Progress of the Atmospheric Railway System.—It has ever been a leading feature in the history of scientific pursuits, that the introduction of any new system, however beneficial it may be likely to prove, is met by ridicule, apprehension and ill-feeling—parties are always to be found ready to stifle its embryo efforts to struggle into existence, and whose interest often go hand in hand with their malicious attempts. The atmospheric system of propulsion on railways has had its share of this spirit of calumny, and, notwithstanding the denunciations which have from its first introduction assailed it, as being totally inadequate as a propelling power, on the score of either economy, speed or safety, we are happy to find that the more the working of the system is developed the more it proves its superiority over locomotive power. At a meeting of the Croydon railway company, on Tuesday, Mr. Wilkinson (the chairman) acknowledged that they had made a mistake, and had taken into their own hands what ought to have been left to Mr. Samuda;

their engineer; hence the crank shafts of the engine broke, and other delays and difficulties occurred, which would, in future be avoided. A report from Mr. Samuda was read, in which he fully expresses his entire confidence in the system, supported, as it is, by his experience; he observes that 'the men each day become better acquainted with their respective duties, and a manifest improvement of them is the result. The facilities of managing the apparatus; regulating the speed of the trains; obtaining the power, exchanging the trains from locomotive to atmospheric traction; working a single atmospheric line, in conjunction with, and in continuation of, a double locomotive line—have now been practically demonstrated to be in all cases equal to our anticipations, and in some have surpassed the expectations to which we gave expression.' The South Devon railway company, which line is to be on the atmospheric principle, had their half-yearly meeting at Plymouth, on Tuesday last. It appears that although no portion of the line is sufficiently forward to be open for traffic, there was every reason to believe the entire works would be completed within the estimates. Mr. Brunel, after accounting for the delay in the works, which he attributed to the continuance of easterly winds during the first winter, by which six months were lost, stated that 'Nothing had occurred to diminish the confidence of those who thought it was a system easily accomplished, and that its mechanical difficulties might be overcome. On that portion which was complete on the Croydon railway, and on which trains were running, the result was perfectly satisfactory—as showing the power and effect of the system, and the regularity with which it can work; and, so far from the experiments throwing any doubt on the capabilities of the system, it shows most completely that everything can be carried out. There were disadvantages connected with the working of the system on a short line, and a line with five sections would work better than one with only two. A very satisfactory result has been obtained, viz: that although the engines were placed at only two miles apart, yet they could work the whole distance with the use of only one engine—therefore, when the line consisted of several sections, they might dispense, if necessary, with all except one at each end.

"In France, the commission appointed by the academy of science—consisting of Messrs. Arago, Poncelet, Lame, Plobert and Reynault—are prosecuting their researches to ascertain the advantages of the atmospheric over the locomotive principle of propulsion. M. Arnollet, in an address to the minister of public works on the subject, observes that the system will reduce fares one-half, and to persist in maintaining the present system would be to oppose the development of public wealth and prevent a great portion of the French nation from enjoying the benefits of railway extension—that in the mountainous parts of France, rich in mineral wealth—but, where the locomotive system is useless, the atmospheric would afford to that rich portion of the land what the proposed canal from Toulouse

to Bayonne could not do, as from the great number of locks required, it was at last declared impracticable.' He proposes by his system, to raise trains of thirty tons up an ascent far steeper than that of St. Germain, and to descend without the slightest danger; and he would construct a line on his principle, over the heights which surround Paris, requiring only a 30-horse power engine, and insuring cheap fares and pleasure excursions as well as carriage of merchandize. The system is gradually developing its powers, and bids fair, at no distant day, entirely to supersede all others from its superior safety, economy, speed, and facility of working."

Our correspondent says:

I am very much pleased that you devote so much of your excellent journal to the development of the atmospheric railway system. I have undiminished confidence in it yet, although it has not been as early and as successfully brought before the public as I hoped it would be. It has met with practical difficulties, which will, however, all be overcome by the skill and ingenuity of the clever heads and practical hands at work upon it to bring it to useful, every-day employment. Mr. Herapath takes pleasure in ridiculing it, but Mr. Scott Russell, editor of the Railway Chronicle, is equally favorably to it as the other is indisposed to it, and I have great respect for the talents of the latter, (Mr. Russell,) who is secretary of the Society of Arts, where every Wednesday night he displays to the public talents and acquirements in the useful arts of the most surprising character. I shall be exceedingly disappointed if the atmospheric does not turn out the best system yet introduced to public notice.

There is nothing novel in the internal improvement world. Great dullness is felt by reason of the long debates in the parliament, respecting the admirable free-trade measures of Sir Robert Peel. Until this policy be carried out by adoption by both houses of parliament (of which no doubt is entertained,) uncertainty and hesitation will continue, and everything will languish comparatively. The unfortunate differences also existing between England and America has a most unhappy influence upon enterprise and all kinds of business. The people here apprehend war. I tell every one that my countrymen are not quite so unwise as to waste their resources in murdering their fellow creatures when so many millions of dollars are required to develop the moral and physical resources of their country by erecting schools, libraries, churches, and constructing railways, bridges, canals, electric telegraphs, and having cheap postage and other improvements introduced. I hope christianity, civilization, and common sense, are too much advanced among us to seriously entertain the desire for war.

I am sorry to say that I can find no publication on canals that is worth having. I have looked carefully since the receipt of your favor of the 30th January, and asked many persons

most conversant with these matters, but could find nothing that you want. I should have sent you anything good on the subject of English canals with pleasure, if I could have found it. Everything relating to canals is old and passed. Mr. C. Ellet, president of the Schuylkill Navigation company, in Philadelphia, has a large collection of facts respecting English canals, for he was very diligent and successful when here, a year ago, in obtaining the statistics of canals of this country. Since this time a number of canals have been converted into railways, and this process is rapidly going on.

Iron is dull, owing to the causes mentioned above, but it must revive as soon as the causes are removed. Railway iron, £11 10s. per ton at Cardiff and Newport, free, on board; Scotch pig, at Glasgow, 70 shillings per ton, free, on board.

Working expenses on different English Railways.

It appears, from a statement in the Railway Times of March 7th, page 359, in the speech of Mr. Britain, that the working expenses were, of the gross receipts, on several roads, as follows, viz:

On the London and Birmingham, in	
1840	33 per cent.
1841	30 per cent.
1842	28½ per cent.
1843	27½ per cent.
1844	30 per cent.

So on the North Union the working expenses were in 1842 32½ per cent., and in 1843, 31 1-5th per cent., and on the North Midland, the expenses were in 1843, 33½ per cent., in 1844, 32½ per cent.

Reduction of rates and increase of receipts on railways.

In the report of the Manchester and Birmingham railway company we find the following statement, viz:

"The directors, in presenting their report for the half year ending January 31, 1846, have again the satisfaction to remark upon the continued increase in the merchandize and passenger traffic.

"The following table will show the progress of the traffic."

	PASSENGERS.		
	Number.	£	s. d.
Half year ending January 31, 1845.....	471,938	39,261	15 5
Half year ending January 31, 1846.....	746,254	47,488	14 10
Total.....	274,316	£8,226	19 5

	GOODS.		
	Tons. Cwt. Qrs.	£	s. d.
Half year ending January 31, 1845.....	66,040 1 0	19,485	12 10
Half year ending January 31, 1846.....	137,671 5 3	24,106	17 0
Total.....	71,631 4 3	£4,621	4 2

Total increase.....£12,847 3 7
Thus exhibiting 69 per ct. increase in No. passengers.
21 " " receipts.
108 " " weight of goods.
24 " " receipts.

"A reference to the tables appended will show the reductions which have been made in the through fares; and the directors would observe that, on the 1st of July last large reductions in the rates for the conveyance of goods were made in conjunction with the London and Birmingham company.

"A considerable increase in the working expenses will be observed, consequent upon the large accession of traffic, at low prices; but of the effect of these reductions in reference to the cost of working the line, the directors cannot at present form a cor-

rect estimate; they however regard the measure as certainly beneficial to the public, and likely to prove favorable to the interests of the proprietors.

"From the accounts it will be perceived that a disposable balance of 59,546l. 6s. 8d. remains for the purposes of dividend, etc.; and the directors recommend that the sum of 57,600l. be distributed amongst their proprietors, being at the rate of eight per cent. per annum."

We here find, as we do in almost every instance where the trial is made in the right spirit, that the tendency of reducing the rates is to increase the business and of course the receipts gradually—and we again commend the policy to some of our American companies which now charge such oppressive rates. We feel assured that the interest of the proprietors as well as the public will be promoted by it.

Railway Villages.

The following paragraph from Herapath's railway Journal shadows forth a plan which might, and ought to, be adopted in the vicinity of every large city. By adopting such a plan every laborer might have *good air, a little garden, a cow, a pig, a few fowls, and many comforts*, and at the same time be at his work always in good time; and by it also the railroad companies might increase immensely their incomes and at the same time render important service to those, the poor, but industrious population, who are more benefited, than any other class, by railroads.

"Croydon railroad and proposed villages for working classes.—We understand the proposition of Mr. W. B. Moffatt, of the National Philanthropic Investment Society, to provide habitations for the working classes at Croydon, consists in the following plan:—Ten villages are to be built, containing in each 500 cottage residences, with seven persons to each cottage, so that each village will contain 35,000 inhabitants of workmen, and in the ten villages together, 350,000 people. One village will cover 500 acres. It is said the Croydon company, represented by Mr. Wilkinson, have entered into an agreement to allow the members of those villages to be carried the whole length of the Croydon railway, ten miles and a-half, at 1½d. per head."

Iron Trade of Pennsylvania.

We make the following extracts from a letter dated *Phoenixville, Pa.*, 6th instant, to the editor of the *Philadelphia Enquirer and Gazette*.

"In 1840 the census returned the population of *Phoenixville* to be *eight hundred and nine*; upon the 1st of January, 1846, the number of inhabitants amounted to *one thousand six hundred and eighty*.

"At this place the Schuylkill navigation company have their canal upon one side the river, and the Reading railroad company their road upon the other. Whilst the former extends a branch canal into the village from the dam above to accommodate its interests and furnish additional water power, the latter with a spirit of fair competition, have extensions to the principal manufacturing establishments. The Navigation Company are progressing rapidly in the enlargement of their canal, and when completed, it will be an admirable canal for business communication. The competitors are active in furnishing every facility to the various business interests. It may not be amiss to add, that neither company can complain of the amount of business given them from *Phoenixville*.

"Near the depot are springing up coal and lumber yards, and a new bridge built during the past season, spans the Schuylkill, making a profitable connection with Montgomery

county, and affording the *very best route* of travel for all the north of Chester county, through Norristown to Philadelphia market, and from the revenue we should suppose the people thought it the best.

"The firm of *Jaudons & Mason* have completely remodeled their rolling mill and factory, having every part of the establishment in order to accommodate the market with a proportionate supply of their excellent work. The principal of their machinery is new, and the location of the mills affords every facility for the transportation of coal and iron to the mills, and the departure of the manufactured article either by the railroad or canal.

"Reese, Buck & Co., late the firm of Reese & Whitaker, are expanding in business by a heavy investment of capital. On Saturday, April 4th, one of the new anthracite furnaces was put in blast, under the superintendance of Mr. Perry. It is working well. This furnace has a mate, they are side by side, and from their connection suggest the name of Siamese. They are exceedingly large, and should they be found to work well, an enormous quantity of iron will be made by them.

"The old furnace, called so because erected a few years since, has been thoroughly repaired, and is only awaiting the command to go off in the discharge of its duty. This has earned a reputation as being one of the earliest and most successful of the anthracite furnaces, and certainly the *first one* to make good iron with cold blast.

"The large rolling mill has finished an enormous quantity of iron for nails. It contains all or principally all of the improvements in rolling mill apparatus. It is now filled with heating furnaces and machinery. Certainly, it is no ordinary enterprize to erect complete, and conduct a mill of its amplitude and amount of varied operations. Notwithstanding, however, the amount here invested already, by this firm, they have now marked out and made some progress in the erection of an additional rolling mill, the size of which will cover more than one acre of ground. It is designed for railroad iron, boiler iron, sheet iron, etc.

"Extensive additions are making to place more nail machines to work. It would seem as if every improvement in iron manufacture would find a place at *Phoenixville*.

"A branch railroad has a circuitous course by the rolling mill, and is continued to the Siamese furnaces and the site of the new rolling mill, and the design is, to have it extended at convenience to encircle the whole of the mills, so as to furnish material as well as remove to market.

"Already our account has become extended, and I feel that only a part of the interest of the improvements of the place has been given. This, however, must suffice for this time. Should the affairs of the nation be suffered to continue, prosperity will inevitably attend upon the operations of *Phoenixville*."

The Schuylkill Canal.—The damage to this work by the late flood appears to be very

trifling. It may however, delay the completion of the enlargement and the new locks for two or three weeks. The engineers and the directors are confident of passing boats by the beginning of July next. If this hope be realized, 300,000 tons may be sent forward by the canal this year. The general opinion among colliers, whose judgment is best entitled to confidence, is that all the coal for the New York and adjacent markets, may be considered secure to the canal, because its boats deliver their cargoes from the mines to that city, (via Raritan canal,) without transshipment. This is about 400,000 tons, with annual increase. For the more eastern trade there will be a hard contest. But before it is settled, intelligent men seeing a regular annual increased consumption of 500,000 tons, predict that both companies will be awakened to the folly of a contest for the whole of a trade which will eventually choke up both their avenues, and call loudly for a third route.

We are well pleased to learn that the canal will be ready for use early in July. We should be better pleased to have it ready much earlier, as we should then have a better supply of coal brought to market.

Now we should like to learn one thing more, and that is that the two companies had come to an amicable arrangement and fixed upon a fair price for transportation, by which they may derive a liberal return upon their investment. This may be done without discredit to either and without materially increasing the cost to the consumers. Why not do it?

The Canal Packets.

Ever since the opening of the Erie canal, the packet boats have been the favorite vehicles of travel. The hold upon the popular regard and patronage has not suffered by any novelty—even the railroad has failed to impair their prosperity.

We are happy to learn that the several lines will commence operations the coming season with greatly increased facilities. The past gives assurance that they will not fail to do a prosperous business.

The several lines between this city and Schenectady, are now the property of one concern, under the title of the "Ontario steam and canal boat company." Three steamers on lake Ontario—the *Lady of the Lake*, the *Rochester*, and the *Telegraph*, also belong to the same interest.

The Rochester and Buffalo packets also now belong to one firm, under the title of "the Red Bird packet boat company." The Red Bird line of the Ridge road stages belong to the same interest.

The Genesee valley packets will as usual commence their trips on the opening of navigation. Not however, precisely as usual. Great improvements are to be made. Upon the commencement of navigation, or very soon thereafter, new, large and splendid boats, far surpassing the old, and equal to any on the Erie canal, will take the place of those which have heretofore navigated the Genesee valley canal. It is the determination of the proprietors of this line to offer the very best accommodations to the travelling public.

New and elegant furniture will be furnished throughout, and every thing made as comfortable as possible. These packets have, in time past, proved a very great convenience to the inhabitants of the Genessee valley, and will this season present largely increased claims upon public patronage.

The packets east, west, and south, will be renovated, refitted and re-furnished. The enterprize of their proprietors has not been unwarded; and the several lines are in the hands of men whose enlightened regard for their true interest, will leave nothing undone in the way of labor and expense which can recommend their boats to the travelling public.

It will be seen that the several boats are to be in charge of commanders of tried and approved ability, courtesy and gentlemanly demeanor, who will make every exertion to increase the enjoyment and convenience of their passengers.

The following is a list of the boats comprising the lines between this city, Buffalo, Syracuse and Dansville:

ROCHESTER AND BUFFALO RED BIRD LINE.

Boats.	Commanders.
Empire,	Capt. D. H. Bromley.
Cataract,	" N. P. Stone.
Rochester,	" J. H. Warren.
Rescue,	" C. H. Mason.
Red Rover,	" Clark.

ROCHESTER AND SYRACUSE.

S. America,	Capt. John E. Vedder.
St. Louis,	" John B. Cole
Boston,	" Thos. Wheeler.
Knickerbocker,	" W. H. A. Smith.
North America,	" D. K. Green.

GENESSEE VALLEY.

(Night and morning line by the middle of May.)

Perry,	Capt. A. Wiggins.
Dansville,	" Chas. Wheeler.

American Inventions in England.—The description of Mr. Herron's railway track, as in use on the Philadelphia and Reading railroad, which was recently published in the Journal of the Franklin Institute, is attracting deserved attention in England, on account of the intrinsic merits of the invention. Dr. Jones, of Washington, editor of the journal, received by a late steamship a letter from Mr. Newton, of London, a distinguished member of the institution of civil engineers, who says: "I should be very glad if you could obtain from Mr. Herron any additional information relating thereto, and I will undertake to lay it before the institution of civil engineers. It cannot well be patented in England, as it has been published in the journal, but I should be sorry to see it adopted in England except as an American invention, with Mr. Herron's name attached as inventor. The most effectual way of doing this is by communicating it to the institution of civil engineers. If you could obtain a copy of the patent, I should like it by the next mail, as the session of the engineers will soon close, and there are many points in the description that require explanation. For instance, I should like to know the kind of chairs and fastenings he uses, etc."

We understand that Mr. Herron's track, on the Reading railroad, continues to maintain that peculiar evenness of surface, so essential to ease of motion and security, at high speeds, as well as to the economical transportation of large loads in a heavy train. Up to the second of April, 1846, one million and forty-four thousand four hundred tons of coal had passed over it, exclusive of the weight of the cars, engines, merchant freight and passengers.—*National Intelligencer.*

Wind against Steam.—An extraordinary instance of the great force of the gale of wind which occurred in Glasgow and neighborhood on Wednesday morning last, happened on the Garnkirk, Glasgow, and Coatbridge railway. The Wishaw and Coltness morning train [down] had been impeded considerably during the previous part of the journey, but on reaching the Gerwiston embankment, where the inclination is 1 in 144, down which the trains generally run by their own gravity, the steam being shut off, the train on this occasion was entirely stopped, although the steam was kept on. A number of the passengers alighted; and, during a lull of the storm, by dint of shoving, the train was started, and reached town about three quarters of an hour past the usual time. The wind, by getting into the fire-box, blew the coke so much about, forcing part of it also out through the bars altogether, caused a diminution in the quantity of steam.—*North British Railway Jour.*

STEPHENS' RULING AND MECHANICAL

Drawing Ink, for Engineers, Artists and Designers. This article will be found superior to the best Indian Ink for the above purposes. It does not smear with India rubber or wash off with water. It flows freely from the drawing pen, and never corrodes or encrusts it. It may be used on a plate or slab, with a camel's hair brush, diluting it with water, or thickening it by drying, as required. It has the advantage of being ready for immediate use.

Sold in conical-shaped bottles, convenient for using from, without any stand, at 15 cents each.

All the above articles are prepared by *Henry Stephens*, the inventor, No. 54 Stamford-street, Blackfriars road, London, and sold by Booksellers and Stationers in bottles of various sizes, and may be had wholesale from the agents in Boston, New York, Philadelphia, Baltimore, Washington, Charleston, New Orleans, and St. Louis.

Mr. Wm. W. Rose, Wall-street, New York, is my general agent in the United States.

ALSO,

STEPHEN'S WRITING FLUIDS.

These compositions, which have so remarkably extended the use of the STEEL PEN, are brought to great perfection, being more easy to write with, more durable, and in every respect preferable to the ordinary ink. In warm climates they have become essential.

They consist of a Blue Fluid, changing into an intense Black color.

A Patent Unchangeable Blue Fluid, remaining a deep Blue color.

A Superior Blue Ink of the common character, but more fluid.

A brilliant Carmine Red, for Contrast Writing.

A Carbonaceous Record Ink, which writes instantly black, and being proof against Chemical Agents, is most valuable in the prevention of frauds.

Also, a new kind of MARKING INK for Linen and Inkholders adapted for preserving Ink from evaporation and dust.

Sold in Bottles of various sizes, by all Stationers and Booksellers.

Be sure to ask for *Stephens' Writing Fluid.*

N. B.—These unchangeable Blue Fluids are Patent Articles: the public are therefore cautioned against imitations, which are infringements, to sell or use which is illegal.

Stephens' Select Steel Pens.

The utmost possible care having been bestowed upon the manufacture of these articles, so as to procure the highest finish, they can be confidently recommended, both for flexibility and durability.

16—1m



RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.—Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited. S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open. JOHN BATAILLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was perched by the extreme heat. (Signed.)

RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards. (Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138½ Water st., N. Y.

Also by Isaac Bridge, 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street, Charleston, S. C.

16 if

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846. Spring Arrangement. 1846
Commencing April 1st.

Passenger trains leave daily, Sundays excepted—
Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6½ " and 2½ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Boston and New York, via Springfield: Passengers leaving Boston at 4 p. m., arrive in Springfield at 8 p. m., proceed directly to Hartford and New Haven, and thence by steamers to New York, arriving at 5 o'clock a. m.

For Buffalo: the trains for Buffalo leave Albany at 7½ a. m. and 7 p. m., arriving at Buffalo at 8 a. m. and 8 p. m. next day. Returning, arrive at Albany at 4 a. m. and 4 p. m.

New York and Boston, via Albany: the trains from Boston arrive at Albany in season for the 7 o'clock boats to New York. Returning, the boats, leaving New York at 5 and 7 p. m., reach Albany at 5 a. m., in ample season for the morning trains to Boston.—Steamboats also leave Albany at 7 a. m. and 5 p. m. and stop at the usual landing places upon the river.

The trains of the Springfield, Hartford and New Haven railroad, connect at Springfield, and passengers from Albany or Boston proceed directly on to Hartford and New Haven.

Montreal: through tickets to Montreal may be obtained in Boston, by which passengers may proceed to Troy, and thence by stage via Chester, Elizabeth, etc., and in the season of navigation by canal to Whitehall, and thence by the splendid steamers of Lake Champlain to St. John, via Burlington, and thence by railroad and steamers to Montreal.

The trains of the Hudson and Berkshire railroad connect at Chatham and State Line.

The Housatonic railroad connects at State Line. The trains of the Connecticut River railroad connect at Springfield, and passengers may proceed without delay to Northampton, and thence by stage to Greenfield, Brattleboro, Bellows Falls, Hanover, Haverhill, etc.

Stages leave West Brookfield for Ware, Endfield, New Baintree and Hardwick; also leave Palmer, for Three Rivers, Belchertown, Amherst, Ware and Monson; Pittsfield for North and South Adams, Williamstown, Lebanon Springs, etc.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES,
Superintendent and Engineer.
Western Railroad Office,
Springfield, April 1, 1846. } 14 1y

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,** Agents.
Corner of Cedar and Greenwich Sts. 43 1y

RAILROAD IRON WANTED. Wanted, 50 tons of Light Flat Bar Railroad Iron. The advertisers would prefer second-hand iron, if not too much worn. Address Box 381 Philadelphia P. O.—Post paid. 8 4t

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.
PETER COOPER, 17 Burling Slip.
New York, January 23d, 1846. 1y 10

C. J. F. BINNEY,
GENERAL COMMISSION MERCHANT
and Agent for Coal, and also Iron Manufactures, etc.
No. 1 CITY WHARF, Boston.
Advances made on Consignments.
Refer to Amos Binney, Boston.
Grant & Stone, } Philadelphia.
Brown, Earl & Erringer, }
Weld & Seaver, } Baltimore.
December 8, 1845. 1m 50

SCRIBNER'S ENGINEERS' AND MECHANICS' Companion. For sale at this office. Price \$1.50.

LARD OIL FOR MACHINERY, ETC.—Winter pressed, cleansed from gum, and manufactured expressly for engines and machinery of all kinds, railroads, steamboats, woollen and other manufactures, and for burning in any lamp without clogging the wick. Engineers of railroads and others who have used this oil, and to whom reference can be made, give it preference over the best sperm for its durability, and not requiring to be cleaned off like that, and costing about two-thirds the price. For sale by the barrel, and samples can be sent for trial, by addressing **C. J. F. BINNEY,** Agent for the Manufacturer, Boston, Mass. 11 eop 1m

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER,
Surviving partner of **STANCLIFFE & DRAPER.**

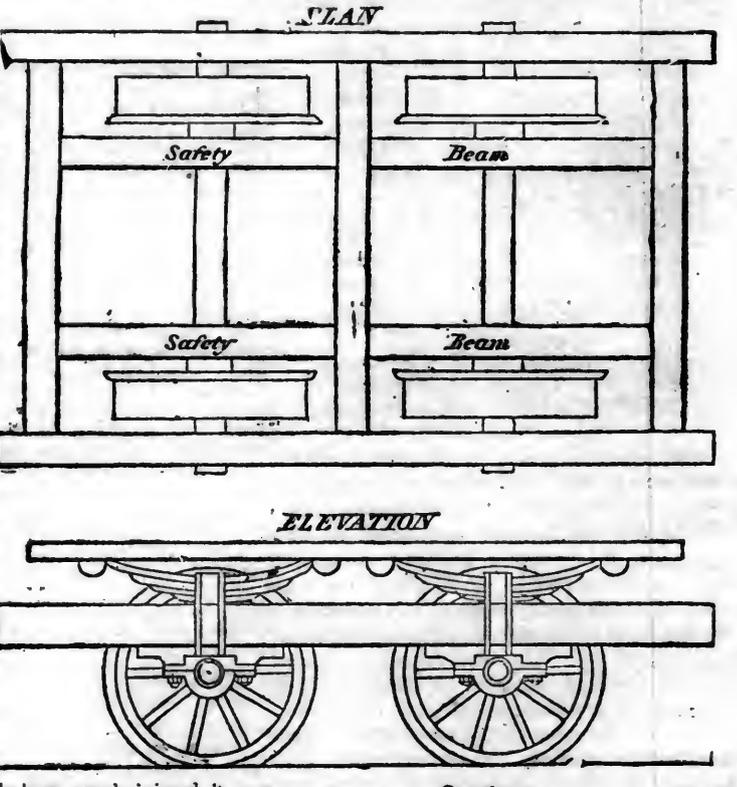


No 23 Pear street, near Third, below Walnut, Philadelphia.

KITE'S PATENT SAFETY BEAM.

MESSRS. EDITORS.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheel passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.
Wilmington, Del., Sept. 23, 1840.



The undersigned takes pleasure in attesting to the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.

In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.
JOHN FRAZER, Agent,
GEORGE CRAIG, Superintendent,
A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 1 Hanover st., N. York. **JAMES ELLIOTT, Sup. Motive Power,**
W. L. ASHMEAD, Agent. ja47

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45

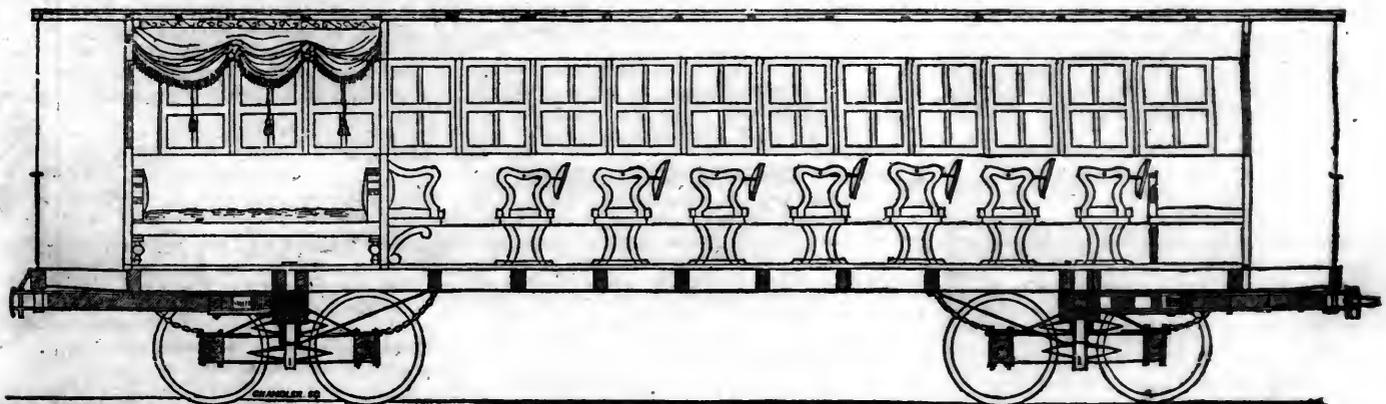


BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

The article is complete in itself, occupies but little space, is perfectly portable, and requires no brick work, not even to stand upon. It is valuable not only in the saving of time and labor, but in the economy of fuel, as it has been ascertained by accurate measurement, that the saving in that article is fully two-thirds over other methods heretofore in use. They are now for the first time introduced into New York and Boston by the subscriber, who has the exclusive right for the New England states, New York and New Jersey, and are manufactured by

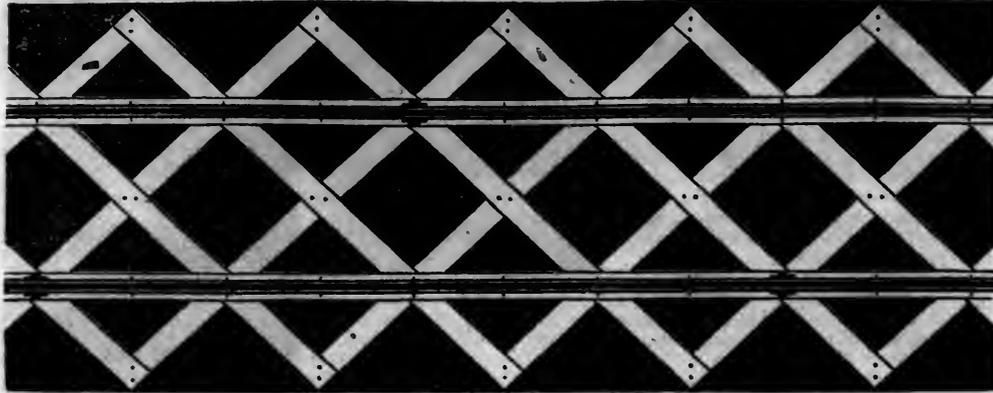
CURTIS & RANDALL, Boston; and by FORCE, GREEN & CO. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for *Two hundred dollars per mile per annum*. To insure the faithful performance of this contract, he will pledge one-fourth the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made. 1yl

W. R. CASEY, CIVIL ENGINEER, NO. 23 Chambers street, New York, will make surveys, estimates of cost and reports for railways, canals, roads, docks, wharves, dams and bridges of every description. He will also act as agent for the sale of machinery, and of patent rights for improvements to public works.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
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One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum...	5 00

ENGINEERS and MACHINISTS.

J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
 TROY IRON AND NAIL FACTORY,
 H. Burden, Agent. (See Adv.)
 ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
 S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
 NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
 KITE'S Patent Safety Beam. (See Adv.)
 FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
 NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
 ROSS WINANS, Baltimore, Md.
 CYRUS ALGER & Co., South Boston Iron Company.
 SETH ADAMS, Engineer, South Boston.
 STILLMAN, ALLEN & Co., N. Y.
 JAS. P. ALLAIRE, N. Y.
 H. R. DUNHAM & Co., N. Y.
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 PHENIX FOUNDRY, N. Y.
 R. HOE & Co., N. Y.
 ANDREW MENEELY, West Troy.
 JOHN F. STARR, Philadelphia, Pa.
 MERRICK & TOWNE, do.
 HINCKLEY & DRURY, Boston.
 C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.
 BALDWIN & WHITNEY, Philadelphia, Pa.
 THOMAS & EDMUND GEORGE, Philadelphia. (See Adv.)

TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture and for sale by
MORRIS TASKER & MORRIS,

Ware-house S. E. corner 3d and Walnut Sts., Philadelphia 11f

LEXINGTON AND OHIO RAILROAD.
 Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.
 Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 23 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above.
 35 1y

CYRUS ALGER & CO., South Boston Iron Company.

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ¼ inch Flat Punched Rails, 20 ft. long.
 25 " 2½ x ¼ " Flange Iron Rails.
 75 " 1 x ¼ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,
 Albany Iron and Nail Works,

RAILROAD IRON.—THE MARYLAND AND NEW YORK IRON AND Coal Company are now prepared to make contracts for Rails of all kinds. Address the Subscriber, at Jennon's Run, Alleghany County, Maryland.
 WILLIAM YOUNG,

LAWRENCE'S ROSENDALE HYDRULIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by **JOHN W. LAWRENCE,** 142 Front street, New York. Orders for the above will be received and promptly attended to at this office. 32 1y

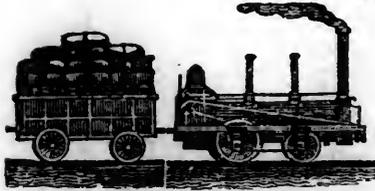
MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by **JOHN A. ROEBLING, Civil Engineer,** Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II, No. 18;

SATURDAY, MAY 2, 1846.

[WHOLE No. 514, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m. Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m. Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3½ p.m. All baggage at the risk of the owners thereof.
31 ly W. RAYMOND LEE, Supt.

BRANCH RAILROAD and STAGES CONNECTING with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich. New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars.
32 ly J. W. STOWELL, Supt.

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846. On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows: Boston for Portland at 7½ a.m. and 2½ p.m. Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m. Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m. Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m. Portland for Boston at 7½ a.m., and 3 p.m. Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m. Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m. Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value. CHAS. MINOT, Supt.

Passengers \$10 50; children under 12 years of age half price. Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON, Ch. Eng. and Gen. Agent.
Augusta, Oct. 21 1845.

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.
On Boxes of Hats, Bonnets, and Furniture per foot.....16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs.....95 "
" Sugar, coffee, iron, hardware, etc.....65 "
" Flour, bacon, mill machinery, grindstones, etc.....33 "
" Molasses, per hoghead \$9 50; salt per bus. 20 "
" Ploughs and cornshellers, each.....75 "
Passengers \$10 50; children under 12 years of age half price.

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

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J. EDGAR THOMSON, Ch. Eng. and Gen. Agent.
Augusta, Oct. 21 1845.

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A. M. and 4 P. M.
" Middletown at 6½ A. M. and 5½ P. M.
FARE REDUCED to \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P. M.
" Middletown at 12 M.
The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.
Apply to J. F. Clarkson, agent, at office corner of Duane and West sts.

H. C. SEYMOUR, Supt.
March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board.
13 lf

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pitsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pitsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pitsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.
Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances.
13 ly

BALTIMORE AND SUSQUEHANNA Railroad. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a.m., and arrives at 6 1/2 p.m. Arrives at York at 12 1/2 p.m., and leaves for Columbia at 1 1/2 p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62 1/2. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3 1/2 p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc.

Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day on any passenger train.

D. C. H. BORDLEY, Sup't.
Ticket Office, 63 North st.

31 1y

CENTRAL RAILROAD-FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

- On weight goods generally... 50 cts. per hundred.
- On measurement goods 13 cts. per cubic ft.
- On brls. wet (except molasses and oil).....\$1 50 per barrel.
- On brls. dry (except lime).... 80 cts. per barrel.
- On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
- On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.
- On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, 40 Gen'l. Sup't. Transportation.

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4, 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7, 10, 8, 10, 9, 10, 11 10 a. m., and at 12, 40, 2, 3, 10, 5, 10, 5, 30, 6, 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6, 45, 7, 45, and 10, 45 a. m., and at 12, 15, 2, 45, 4, 45, and 5, 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams' Bridge trains will be regulated according to the state of the weather. 18

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sts. 43 1y

LITTLE MIAMI RAILROAD.—Distance 65 1/2 Miles. Fare, \$1 50. From 1st November to 1st March Passenger Trains leave Cincinnati for

Xenia at 11 o'clock, A.M. Returning, leaves Xenia at 8 1/2 o'clock, A.M. Freight Trains run daily, Sundays excepted.

At Xenia, Passenger Trains connect with daily lines of stages to Columbus, Wheeling, Cleveland and Sandusky city.

W. H. CLEMENT, Supt. and Engineer.

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. G. A. NICOLLS, Reading, Pa. ja45

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to James P. Allaire, Peter Cooper, Murdock, Leavitt & Co. } New York. J. Triplett & Son, Richmond, Va. J. R. Anderson, Tredegar Iron Works, Richmond, Va. J. Patton, Jr. } Philadelphia, Pa. Colwell & Co. } J. M. L. & W. H. Scovill, Waterbury, Con. N. E. Screw Co. } Providence, R. I. Eagle Screw Co. } William Parker, Supt. Bost. and Worc. R. R. New Jersey Malleable Iron Co., Newark, N. J. Gardiner, Harrison & Co. Newark, N. J. 25,000 to 30,000 made weekly. 35 1y

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. ja45 1y

FLAT BAR, ENGLISH ROLLED, RAILROAD IRON, 2 1/2 x 1/2—a large part suitable to relay. For sale by C. J. F. BINNEY, Commission Merchant, 1 City Wharf, Boston, Mass 11 1m

RAILROAD IRON WANTED. WANTED, 50 tons of Light Flat Bar Railroad Iron. The advertisers would prefer second-hand iron, if not too much worn. Address Box 384 Philadelphia P. O.—Post paid. 8 4t

TROY AND GREENBUSH RAILROAD. Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at 6 1/2 A.M. Leave Albany at 7 A.M.

"	"	7 1/2	"	"	"	8	"
"	"	8 1/2	"	"	"	9	"
"	"	9 1/2	"	"	"	10	"
"	"	10 1/2	"	"	"	11	"
"	"	11 1/2	"	"	"	12	M.
"	"	1 P.M.	"	"	"	1 1/2	P.M.
"	"	2	"	"	"	2 1/2	"
"	"	3	"	"	"	3 1/2	"
"	"	4	"	"	"	4 1/2	"
"	"	5	"	"	"	5 1/2	"
"	"	5 1/2	"	"	"	6	"
"	"	6 1/2	"	"	"	7	"

The 6 1/2 a.m. and 2 o'clock p.m. runs from Troy, to Boston runs.

The 12 m. and 6 o'clock p.m. trains from Boston runs.

Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT, Superintendent.

Troy, April 1st, 1846. 14 1y

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship. Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, 45 Paterson, N. J., or 60 Wall street, N. York.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.

THE SUBSCRIBERS, AGENTS FOR the sale of Codorus, Glendon, Spring Mill and Valley, Pig Iron. Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted. They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied. SAM'L. KIMBER, & CO., 59 North Wharves, Philadelphia, Pa. Jan. 14, 1846. [1y4]

RAILROAD IRON AND LOCOMOTIVE
Tyres imported to order and constantly on hand
by **A. & G. RALSTON**
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS—etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
Albany, N. Y.

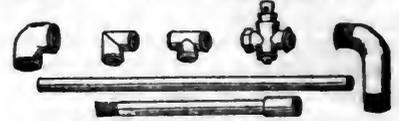
Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice, or personal supervision. Applications must be post paid.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

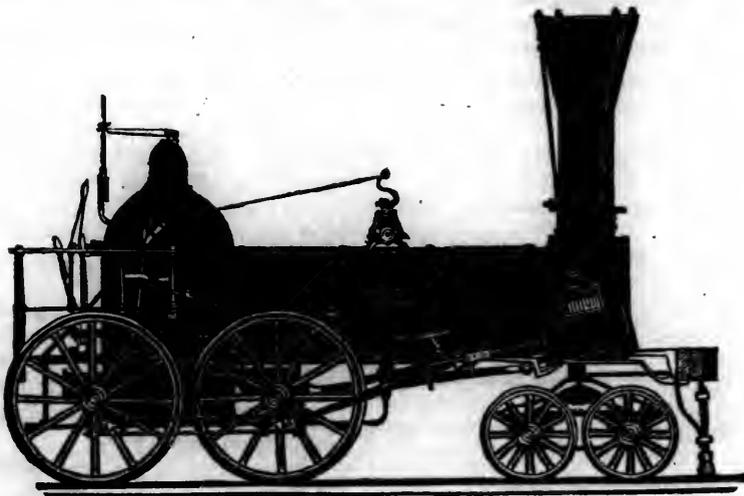
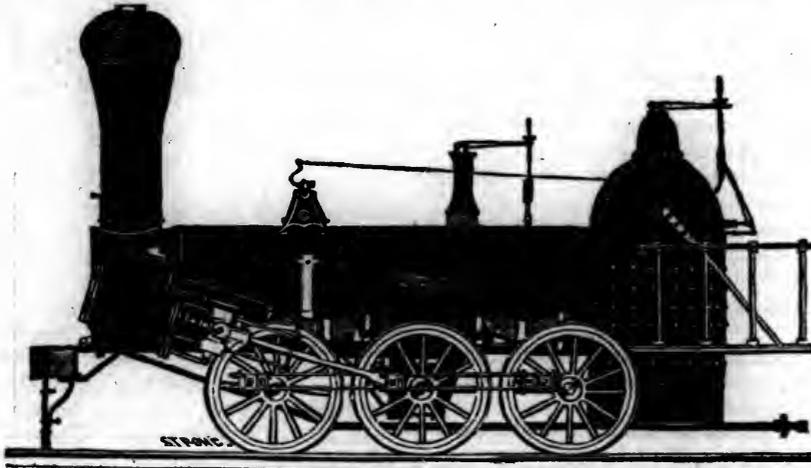
WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L., and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of	Cylinder,	×	20 inches	Stroke.
" 2,	14	"	"	×	24	"
" 3,	14 1/2	"	"	×	20	"
" 4,	12 1/2	"	"	×	20	"
" 5,	11 1/2	"	"	×	20	"
" 6,	10 1/2	"	"	×	18	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels or the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4 1/2 P.M., Philadelphia at 10 P.M., and Baltimore at 6 1/2 A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00
" " " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to
STOCTON & FALLS, Agents.

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 fe, with lathes, work benches,

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 1/2 feet two stories high, with a shed part 45 1/2 x 20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS, 48** State st., or to **CURTIS, LEAVENS & CO., 106** State st., Boston, or to **A. & G. RALSTON & Co.,** Philadelphia. ja45

RAILROAD IRON—500 TONS T RAILS
—60 lbs. to the yard. Depth of rail, 3 1/2 inches; width of base, 4 inches; width of top, 2 1/2 inches; length of bars, 15 and 17 1/2 feet. Apply to

A Steam Pile Driver—built by "Dunham & Co."—in complete order; has never been used, and for sale a bargain. Cost originally \$5,000. Also 12 Railway Passenger Cars, that have never been used, which will be sold a bargain. 8 ft

DAVIS, BROOKS & CO.,
April 11. 10 30 Wall street.

The Gauge Question.

We find in the Railway Express, of 3d April, a list of those who were examined by the commissioners in relation to this question. It includes 46 persons, among whom are several of the most eminent engineers of the kingdom. We give the list entire, that our readers may know who they are.

"The appendix to the report of the gauge commissioners, containing the evidence taken before them, will form a thick folio volume of nearly 400 pages. Forty witnesses were examined, many of them more than once. This number included almost every individual eminent in the railway world, either as an engineer or a manufacturer of locomotives, a manager, a secretary, a carrier, or an amalgamator. The following will be found the only correct list yet published, and will give some idea of the mass of information on which the commissioners founded their report. For convenience of comparison, the list has been divided into—'in favor of the narrow gauge with national uniformity;' 'in favor of the broad gauge, with break of gauge;' 'in favor of an intermediate gauge.'

In Favor of Narrow Gauge and Uniformity.

1. Robert Stephenson, civil engineer and manufacturer of locomotives (son of George Stephenson, the inventor of railway locomotion).
2. Joseph Lock, civil engineer, (who completed the Grand Junction railway).
3. James Edward McConnel, superintendent of the locomotive department on the Birmingham and Gloucester railway.
4. J. U. Rastrick, engineer of the Brighton railway.
5. Albinus Martin, resident engineer and superintendent of the Southwestern railway.
6. Captain J. M. Laws, general manager of the Leeds and Manchester railway.
7. John Braithwaite, chief engineer of the Eastern Counties (adopted narrow gauge in lieu of 5 feet gauge).
8. Captain Wm. O'Brien, secretary of the Southeastern railway.
9. Thomas Bucton, secretary to the Brighton railway.
10. Thomas C. Mills, manager of the goods department at the London and Birmingham railway.
11. George P. Bidder, civil engineer on branches of the London and Birmingham, and a friend of R. Stephenson.
12. George Bodmer, locomotive manufacturer.
13. William Furnihough, superintendent of Eastern Counties locomotives.
14. Wyndham Harding, late manager of the Bristol and Gloucester railway.
15. Captain Mark Huish, general manager of the Grand Junction and Liverpool and Manchester.
16. Benjamin W. Horne, carrier and partner with Mr. Chaplin.
17. Evan Jones, agent for Chaplin and Horne, carriers, at Camden station.
18. Thomas Whitaker, civil engineer.
19. Richard Creed, secretary to the London and Birmingham railway.
20. Peter Clarke, manager of the Brighton railway.

21. James Brown Head, of Sir Robert Price's iron and coal works.

22. W. James Chaplin, chairman of the Southwestern, and a carrier with Mr. Horne.

23. John Hawkshaw, engineer of the Manchester and Leeds.

24. William Bass, agent to Messrs. Pickford.

25. John Ellis, deputy chairman of the Midland railway.

26. Joseph Maynard, of the firm of Pickfords, carriers.

27. Edward Woods, civil engineer.

28. James P. Budd, manager of copper works and coal mines, deputy chairman of the Welsh Midland.

29. Nicholas Wood, civil engineer, (author of a celebrated work on the steam engine).

30. George Hudson, M. P., director of a thousand miles of railway.

Opposed to Break, Expressing no Opinion about Gauge.

31. Gen. Sir Willoughby Gordon, quartermaster general.

32. Major General Sir John Burgoyne, quarter master general.

33. Major General Pasley was opposed to break, but in favor of a five foot gauge if practicable now.

In favor of Broad Gauge with Break of Gauge.

34. Isambard Kingdom Brunel, (inventor of the broad gauge,) engineer of the Great Western railway.

35. Charles Alexander Saunders, secretary of the Great Western railway.

36. Seymour Clerk, superintendent of traffic on Great Western railway.

37. Daniel Gooch, superintendent of locomotives on Great Western railway.

Intermediate Gauge.

38. C. Vignoles, civil engineer, in favor of a six foot gauge.

39. Col. Landmann, late engineer to the Greenwich, five feet to six feet.

40. Edward Bury, locomotive manufacturer.

41. Benj. Cubitt, engineer and locomotive manufacturer to the Croydon, Brighton, and Dover railways.

42. Richard Roberts, formerly a locomotive manufacturer.

43. John Gray, locomotive superintendent of the Brighton railway.

44. Richard Downs, contractor, against break.

45. Thomas Jackson, against break.

46. William Cubitt, civil engineer."

Iron Ship Building.

We find the following account in relation to the progress of iron ship building near Liverpool, Eng. It will very naturally lead those who watch the signs of the times, to the conclusion that this branch of business, as well as railroads, is destined to make large demands upon the iron manufacture of this country as well as England. Few indeed, at this day, estimate this demand correctly.

Iron Steam Vessel Building on the Mersey. Among the numerous objects of interest which

Liverpool presents, perhaps few are more important than the progress now making in the new and rising art of iron ship building.

The extensive new premises erected by Messrs. Vernon and co., being highest up the river, first require attention. No expense has been spared by these builders to provide the most efficient means for carrying on their work. Three very fine ships are now on the stocks. The first is the *Windsor*, of about 800 tons, building for the city of Dublin company, from the plans of Mr. Grantham.—The second vessel of the same dimensions as the *Windsor*, is for the Cork company, and is called the *Ajax*. The third is a very large steamer, of about 1,300 tons, building for the Peninsula and Oriental company; this vessel is about half plated. Messrs. Vernon and Co. have orders for two more steamers, one of about 700 tons, also for the Cork company, and one of 300 tons for Fleetwood, from Mr. Grantham's plan. (The *Windsor* and *Ajax* have been both launched since this notice was written.)

At Messrs. Hodgson and Co.'s works, Brunswick dock, five iron vessels are now building. That nearest completion is about 250 tons, and is to be worked by a screw.—She is intended for Buenos Ayres. The next is the *Antelope*, of nearly 600 tons, intended as a packet ship between this port and the Brazils. She is of great length and very fine lines, and is to be powerfully rigged. The next to her is a large vessel for the New York trade, to be 1000 tons old measurement, or 1500 tons new. She is to be heavily rigged, and with four masts. These two last vessels are built from the plans of Mr. Grantham, and are to be propelled by the screw, on the direct principle.

Two other vessels are in this yard: one for Bombay, of about three hundred tons, and one for the Woodside ferry.

Mr. Cato has orders for four vessels, all from the plans of Mr. Grantham: one of 650 tons, lately launched but not yet completed, for the city of Dublin company, to be worked by paddle wheels. Also two vessels of 300 tons, which are for the same company, to be fitted with the screw propeller, and rigged as three masted schooners.

Mr. Laird, the well known builder at Birkenhead, has also five steamers in the course of construction. The frigate "*Birkenhead*," of 1400 tons, lately launched, is now receiving her engines in the Trafalgar dock, and looks remarkably well.

Three other vessels are intended for the Folkstone station, to be similar to a beautiful steamer lately completed for the same line, named the *Prince Ernest*, which has been highly approved of for her speed and good qualities.

The first iron steam vessel which appeared on the Mersey was built in Staffordshire and came here in 1824, and the first that was built here, was constructed by Messrs. Fawcett, Preston and Co., in 1829; both of these were intended for the inland navigation of Ireland. They have been constantly at work, and are said to be still in good condition.

While on this subject we may relate an

interesting fact that has come to our knowledge. In Mr. Grantham's work on iron ship building he describes an iron steamer, the *Aaron Manby*, which was built in this country in 1821, and sent to the Seine, where she worked between Havre and Rouen.— This steamer, with two others built about the same time, have been most severely worked and much neglected, but were on examination lately, found to be in such good condition that a firm in Rouen has undertaken to lengthen them, preparatory to receiving new machinery, and being again fitted for service.— *Liverpool Standard.*

Channel Steamers.—On Thursday last the *Belgian railway*, a very fine iron steamer fitted out for the Belgian government, in order to carry the mails between Ostend and Dover, was tried down the river. She has been built by Messrs. Ditchburn and Mare, of Blackwall, and engine fitted by Messrs. Maudslay and Field. She left Blackwall at 20 minutes past 11, and returned to her moorings at 20 minutes past five; having gone down ten miles below the Nore and back in 6 hours, including a stoppage of some minutes at Woolwich. The trial was in every respect highly satisfactory.

The *Belgian railway* is another of that class of vessels which within the last two or three years has created such a revolution in the channel service, as regards speed and accommodation. Formerly, the insufficiency of the packet vessels used to be the subject of constant and well founded complaints; they were all wooden vessels, and though managed with great skill, the time they occupied in performing their voyages was very great under the best of circumstances, and in bad weather so much so, as to deter passengers from going with them. The first step in advance was the purchase by government of the *Dover*, an iron vessel built at Liverpool; her speed was about one-third greater than the old vessels. Then came the *Princess Alice*, whose speed was nearly twice as great as that of the old packets. She was followed by the *Princess Mary*, *Princess Maude*, and *Queen of the Belgians*, for the South Eastern railway company. The *Ondine* came next in order; she was built for a private company at Dover, but subsequently bought by the proprietor of the *Morning Herald* to carry despatches. The South Eastern company then got the *Queen of the French* and *Prince Ernest*. The whole of these vessels, beginning with the *Alice*, have kept up the communication with France and Belgium in all weathers with the greatest regularity, and at times when the old vessels dare not "look at it."— The government finding that their old vessels could not compete with the private ones, and that they got none of the passengers, ordered several new ones to be built on the model and proportions of the *Princess Alice*. The *Onyx*, the first of their new batch, went to her station this week, and the *Violet*, her sister boat, was as well as the *Belgian railway*, tried down the river on Thursday.

Thames Tunnel.—Receipts for the week ending 28th February, £76 3s. 11d.; and number of passengers, 18,283.

The Iron Trade.

This branch of industry is receiving increased attention in Europe as well as in this country. There is evidently apprehension in England, of greater competition in the trade in this country than has ever before existed—and well there may be, as the time will come when we shall export more iron than we ever imported. We only need experience—and we are acquiring that rapidly—to enable us to compete successfully with the cheap labor, long experience and capital of Britain. The next ten years will produce changes in this trade which will astonish even the most sanguine in this country.

The annexed article from a late London Mining Journal shows that it is deemed necessary to look to their laurels, if they are to be retained. We also give the letter from the United States alluded to.

"Among our original correspondence, in another column, will be found a letter on the anthracite iron of Pennsylvania—one of immense importance to all who are interested in the iron trade, as showing clearly the exertions brother Jonathan is making to rival us in the production, price and finish, of one of the staple commodities of the country.— Our readers are doubtless, aware of the enormous deposits of iron ore and anthracite coal in the state of Pennsylvania alone. Hitherto, these sources of wealth with which nature has so abundantly supplied America, have lain comparatively dormant; and Scotch pig iron has formed an article of extensive trans-Atlantic exportation—its low figure, as compared with English and Welsh iron, enabling it to bear the cost of freight, and then obtain a remunerative price in the American market. We have, on many occasions during the past year, re-echoed the warning note to the iron masters, that it behoved them, by taking advantage of every improvement, to improve the quality of their make at the lowest possible cost—that, while the continental manufacturers, as well as those of America are straining every nerve to extend their trade, they may be still in a position to hold out their own superiority, and thus retain those markets, which, without strenuous exertions, will be lost to them forever. It appears, from the letter to which we refer, that pig iron, of a very superior description to Scotch, can be delivered at Philadelphia, at from 15 to \$17, or £3 9s. 9d., to £3 16s. 6d. per ton; our present (even greatly reduced) quotations for Scotch pig are from 65s. to 70s., which, with freight across the Atlantic, cannot by any possibility stand in competition with iron of American manufacture. As, however, that country is not yet capable of supplying its own requirements, some demand for Scotch pig iron must continue; but when we see the capitalists of the United States devoting their money, their talent, and their inventive faculties, to the improvement of this branch of manufacture, investigating, experimenting on, and finally adopting the discoveries of all other countries when found advantageous—when we find them adapting to the peculiar produce of the country the valuable discoveries of the

lamented Mr. CRANE, in the application of anthracite to iron smelting, the economical employment of the gases from the furnaces, to the re-heating, and to working the blast, (a plan lately adopted in Belgium and France, and found completely successful,) and giving every indication that they are determined to "go a-head," and take every advantage of the stores of mineral which nature has placed within their reach—we again say, that it behoves the iron masters of this country, and Scotland, to persevere in the improvement of their make, and thus keep up that demand in those continental markets, which with care may be secured for many years to come.— These islands have been equally blest with a profusion of inexhaustible mineral deposit; and notwithstanding the boundless profusion of ores and coal with which nature has scattered America, our manufacturers have it still in their power to retain their position in the metal markets of the world. The principles of free trade are gradually disseminating themselves throughout all civilized countries—and with a clear stage, and unshackled by the fetters of restrictive tariffs, the energies and perseverance of those engaged in the development of British produce, shall carry them triumphant over all competitors throughout the world."

The letter referred to, which is dated Feb, 27, 1846, says—

"The principal reason for the few orders you have received from us for a long time is that we are now getting an anthracite pig iron, which is taking the place of Scotch entirely with our customers—which is a great change in the iron trade of this country, and will eventually, and very shortly, stop the importation of Scotch iron. Knowing the interest you take in the iron trade, we have sent two samples of pig, made with the anthracite coal. The flat piece of iron will take more old iron, and is more fluid than any Scotch iron; and our customers give it the preference. The casting we send is made from the No. 2 of this iron; and you will see by putting the file to it, that it is very soft.—

The other piece is also made from anthracite coal, and is a very superior iron. The cost of making the first is as follows, as we have it from the manufacturer. The writer has just returned from the furnace, which is turning out 85 to 90 tons pig iron per week, of beautiful quality:

4,400 lbs. coal, or 2 tons, at \$2 43. 4 86
 2½ tons ore, 1 66. 4 15
 1 ton limestone. 0 50
 Freight to tidewater, Philadelphia. 2 50

15 51—£3 9s. 9d.

"The other iron is made about 10 miles from Philadelphia, and the cost is as follows:

2½ tons ore at \$2 50.....\$6 25
 2 tons lime, at \$3 00..... 6 00
 Limestone 0 50
 Labor 3 50
 Transportation to city 0 75

17 00—£3 16s. 8s.

"This furnace will not take so much coal as we have stated, as the blast is heated by the gas from the top, and the steam engine is

worked by heat from the same source—the boiler being at the top of the furnace. So you will see we are pretty well prepared for any reduction in the tariff, *which we think will take place*; if it does, iron can be made cheaper as labor will fall."

There has been a reduction in the price of iron. The quotations of 20th March, were rails £10 15s. a £11, and Scotch pig, £3 10s. a £3 12s. 6d.

On the 27th the quotations are rails £0 0s. a £10 15s., and Scotch pig £0 0s. a £3 10.

Iron.—In Welsh and Staffordshire very little doing, and prices are about 5s. lower than those quoted in last week's *Mining Journal*. Scotch pig has been in fair demand at 70s. for exportation, and many sales have been made. A few sales of Russian, at about prices quoted, but in Swedish nothing doing.

Projected Communication Across the Isthmus of Panama.

The wonder is that this important work does not command more attention, especially from Americans. It *should* be an American work—or not wholly an European enterprise; yet we do not hear of any effective movement on the part of our country, or countrymen, in favor of the work—though other nations are moving in it.

We find, in a late number of the *London Mining Journal*, the following extract from the report of M. Garella, who has made an examination of the pass. It is truly a gigantic undertaking, yet the increasing business of the nations will require a passage, either a canal or a railroad—the latter we presume—before many years.

A railroad of sufficient capacity to allow the passage of a ship of a thousand tons may be constructed for less money than a canal for a ship of same dimensions. A railroad with *three tracks* would receive a *cradle* upon which a vessel would ride as much at ease as upon the water—and it would not bear much more heavily upon any *one point* of the rail than the heaviest locomotives of the present day.

We have, in several former numbers, given an account of the projected ship canal across the isthmus of Tehuantepec, surveyed by Signor Gaetano Moro, and conceded to Don Jose de Garay, by the Mexican government. We now have the pleasure of giving to our readers a short extract from the report of M. Garella, one of the distinguished members of the *Ponts et Chaussées* in Paris, who had been deputed to study the important question of the practicability of cutting through the isthmus of Panama. This clever engineer has made a most minute survey of the tract of land between the two oceans, and made his estimates of the expenses; and in his opinion, the establishing of a railway, or a good Macadamised road, offers but very few difficulties, and that the cutting a ship canal is perfectly practicable. The slip of land which joins North and South America measures at least 1,430 miles, (2,300 kilometres) in length. This immense tract of land presents various heights. At Panama itself, between that town and Chagres, there are only 40½ miles, —from the mouth of the Caimeto, in the vicinity of Panama to the mouth of the Rio Chagres, on the Atlantic, the distance is only

36 miles—and a little more to the east, towards the bay of San Blas, only 31½ miles. This approach of these two great oceans is truly remarkable. After having carefully taken his levels, and well surveyed the isthmus as to its facilities and difficulties, he was convinced that it would be practicable to cut a navigable canal for vessels of 1200 tons. This canal to the Pacific ocean must be cut through the valley of the Caimeto, so as to run into the sea at the anchorage of Vaca de Monte, situated about 12 miles to the west of Panama, and towards the Atlantic ocean, by the valley of Rio Chagres, to meet on the ocean, not at the harbor of Chagres, which is inaccessible to large vessels, but at the bay of Limon, five miles distant—thus would be insured on both sides a free and ready communication of the canal with the sea. The length of the canal would be in all 47½ miles—of which 34 are between the Pacific ocean and the Chagres, 7½ between Rio Chagres and the bay of Limon, and 5½ in the bed of the Chagres. The dimensions to be as follows—depth, 28½ feet; breadth at water level, 149½ feet, breadth at bottom, 65½ feet. The canals for navigating boats and barges in France, are at most from 3½ to 6½ feet (2 metres) deep, from 15 to 18 metres (59½ feet) broad at water level, and at the most 39½ feet at the bottom. The largest of the existing canals is the Caledonian, which is a ship canal, and is 20 feet deep, 122 in breadth at the water level, and 53 at the bottom. M. Garella's project is distinguished by a very bold feature. To carry an ordinary canal over an elevation of 460 feet, would cause no surprise; but this is no longer the case, when it is the question of a ship canal,—and finding that the elevation would be so great to overcome, and that at a most enormous expense, what with locks, forming the summit level, and the country offering no means of giving a sufficient quantity of water, to correspond with the draught of the canal, he conceived the gigantic idea of making (what is generally done in ordinary canals) a subterraneous passage. All those who have hitherto written on the canal of the isthmus of Panama, have been dismayed by such a project—perhaps through not having deeply examined it. On an ordinary canal, a tunnel need not be more than 8 to 10 metres (33 feet) high, between the bottom of the canal and the summit of the arch, with a breadth nearly similar. On a ship canal, when the vessels would necessarily keep in their lower masts, a height of about 122 feet would be required (nearly the height of the column of Napoleon, Place Vendome, Paris,) and a breadth of 69 feet. The idea of such an undertaking could only be contemplated by a masterly mind. This subterraneous passage will be cut through a very hard porphyry—it must be of the length of 5900 yards, and will be approached by trenches of from 45 to 50 metres (165 feet deep.) It would permit the establishing of division at 328 feet under the culminating point—so that the elevation, to be surmounted by locks, would now be only 157 feet above the level of the low water mark. On the other side, on account of the

difference of the tides, it would be 177 feet, and the tunnel alone would cost 1,433,800*l.* The expense of the canal with the tunnel would be, according to the calculations of M. Garella, 5,000,000*l.*, and with the interior walling of the passage, it would be 5,560,000*l.* The profits of the enterprise, after all the expenses deducted, would yield the sum of 5 per cent on the capital employed. M. Garella, in proposing this gigantic tunnel, does not absolutely recommend it, and has carefully examined what could be done, if it were thrown aside. In this case, he is of opinion to dig a trench 275 feet deep, and the bottom of which would be 49½ feet above the bottom of that of the subterraneous passage, which would call for five locks more on each side, carrying the expenses to 5,960,000*l.* If it were reduced to canal, capable only of receiving vessels of 600 tons burden, the expense would still be 3,600,000*l.* A railway from Chagres to Panama would require 1,320,000*l.* A Macadamised road would be much less. As we have before stated, the isthmus of Tehuantepec has been studied, in a very careful manner, by Signor Moro, an experienced engineer, on behalf of a Mexican Company,—and that of Nigragua, in Central America, by Mr. Bailey, an officer of the British navy, who has conscientiously fulfilled his task in that laborious survey. The French government takes a very great interest in the accomplishment of this vast undertaking, and no doubt will render every assistance for carrying it out. We have seen the various plans of the three projects, and there will certainly be great difficulties to be overcome; but what will not science and the enterprise of man accomplish, if he has sufficient means at his disposal?

Chesapeake and Ohio Canal.—The Cumberland "Civilian" publishes a letter from Frederick which says:

"In regard to the prospects of the canal, I can only say, that I am encouraged to think that all will be well. In one opinion I have unlimited confidence: that the work will be completed, *under the present law*, to Cumberland. Negotiations are on foot here, and I think they will be concluded in a few days, which lead me to believe that the work will be forced ahead all along the line with great vigor and energy."

The Jamaica (W. I.) Railway.

We have not often had information in relation to the progress of railways in the West Indies, or in Cuba; but we hope to be able hereafter to give a full account of them. We take the following from the Jamaica Dispatch of March 11th:

"We are happy to continue our favorable accounts of the working of this railway. From a return made by the company as required by their act of incorporation, it appears that the first quarter's traffic stands as follows: passengers, 40,701; merchandize etc., 566 tons. The number of cattle and horses which have been transported on the railway are unimportant. It speaks highly in favor of the management, and is greatly to the credit of Mr. Smith, that not a solitary accident has occurred since the opening of the railway."

New York and Erie Railroad, and the New York Members of the Legislature.

Legislature of New York.—Assembly, April 22.—Evening session.—The house resumed the consideration of the New York and Erie railroad.

The question was taken and the bill was lost—ayes 24, noes 29.

Mr. Stevenson moved to reconsider; and the motion to reconsider lies on the table.

Lost!—the *New York and Erie railroad bill*, for selecting the *best route*, lost—and by *New York city votes!* Who could have anticipated such a result? Yet such is the record above; though we should be unwilling, were it not undeniable, to credit a record so *discreditable* to our city, which has an interest so deep, and abiding, in the early completion of this road.

It will be seen by the letter of our Cleveland correspondent, that the people of Ohio are waiting the construction of this road to continue the line on westward; then how important that we, here at its terminus, should give it our whole and *undivided efforts* until it shall be ready for use; and how mortifying that a measure so essential to its completion, and ultimate success, should be lost by the absence, or direct vote, of one of our *city members*. It must have been from misapprehension, and we therefore hope that on the final action, under the reconsideration of the subject, *every man* favorable to the success of this noble work, and especially every member from this city, will be in his place and do his duty.

Great Western Steamship—Her First Arrival this Season.

This noble ship came in on Tuesday, the 23th, after a passage of 17 days. She brings no very important news, except that the *money market* is easier, the *cotton market* firmer, and the *iron market* less brisk and prices lower.

In the Mining Journal of the 4th of April, we find the following quotations, viz:

Rails, £10 10s. a £10 15s., and bars, £11 per ton. Welsh cold blast foundry pig, £5 5s., and Scotch pig £3 10s.—which is lower than last accounts.

A correspondent of the Mining Journal says: "The transactions in Welsh and Staffordshire continue very limited, and consequently a tendency to give way in price has appeared. In some instances £8 10s. for bars in Wales has been accepted; but in the continued depressed state of the money market, with only a dull demand for the continental markets, and none for the Indian, a brisk business cannot be looked for, except at further reduced rates. Sales of Scotch pig have been made at 68s. to 70s. on board at Glasgow: several export orders were given at these rates, but we cannot report any sale of magnitude, either for use or speculation. A few sales occurred both of Russian and Swedish, but in Swedish steel none."

Glasgow Iron Trade.—March 27.—During the course of the week not much iron has changed hands on speculation—prices, however, remain much the same as in our last. We quote the price as 69s. to 70s. for choice of Nos. It is supposed that the numerous shipments now making will considerably reduce the stock on hand here.—*National Adv.*

March 31.—We have to note a decline of a shilling or two in prices since in our last; but as purchases are wholly confined to orders for immediate shipment, and the stock of consumers throughout this country being very limited, it is considered that prices cannot recede much farther. It is believed that, ere long, an advance may be looked for, should money resume the ordinary channels.—*National.*

HAVRE, March 30.—*Lead.*—A parcel of 1800 pigs Missouri, expected by the Brunswick, from New Orleans, found buyers at 54f. per 100 kil., duty paid.

This depression in iron will not continue long.—The great and increasing demand for ship building in England, in addition to the sure demand for railways, not only in England, but in *all Europe*, will

keep up the price, at least for a time, until a large increase of manufactories can be, as they surely will be, established. The settlement of the Oregon question, or in other words, the dispersion of the clouds which overspread that bone of contention, will give new life to business and to railroad operations.

The Iron Trade in France.—Casting metal has experienced a slight decline during the last week, which has caused several important transactions to have been entered into. The following are the quotations of cast metal delivered at St. Dizier, viz: plate metal and hearths, £9; pipes, £9 12s. 6d.; water and gas pipes of 65 millimetres to 162, from £11 4s. 2d. to £11 8s. 4d.; do, from 189 to 324, from £11 to £11 4s. 2d.; other descriptions of metal, for various purposes, for the making of cooking and other utensils, vary from £6 8s. 4d. to £6 12s. 8d.; and for mechanical purposes from £15 4s. 2d. to £20. The iron manufactory of Couillet and Marcincelle, the principal ones of the whole of Hainaut, have eight high furnaces—of these, four are in full blast, and the other four inactive, but one or two of them will soon be burning, as this company have received considerable contracts for rails for the interior.—The company or society of Chatelineau have seven high furnaces, but at present only two are in full blast. At Monceau-sur-Sambre, out of the four high furnaces, there are three at work. The two high furnaces of the iron factory of Hourpes are constantly lighted—the same with the two belonging to M. de Dorlodot, at Bouffiaux and Acoz; that of the company of la Providence, and that of M. Dupont, at Fayt. At Montignies, there is one in full blast, and one not. That of Hanches is still extinguished. Therefore, out of 23 high furnaces, which exist in the basin of Charleroi, there are, at the present moment, 16 in full work, and 12 inactive; but there is very little doubt that several of the latter will soon be placed in full blast.

Improvements in the Construction of Railways.—SIR: I notice in your Journal of last Saturday, a letter on the subject of Greenhow's geometrical railway, signed "Robert Mushet," which concludes with the following remarks: "Substitute concrete for ballast as a basis for the longitudinal sleepers, and adopt cast iron sleepers instead of the present Kyanyzed humbug, for the support of the wrought iron rails, imbedding the rails themselves in grooves left for that purpose in the cast iron sleepers, and retaining them in these grooves by means of lead or iron cement, which would be far cheaper; and then, with round rail surfaces, and hollow wheel tyres, a degree of safety will be attained, which at present is unknown." Some months ago, a patent was sealed for improvements in "railway chair and rails," which will be specified in a few days, that entirely coincides with the views of your correspondent, Mr. Mushet.—*London Mining Journal.* R.

RAILWAYS.—The Liverpool Journal gives a list of 42 railways already rejected by the standing orders committee of the House of Commons, with an aggregate capital on paper of £41,396,000, on which deposits had been made to the amount of £2,714,500. These lines are virtually defunct. And it was supposed many others would share the same fate.

The Great Western Steamship Company.—From the annual report of this company, it appears that the receipts for the Great Western had amounted to £35,914 10s. 3d., 2nd the expenditures, including repairs, to £23,484 10s. 6d., leaving a profit of £12,431 19s. 9d. The receipts of the Great Britain from visitors and passage money from Bristol to London, Plymouth, Ireland, and Liverpool, amounted to £9,690 17s. 1d. The expenditure on trial trips and voyages, etc., amounted to \$4,437, leaving a surplus of £5,253 16s. 9d.

The expenses on two voyages to New York amounted (including insurance, etc.) to £13,573 12s. 7d., and the receipts to only £9,198 7s. The small receipt was to be accounted for from the fact of the first voyage being an experimental one, and the second having been in consequence of the accident to the screw, prolonged beyond the advertised day of sailing. In reference to this ship, the directors have received a most satisfactory report from the engineers.

RIGHT OF WAY BILL—BALTIMORE AND OHIO RAILROAD.—The Baltimore and Ohio railroad bill is a law, the governor having informed both houses that it had received his approval and signature.

We cannot say that we are at all pleased with the result of this measure; and we predict that some of those who have opposed the passage of the bill giving the right of way will have cause yet to regret their course.

The governor vetoed a supplement to the act granting transporting powers to the Schuylkill navigation company.

The house passed the following bill finally: A supplement to the act for the relief of the Cumberland Valley railroad company.

CENTRAL, PENNSYLVANIA, RAILROAD.—The legislature of Pennsylvania passed the bill chartering the Central railroad from Harrisburgh to Pittsburgh. We have not seen a copy of the act, but trust that it is *liberal*, in proportion to its importance,—and that its *location* will be made upon correct principles—that is, over the *best route*, without regard to *local* or *individual* interests, which have marred so many railroads and canals in this country. There was a large meeting of the people of Philadelphia, on Monday evening last, at which several able speeches were made, and strong assurances given, by those who are able to make the road, that the means will be forthcoming when required, and we presume the citizens of Pittsburgh will hold them to their promises.

New York Legislature.

IN ASSEMBLY; April 23.

Third reading of Bills.

In relation to railways. [This is the reform bill of the railroad committee.]

Mr. Hall moved to commit this and Mr. Worden's bill on the same subject to a select committee of one from each Senate District. Agreed to.

To provide for the construction of a railroad from Albany to Cohoes and Waterford.

Mr. Hayner opposed the bill on the ground of objections to some of the provisions contained in it, and Mr. Harris replied.

The bill was passed, ayes 87; noes 12. To revive the charter of the Utica and Susquehanna railroad company. Laid on the table for examination.

To provide for the construction of a railroad from Schenectady to the New York and Erie railroad in the county of Chenango or Broome. Passed—ayes 95, noes 4.

The House then took a recess.

ASSEMBLY, April 23—Afternoon session. In the afternoon, the bill to incorporate the Batavia and Corning railroad company, was lost—ayes 60, noes 26. A number of private bills then passed. The House adjourned.

AMERICAN RAILROADS.

NAMES OF RAILROADS.	Length in miles.	Cost.	Loans and debts.	Number of shares.	Paid on share.	1843.		Div. per cent.	1844.		Div. per cent.	1845.		per cent.
						Gross.	Nett.		Gross.	Nett.		Gross.	Nett.	
Maine. 1 Portland, Saco and Portsmouth.....	50	1,200,000				89,997	47,166	7	131,404	62,172	6			
N. Ham. 2 Concord.....	35	750,000									12			
Mass. 3 Boston and Maine.....	56	1,485,461				178,745	68,499	6	233,101	86,401	6½			
4 Boston and Maine extension.....	17½	455,703	unfin.											
5 Boston and Lowell.....	26	1,863,746				277,315	144,000	8	316,909	147,615	8			
6 Boston and Providence.....	41	1,886,135	none.	18,600	100	233,358	110,823	6	282,701	156,109	6			
7 Boston and Worcester.....	44	2,914,078				404,141	162,000	6	428,437	195,163	7½			
8 Berkshire.....	21	250,000	not stated				17,500	7	17,737					
9 Charlestown branch.....		280,260						13	34,654	13,971	5½			
10 Eastern.....	54	2,388,631				279,563	140,595	6	337,238	227,920	8			
11 Fitchburg.....	50	1,150,000	just op'n'd											
12 Nashua and Lowell.....	14½	380,000				84,079		8	94,588	34,944	10			
13 New Bedford and Taunton.....	20	430,962				50,671	24,000	6	64,998	24,000	6			
14 Northampton and Springfield.....		172,883	unfin.											
15 Norwich and Worcester.....	66	2,290,000	900,000	16,535	100	162,336	24,871		230,674	99,464	3			
16 Old Colony.....		87,820	unfin.											
17 Stoughton branch.....	4	63,075	unfin.											
18 Taunton branch.....	11	250,000						8	96,687	20,000	8			
19 Vermont and Massachusetts.....														
20 West Stockbridge.....	3	41,516	200		100						4			
21 Western, (117 miles in Mass.,).....	156	7,686,202	1,686,202	30,000		573,882	284,432		753,753	439,679	3			
22 Worcester branch to Milbury.....	3½	42,000												
23 Housatonic, (10 months,).....	74	1,244,123							150,000					
Conn 24 Hartford and New Haven.....	38	1,100,000	100,000	10,000	100						6			
25 Hartford and Springfield.....	25½	600,000	400,000	2,000	100									
26 Stonington, (year ending 1st Sept.,).....	48	2,600,000	650,000	13,000	100	113,889			154,724	79,845				
N. York. 27 Attica and Buffalo.....	31	336,211				45,696	7,522		73,248	48,033				
28 Auburn and Rochester.....	78	1,795,342	200,000	14,000	100	189,693	112,000		237,667	152,007	6			
29 Auburn and Syracuse.....	26	766,657			133½	86,291	27,334		96,738	52,544	6			
30 Buffalo and Niagara.....	22	200,000		1,500										
31 Erie, (446 miles,).....		5,000,000												
32 Erie, opened.....	53						48,000		126,020	59,075				
3 Harlem.....	26	2,250,000	750,000	30,000					140,685	62,399				
3 Hudson and Berkshire.....	31	575,613			50				35,029	1,729				
35 Long Island.....	96	1,610,221	392,340	29,846					153,456	58,996				
31 Mohawk and Hudson.....	17	317,893	400,000	10,000	100	69,948	58,780		79,804	45,763				
37 Saratoga and Schenectady.....	22	303,658				42,242	3,000	1	34,666	8,455				
38 Schenectady and Troy.....	20½	640,800				28,043			32,646	6,365				
39 Syracuse and Utica.....	53	1,115,897	none.	16,000	62½	163,701	72,000		192,061	120,992	8			
40 Tonawanda.....	43	727,332				76,227			114,177	75,865	5			
41 Troy and Greenbush.....	6	180,000												
42 Troy and Saratoga.....	25	475,801				44,325	21,000		38,502	9,971	2½			
43 Utica and Schenectady.....	78	2,168,165	none.	20,000	100	277,164	180,000	9	331,932	199,094	8			
N. Jersey 44 Camden and Amboy.....	61	3,200,000				682,832	383,880		784,191	404,956				
45 Elizabethtown and Somerville.....	26	500,000												
46 New Jersey.....	34	2,000,000												
47 Paterson.....	16	500,000									6			
Penn. 48 Beaver Meadow.....	26	1,000,000												
49 Cumberland Valley.....	46	1,250,000												
50 Harrisburg and Lancaster.....	36	860,000	645,929									77,538	9,988	
51 Hazleton branch.....	10	120,000												
52 Little Schuylkill.....	29	900,000												
53 Blossburg and Corning.....	40	600,000												
54 Mauch Chunk.....	9	100,000												
55 Buck Mountain.....	4	72,000												
56 Minehill and Schuylkill Haven.....	19½	396,117	25,000	7,019	50			12			12			
57 Norristown.....	20	800,000												
58 Philadelphia and Trenton.....	30	400,000												
59 Pottsville and Danville.....	29½	1,500,000												
60 Reading.....	94	9,457,570	7,447,570	40,200	50				597,613	343,511				
61 Schuylkill valley.....	10	1,000,000												
62 Williamsport and Elmira.....	25	400,000				20,000								
63 Philadelphia and Baltimore.....	93	4,400,000				43,043	200,000			210,000				
Delaware 64 Frenchtown.....	16	600,000												
Maryl'd 65 Baltimore and Ohio, (1st Oct.).....	188	7,742,410	1,153,709			575,235	279,402		658,620	346,946		738,603	374,762	3
66 Baltimore and Washington.....	38	1,800,000				177,227	71,691		212,129	104,529		208,813	95,094	6
67 Baltimore and Susquehanna.....	58	3,000,000												
68 Wrightsville, York and Gettysburg.....	12½	500,000												
Virginia 69 Greensville and Roanoke.....	18	284,433	37,544	2,000	100				25,368	6,074	3			
70 Petersburg.....	63	969,880	63,000	7,690	100				122,871	72,898	6			
71 Portsmouth and Roanoke.....	78½	1,454,171												
72 Richmond, Fredericksb'g and Potomac.....	76	800,000												
73 Richmond and Petersburg.....	22½	700,000							185,243	85,688				
74 Winchester and Potomac.....	32	500,000												
N. Car. 75 Raleigh and Gaston.....	84½	1,360,000												
76 Wilmington and Raleigh.....	161	1,800,000									5			
S. Car. 77 South Carolina.....	136													
78 Columbia.....	66	5,671,452		34,410	75	201,464	77,456		532,871	140,196				
Georgia 79 Central.....	190½	2,581,723	0	20,510	100	227,532	93,190		328,425	180,704				
80 Georgia.....	147½	2,650,000				248,026	158,207		248,096	147,523				
81 Montgomery and West Point.....	89	500,000	170,000		100				35,000	15,000				
Kent'ky 82 Lexington and Ohio.....	40	450,000												
Ohio. 83 Little Miami.....	40	400,000												
84 Mad river.....	40	152,000										24,984	3,280	
Indiana 85 Madison and Indianapolis.....	56	212,000	50,000			22,110	8,639	8	39,031	10,065	9½			
Canada 86 Champlain and St. Lawrence.....	15						12,000		58,000	24,000				

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

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Saturday, May 2, 1846.

Western and Atlantic railroad, Georgia.

The following extract from a letter, dated Atlanta, Ga., April 16, '46, and the notice accompanying it, contains information very useful to those who desire to reach the interior of Georgia, Tennessee, or Alabama. The fact stated in the letter, that the postmaster general has refused to put the mail upon this road, deserves the attention of the business community. Why is it that this officer refuses to give the people the advantage, in the mail service, of this important road of 80 miles? Can any one answer us? It appears to us that a more liberal, or rather a more just, course should be adopted by the department towards railroad companies—pay them in proportion to the service rendered—allow them a fair compensation for their increase of speed, and greater regularity of delivery—that is all they ask.

"I send you, herewith, says the writer, an advertisement of this road, which with that of J. Edgar Thomson, for the Georgia road, will give all the necessary information for travellers who desire to pass over and beyond these roads. The South Carolina railroad of 136 miles, the Georgia railroad of 172 miles, and the Western and Atlantic railroad of 80 miles, form a continuous line of 388 miles from Charleston to the interior of Georgia—one of the most important lines for freight, as well as travel, now in the Union. The Western and Atlantic railroad is owned exclusively by the state of Georgia, having no private stockholders. It will be extended 5 miles more in a few months, and will probably reach Cross Plains 100 miles from its commencement by the end of the year. More than \$3,000,000 have been expended by the state, on this work, and it is destined to reach Chatanooga on the Tennessee river, 140 miles. At this place, (Atlanta) a junction is formed with the Georgia railroad. At the end of this year there will be another line connecting this point with the seaboard, viz: the Macon and Western railroad, of 101 miles long, and the Central railroad, 190 miles, and thus forming another continuous line at the end of this year of 376 miles.

"There is an interesting fact connected with the Western and Atlantic railroad. The postmaster general has refused to put the mail on it, and passengers from the northern and eastern cities can reach all the places mentioned in my advertisement ahead of the mail."

The following is the notice referred to:

The Western and Atlantic Railroad.—This road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars, on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscombua, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
 Chief Engineer.

Atlanta, Georgia, April 16th, 1846.

Railroads in Ohio.

We have received the following reply, to a letter of inquiry on the subject of railroads, in Ohio, from an intelligent gentleman, and warm friend of the cause, residing in Cleveland. His letter is accompanied by a letter sheet pen and ink map of the state, upon which he has very accurately sketched the canals and railroads, and which we should like exceedingly to give to our readers with his description, remarks, and views, but cannot, though we are greatly obliged to him for it.

Few people indeed are aware of, or can realize, the extent of the Ohio canals. No state in the Union has done as much in the construction of canals, in proportion to its resources, or population, as Ohio. We shall give a list and description of them hereafter, but, as it is truly remarked by our correspondent, when speaking of canals as a means of communication, "they are far behind the spirit of the age," and the people of Ohio must now adopt the more recent and more efficient system of railroads, if they would realize the full benefits of their unparalleled position. The views of the writer in relation to the advantages of the two routes, to Sandusky or to Columbus, are undoubtedly correct so far as Cleveland, or the immediate interests of those sections of the state through which the roads will pass, are concerned. A railroad to Columbus will doubtless benefit Cleveland more, and a larger number of the population of Ohio, than a road to Sandusky, at the present time; and it is therefore much more likely to be built, but it occurred to us, that by directing the energies of the people of that region to those parts of the great western line, which must, at no distant day, connect New York and Chicago and Chicago and the West, more would be effected in the way of retaining the business of the west, and south of the line to Chicago, than by the line to Columbus, which would leave all Michigan open to, and indeed almost connected with the line through Canada; by which connections and associations will be found difficult to be broken or resisted, when this direct western line shall, as it must, be completed. We are quite convinced, however, that, under the circumstances, it will be easier to construct the road to Columbus than to Sandusky, because it will connect the two principal commercial cities with the political capital of the state, and pass through a region of country, the way business of which alone, in a few years, will support the road well; yet we are very desirous to learn that early measures will be taken to construct a road in the direction of Chicago, the precise route we do not pretend to indicate, but a road which shall be eventually connected with the New York and Erie at one end, and Mr. Whitney's Oregon road, when built, at the other, forming in a measure a base line into which all the roads across the states, from South-westerly to Northeasterly, will pour their rich freights, as well as the mighty west.

The writer says under date of Cleveland, April 11:

SIR—Your favor of the 14th ult. is received, and I hasten to reply. To make myself the better understood, I have sketched a map of the internal improvements and navigable waters of Ohio, which, though not strictly correct in detail, is nearly so, at least sufficiently correct for my present purpose. On the east, you will perceive, we are tolerably well supplied with the means of transportation by the Ohio river and the Ohio canal and its branches, on the north by the Wabash, and Erie canal, and lake Erie, on the west by the Junction and Miami canals, and on the south by the Ohio river.—Although these modes of conveyances are far behind the spirit of the age, they are far better than nothing; our state is yet in its infancy, and they must answer the purpose until we have become old and rich enough, to supply their places by time and space annihilating railways; these we have already commenced, they are represented upon the map by the full drawn red lines. The tier of counties, of which Sandusky, Tiffin, Finley, Kenton, Bellfontain, Urbana, Springfield, Xenia, Lebanon, and Cincinnati are the county towns, are supplied by the Mad river and Little Miami roads; and Richland county and a part of Huron by the Mansfield and Sandusky road. These roads, it is true, are not yet completed, yet there is no doubt but that they soon will be; the first, however, before it can do a heavy business, and do it with dispatch, must be rebuilt, the latter will be finished its entire length in the course of next month, and is a good road in general and capable of sustaining an average speed of 20 miles an hour. Having stated what we have already done, I will proceed to state what we have tried to do. The "Ohio railroad" was commenced about 1838, and after nearly completing the superstructure from Manhattan to Huron, 60 miles, the company failed, and almost the entire original outlay is a dead loss, even though the work should be resumed to-morrow. The superstructure is laid upon piles standing, from 6 inches to 15 feet above the surface and already considerably decayed; a very large portion of the grading was to be embankment, none of which has been done. The superstructure was laid for a seven foot track, (which no one would think of preserving, under present circumstances,) and its removal would cost as much as the small amount of excavation which has been done; the items of clearing, right of way and a part of the bridging are still worth something if the same location should be preserved, the policy of which is at least doubtful. For that road I felt a deep interest, always thought it an important link in the great chain between the east and west, and though my efforts were feeble, I fought for it two years and bled too. If Cleveland had taken the interest, in proportion to her power, that her little neighbor Ohio city did, or had made the same exertion that she is now making for the Cleveland and Columbus road, I have not the least doubt but that the iron horse would have this day been whirling from here

to Detroit, and its success would have had so much influence upon works to the east and west of it, that the chain between New York and Chicago would have already been completed. Cleveland had been so well fed, at the state and federal cribs, that she felt secure in her commercial prosperity, and was only aroused from her lethargy, when the Maumee canal on the west and the Erie' extension canal on the east began to make inroads into her trade. She now sees the Sandusky improvements, and the Canada improvements, threatening to take away her travel, and some of her sons more far-seeing, or visionary, as you may be pleased to style it, than others, see her influence still more circumscribed by the extension of the Baltimore and Ohio road, and Pennsylvania improvements, to Mansfield and onward to the Pacific ocean. But I am running wild with my speculations; I only intended to explain to you why I consider it of more importance to Cleveland, of more importance to the state, and of more importance to the road itself, to connect Cleveland with Columbus than with Sandusky at this time. As regards the present means of communication between the several points, Cleveland has good steam-boat communication with Sandusky, eight or nine months in the year, in the shortest possible distance; and canal boat communication with Columbus eight months, at a distance exceeding the railroad route by more than 50 per cent. As regards the country through which the two routes pass, the Sandusky passes through Charleston, Vermillion, and Huron to Sandusky, at all of which points the present facilities for shipping produce are nearly as good as at Cleveland, and I believe the freights are in fact the same at each to and from Buffalo, and as it would require one additional re-shipment for all property destined for the lake trade to transport it upon the railroad, very little could be expected to take that mode of conveyance. Not so the route to Columbus; for the counties of which Medina, Wooster, Ashland, Millersburgh, Bucyrus, Marion, Delaware, Mt. Vernon, Marysville, and Columbus are the county towns, are destitute of all means of transportation save by wagons upon common, or rather uncommonly bad roads. Columbus, it is true, can send her produce to Cleveland by canal, but you know well how to appreciate the difference between 232 miles by canal and 140 or 150 by railroad!

This region is second to none in the state in productiveness, and I leave it for you to judge how much of its trade would be secured to a good railway passing through Mansfield, with the branches to Wooster, Millersburgh, Mt. Vernon, and Marion. The road from Columbus to Xenia or Springfield is located, and I believe the full amount of stock is subscribed, so that it is safe to consider that the chain will be complete from Cleveland to Cincinnati, as soon as it can be built from Cleveland to Columbus. Besides these reasons, the failure of the "Ohio railroad co.," has affected the pockets of many and created a prejudice against

that route that it will be difficult to overcome, until the New York and Erie shall be completed to Dunkirk. These are some of the considerations that have led me to espouse the cause of the "Cleveland and Columbus line," and to believe that it is the true policy of Cleveland to exert herself to the utmost to complete it immediately. One good paying road once built, and the system will be extended without difficulty. I may be wrong in my conclusions, we are all apt to place too much weight upon arguments in favor of the cause we espouse, and too little upon those against it, if I am wrong in this case I shall esteem it a favor in you to put me right.

You will perceive a broken red line drawn through Elyria, Norwalk, Bellevue, Lower Sandusky, and Napoleon. This route I would prefer to the route through Sandusky for the great east and west chain; first, because it would come less into competition with the lake, and second, because it would secure a heavier way business. This road I hope soon to see built, as well as the Cleveland and Columbus road, and to see both built upon the broad gauge of the New York and Erie road. The Canada road will be built; and more, it will secure a large share of the Michigan and northwest trade, notwithstanding all our efforts to prevent it, and I do not think it worth while to waste our energies in the attempt, but let us beware lest she encroach upon the far west and the southwest also.

Excuse me for spinning out this communication to such length, for the subject is so vast, and its influences so complicated, that we become lost in attempting to trace it through the future.

Respectfully yours,
J. H. SARGEANT.

Foreign Correspondence.

32 Rue Richer, Paris, April 1, 1846.

My dear Sir—In the midst of a great pressure of business, I seize the first leisure moment I have to answer the call, made in your Journal of January 10th, respecting the preservation of timber.

Various experiments for the preservation of timber have been made in France, but none on a scale sufficiently large, and during a time long enough, to test properly the practical merit of the proposed process. The Kyan, Moll, Briant, Payne, Boucherie, and Mergary's plans, with as many other varieties of process, have been tried; they all answer well enough as physical experimentations, in the possibility of acting on the fibres of the wood to which they were separately applied, but none are practical enough to compensate for extra expenses incurred. In other words, these processes are not simple enough, but much too expensive to be generally adopted; the consequence has been that, on most of the railroads now constructed, oak sleepers have been used in their natural state. These are generally of large dimensions. In Belgium, essays have been made of various plans of preserving timber for these four or five years, none have given satisfaction, or have proved so much superior as to warrant the expediency of being generally adopted; oak sleepers are now generally adopted, but of smaller dimensions than those used in France.

The well known way of carbonizing timber previous to its being laid on or in the ground, together

with proper care in boring or cutting for the fixing of the chairs and rails, have proved as yet the very best and most practical plan of keeping timber sound for a stated time, say ten or twelve years. To arrive at this result, great care must be had to fell timber in proper season; the timber employed for sleepers must be free of all flaws, rot, or other defects; the sap must be completely separated; particular care must be had not to cause any splitting when boring holes for fixing the chairs, the top part of the sleepers should be so disposed as to turn out the water, and the under part laying on the ground slightly hollowed, so as press on the ground by its two extremities.

In France, the sleepers have generally the following dimensions: length 2m. 50c. width 25c. thickness 12c5.* In Germany, they are indiscriminately pine, white-wood and oak sleepers, but particularly pine timber. No artificial means of preserving timber is employed; timber in that country being very cheap, they calculate on renewing every seven years.

I should not fail mentioning another mode of preserving timber, practised in England, under the name of marine glue, and used chiefly for the timber employed in the construction of floating breakwaters. This English company, patented also in France, has had executed for the French government, the last year, a specimen of the invention in the formation of a ship shelter at the Sciota on the Mediteranean; so far the application of this substance to break-water has proved satisfactory. The same company offers its marine glue as a means of preserving sleepers on railroads; but I have not heard of any experiment being made.

Railway share speculation is still here the mania of the day, and much is done at the exchange on their value, although it is generally considered that the French market is overmuch gorged with railway stock.

Shares in forges and furnaces are in better demand, and command at this time high prices; some shares have run up to four times their par value.

The mania for railway speculations has not abated in France, notwithstanding the adjudication of the great northern and Lyons roads; as many companies have formed anew to bid for the concession of Lyons and Avignon and the Bordeaux and Cete railroads, not speaking of smaller lines which have respectively called out several competing companies. There are at this moment 22 companies organized with a capital of 110 millions of francs for the Lyons and Avignon railroad; it is reckoned that should they come to an understanding, previous to the adjudication day which is not yet made known by the government, each company, or rather, each stockholder may hope to obtain 5 per cent. of the shares subscribed.

Nothing new about the atmospheric system of railway; some practical partial experimentations will be made near Paris this season, I will endeavor to inform you of its result.

We have had to deplore two serious accidents of late on our railroads; one on the Lyons and St. Etienne, the other on the Rouen railroad. Several lives have been lost, and several persons seriously injured. These accidents have originated from the failure in the police of the roads, and in the absence of proper means of stopping a train.

While on this subject, I will mention to you that I have of late experimented on the Versailles railroad which has great ascents and heavy grades, a new system of breaks patented by M. M. Nosedá & Travanet, of which I have obtained excellent results,

it being of powerful effect, requiring but a very small effort, acting in either way by means of a gear, and calling to its aid the rotary motion of the wheels or shafts at will. On that account this break is called *self acting (auto moteur)*. The cost of the break is 250 francs instead of 500 francs, that of the Birmingham breaks. Yours most truly,

LE MAJOR POUSSIN.

Montgomery, (Ala.) and West Point Railroad.

In reply to our inquiries in relation to this and other railroads in Alabama, and their probable connections, we have received the following interesting communication from L. P. Grant, Esq., a gentleman who has been long devoted to the advancement of the system, in the south, of which he speaks with so much familiarity. It is hardly necessary for us, yet we must not lose the opportunity, to say that we are greatly obliged to him for this evidence of his desire to aid the Journal. It is the way in which we like to obtain information in relation to existing and proposed railroads in the different states, as it enables us to speak with confidence in relation to their present condition, if not in all cases of their further progress and future prospects.

We shall be greatly obliged to other gentlemen for similar favors, in relation to other sections of the Union.

The writer says:

You ask, "What are the prospects of an extension of our road?"

We have 40 miles in operation, from Montgomery to Chehaw, and 7 miles, extending from Chehaw to Moore's, graded and bridged. This portion, for which the iron spikes, etc., are provided and part of the superstructure laid, will be completed and opened about the first of June. From Moore's station to West Point—a distance of 42 miles—about 10 miles of graduation was done previous to the bankruptcy of the old company; but this work was done on the West Point end, and is, of course, of no avail at present. My estimate of the cost of road complete from Moore's station to West Point, is \$340,000.—The company are now negotiating for a loan of part of the amount required, which, if obtained, will enable us to push on vigorously towards the desired goal.

The importance to the company and the public at large, of the early completion of this road, is so plainly apparent that I need hardly expatiate upon it. A link in the great chain connecting the Atlantic cities with those of the Gulf, it will always be the thoroughfare of a large travel and the route of the great mail. The line, for its entire length, passes through a good cotton-growing region, and terminates on the western border of one of the most populous and productive counties in Georgia—insuring a large local travel and a profitable freighting business.

We have now five engines, of the following make and class:

- 1 Bellwin & Whitney—2d class improved, six wheeled, connected.
- 1 Baldwin & Whitney—3d class improved, six wheeled, connected.
- 1 Burr's—3d class, six wheeled, single drivers.
- 1 Brook's—3d class, six wheeled, single drivers.
- 1 Rodgers, Ketchum & Grosvenor—2d class, six wheeled, single drivers.

Rates of freight on forty miles:

75 cents per bale of cotton.

50 " barrel.

8 " cubic foot measurement goods.

Rate of passage: 5½ cents per mile.

Present schedule—Passenger trains:

Leave Montgomery..... 8 A. M.

Arrive at Chehaw..... 11½ "

Leave Chehaw..... 12½ P. M.

Arrive at Montgomery..... 4 "

The express mail, Georgia railroad, and South Carolina railroad lines (three daily) of stages—owned by Messrs. Peters, Beman and Ellsworth—run between Chehaw and Atlanta, the head of the Georgia railroad—via West Point, Lagrange and Newman—distance 136 miles.

Stage schedule:

Leave Chehaw..... 12 M.

Arrive at Atlanta..... 3 P. M. next day.

Leave Atlanta..... 9 A. M.

Arrive at Chehaw..... 12 M. next day.

The Central stage line (one daily) runs between Chehaw and Macon, Ga., via Columbus. This line is owned by Messrs. Mastain, Mott & Griffin:

Leaves and arrives at Chehaw at 12 M. Time of leaving and arriving at Macon not known. Distance 145 miles.

From Montgomery, the great mail is transported to Stockton (the head of tide on Mobile bay) in covered wagons during the winter months, and in four-horse coaches during the summer. Distance 160 miles. Wade Allen, contractor.

Leave Montgomery, 6 P. M.; arrive at Montgomery, 6 A. M.; time from Montgomery to Mobile, about 40 hours; exact schedule for arriving and leaving Mobile not known.

A tri-weekly line of stages run between Montgomery and Tuscaloosa. Exact schedule not known.

No stages run in connection with our road from any way point.

The hotels of Montgomery are:

The Montgomery Hall, by Wilson & Wyman.

The City Hotel,..... by Dr. Clopton.

The Central Hotel,.... by Mr. Staples.

All good houses and well sustained.

At Chehaw, there are two houses—both comfortable.

If you will now take up a map of Alabama, I will endeavor to trace out for you the *old* projected improvements in the state, and those more recently chartered. The only railroads in operation in the state, are the Decatur and Tusculumbia and the Montgomery and West Point. Of the old projected improvements, not in operation, the Selma and Tennessee and the Pensacola and Montgomery, are the most important. The former was graded about 27 miles at the time of its suspension. The latter was graded about 15 miles out from Pensacola when the enterprise was suspended. Its completion is still looked forward to with much certainty by some.

The Selma and Tennessee road was designed to connect the Alabama river at Selma with the Tennessee at Gunter's landing. Its further prosecution for many years to come, is considered doubtful.

A railroad was commenced and nearly graded from Marion to Cahawba—length, 27 miles. This shared the fate of the more important. Another, styled the Wetumpka and Coosa railroad, designed, I believe, to connect Wetumpka with the navigable waters of the Coosa, above the "Ten Islands," was graded for a considerable distance, but shortly abandoned. The Mobile and Cedar Point road was graded for a portion of the distance, and the track laid on a few miles, but subsequently abandoned, and the iron taken up.

Alabama has truly been unfortunate in her improvements. Commenced in the piping times of '35 and '36—some of which, had they been completed, would have been of *real* and others of *doubtful* utility to the stockholders—they shared one common fate of suspension and bankruptcy.

The more recently projected improvements are as follows:

The Coosa and Tennessee Road.—To commence at the mouth of Wills creek, on the Coosa river, and,

crossing the Sand mountain, terminate at Gunter's landing, on the Tennessee.

The South Western Railroad.—To commence at Montgomery, and pursuing nearly a due west course to the western line of the state, connect with the extension of the Vicksburg, Jackson and Brandon road.

The Southern Railroad.—To commence on the Chattahoochee river at Gerard, (opposite Columbus, Ga.) and terminate at some point on the Alabama river, or connect with the Montgomery and West Point road.

Charters for the two last mentioned were obtained at the last session of the legislature. The charter of the Coosa and Tennessee road was obtained at a previous session.

The Coosa and Tennessee railroad is designed to connect the Tennessee river at Tusculumbia, below the Muscle shoals, with Charleston and Savannah, by railroads and steamboat navigation. It would seem at a first glance at the map, to be an important and desirable link; but when compared with the upper route, via Chattanooga, it appears to me to be saddled with many disadvantages. The point at which these lines diverge going westwardly, is Kingston, (the nearest point on the Western and Atlantic railroad to Rome, on the Coosa,) and the point at which they again unite is at Gunter's landing, on the Tennessee.

The upper route will consist of the extension of the Western and Atlantic railroad about 68 miles from Kingston to Chattanooga, about 20 miles of which is constructed and in operation;—maximum grades 33 feet per mile. Thence by steamboat about 130 miles, down the Tennessee to Gunter's landing. On this route but one transshipment would occur between Kingston and the head of the Muscle shoals.

The lower route would consist of a branch road of 17 miles, from Kingston to Rome; thence steamboat down the Coosa, about 120 miles, to the mouth of Wills creek; thence railroad, 40 miles, to Gunter's landing, with a maximum grade of 80 feet per mile. On this route, three transshipments would occur between Kingston and the head of the Muscle shoals. The distance in favor of the lower route is about 25 miles.

The only bad feature in the upper route is found in the obstructions occurring in the Tennessee, a few miles below Chattanooga. I have conversed with intelligent men intimately acquainted with the nature and extent of those obstructions, who coincide with Col. S. H. Long, that a single dam and lockage would render the navigation good and safe.

The trade of the Tennessee valley will be well accommodated with one line. The upper line is now completed to the Oostanaula, and is in a state of progression. The completion of this road to Chattanooga will probably be anticipated by the extension to Nashville on the north, and by a road from Tusculumbia to Memphis on the west, connecting the Atlantic ports of Charleston and Savannah with the Tennessee, Cumberland and Mississippi rivers. Distance from Charleston to Memphis by railroads and steamboat navigation, would then be about 640 miles of the former and 130 of the latter. From the same to Nashville by railroad entire, would be about 575 miles. Distance from Savannah to either of these points would be 16 miles less than from Charleston.

Of the Georgia improvements, only two have been completed—the Georgia railroad, 171½ miles from Augusta to Atlanta, and the Central railroad from Savannah to Macon, 190½ miles.

The Macon and Western railroad from Macon to Atlanta, 101 miles, is now being pushed rapidly,

and will be completed in all of the ensuing summer.

The Western and Atlantic railroad, before mentioned, will be extended to Cross Plains, 100 miles from Atlanta, in all this year, leaving about 35 miles to complete to Chattanooga.

At the last session of the Georgia legislature, the following new charters were granted:

A road from Macon to Columbus.

A branch from the Macon and Western road to Columbus, diverging about 40 miles above Macon.

A branch from the same to West Point, diverging about 58 miles above Macon. The former branch to be built before the latter shall be commenced.

The most important charter asked for was defeated by the combined efforts of Savannah, Macon and Columbus, viz: from Atlanta to West Point. The construction of this link is more imperatively called for than any other in the southern country. It would, with the completion of the Montgomery and West Point road, perfect the great mail route from Charleston to Montgomery. It would connect the Alabama and Tennessee rivers by a continuous line of railroad; and by a short branch of thirty miles, from West Point to Columbus, would give that city railroad facilities, and—what she so much desires—the most direct connection with upper Georgia and Tennessee, without injury to her present cotton trade, which would be most disastrously affected by a direct connection with Macon.

Railroad Passenger Trains Leaving Boston Daily, Except Sundays.

We copy the annexed list of departures from Boston by railroad and steamboat, from the Traveller. It will be found exceedingly useful to travellers: and interesting to many, who like to know how such matters progress, even though they do not travel much. For the convenience of our readers we shall keep it standing, and endeavor to correct it as changes are made.

PASSENGER TRAINS LEAVE BOSTON DAILY.

For	Depot.	Hours.
Albany	Worcester	7½ a.m., 7½ p.m.
Andover	Me. Extension	7½, 11½ a.m. 2½, 4½, 6 p.m.
Concord, Ms.	Charlestown	7 a.m. 1½ p.m.
Concord, NH	Lowell	7, 11 a.m. 5½ p.m.
Dedham	Providence	8 a.m. 12½, 3½, 6½ p.m.
Dover	Me. Extension	7½ a.m. 2½, 4½ p.m.
Fitchburg . . .	Charlestown	7 a.m. 1½, 5 p.m.
Fresh Pond . .	"	6, 10 a.m. 1½, 4½ p.m.
Fall River . . .	Providence	8½ a.m. 3½ p.m.
Hartford	Worcester	7½ a.m. 4 p.m.
Haverhill . . .	Me. Extension	7½, 11½ a.m. 2½, 4½, 6 p.m.
Lowell	Lowell	7, 9, 11 a.m. 2½, 5½ p.m.
Millbury	Worcester	7½ a.m. 4 p.m.
Nashua	Lowell	7, 11 a.m. 5½ p.m.
Newburyport . .	Eastern	7½, 11½ a.m. 2½, 5½ p.m.
New Bedford . .	Providence	7½ a.m. 4½ p.m.
New Haven . . .	Worcester	7½ a.m. 4 p.m.
Newton	"	7½, 9½, a.m. 1½, 2½, 4½, 6½, 8½ p.m.
Norwich	"	7½, 8½, a.m. 5 p.m.
Plymouth	Old Colony	7½ a.m. 5 p.m.
Portland	Eastern	7½ a.m. 2½ p.m.
"	Me. Extension	7½ a.m. 2½ p.m.
Portsmouth . . .	Eastern	7½ a.m. 2½, 5½ p.m.
Providence . . .	Providence	7½ a.m. 4 and 5 p.m.
Reading	Me. Extension	7½, 9, 11½ a.m. 2½, 4½, 6, 8 p.m.
Salem	Eastern	7½, 9, 11½ a.m. 12½, 2½, 3½, 5½, 6½, 8½ p.m.
Somerset	"	7½ a.m. 2½ p.m.
"	Me. Extension	7½ a.m. 2½, 4½ p.m.
S. Braintree . .	Old Colony	7½, 10½ a.m. 2½, 5, 7 p.m.
Springfield . . .	Worcester	7½ a.m. 4 p.m.
Stoughton	Providence	11½ a.m. 5½ p.m.
Taunton	"	7½ a.m. 4½ p.m.
Worcester	Worcester	7½ a.m. 1½, 4½ p.m.
Waltham	Charlestown	7, 10 a.m. 1½, 2½, 5, 5-55 p.m.
Woburn	Lowell	8, 11½ a.m. 3, 6 p.m.

STEAMBOAT TRAINS FOR NEW YORK

Via	Days.	Depot.	Hours.
Norwich	Daily, ex. Sun.	Worcester	5 p.m.
Prov. & Newport	"	Providence, 5 p.m.	
Stonington	"	"	5 p.m.
Long Island	"	Worcester. 8½ a.m.	

STEAMBOAT TRAINS FOR THE EAST.

For	From	Days.	Hours.
Bangor	E. R. R. depot.	Tuesday	4½ p.m.
Bath, Gardiner } and Halliwell }	"	Monday	7½ a.m.
"	"	Friday	4½ p.m.

These trains connect at Portland with the steamboats for the Kenebec and Penobscot.

STEAMBOATS LEAVE BOSTON

For	From	Days.	Hours.
Bangor	East. steamb. wf.	Tues'd'y, Frid'y.	3 p.m.
Bath	East. steamb. wf.	Wednesday	7 p.m.
Gardiner } and Hal'well }	End of T. wf.	Saturday	5 p.m.
Eastport } Foster's wf.	Tues'd'y, Frid'y.	7 p.m.	
St. John	East. steamb. wf.	Tuesday	7 p.m.
Hingham	Liverpool wf.	Daily	12 m.
Glo'ster	T wf.	Monday	5 p.m.
Ports'm'b } T wf.	Saturday	5 p.m.	
Dover	"	Monday	9 a.m.
Portland	Central wf.	Wednes'd'y, Frid'y.	4 p.m.

The Bangor boat stops at Portland and at all the intermediate landings on the Penobscot.

FREIGHT TRAINS LEAVE DAILY

From	For	At
Me. Exten. depot.	Portl'd & way stat'ns.	6 a.m.
Lowell	Lowell	5½ a.m.
"	Nashua and Concord.	2 p.m.
Worcester	Worc. & way stations	4½, 11½ a.m. 6 p.m.
"	Western railroad.	4½ a.m. 6 p.m.
Providence	Prov. & way stations.	6 p.m.
"	N. Bedford & Taunton.	6 p.m.
Charlestown . . .	Fitchburg & w. stations.	9 p.m.

Mansfield and Sandusky, Ohio, Railroad.

The following gratifying intelligence is from the Sandusky Clarion. We should have been delighted to witness the happiness of those honest industrious hundreds on their—at least to many of them—first railroad excursion. We can imagine few more exhilarating scenes, than "a first ride on a railroad." The difference between travelling four or five miles or twenty miles an hour, is so great that it either alarms, or greatly exhilarates, those unaccustomed to such speed—and we admire the tact of the superintendent in thus making numerous early friends to the work. The Clarion says:

"Old Associations Renewed.—Twenty-four years ago, when we commenced the publication of the Clarion, the interests of this place, Oxford, Ridgefield, Peru, Greenfield and New Haven, as well as the adjoining western tier of townships, were considered, if not identical, at least as having a very near relation to each other. We have seen with regret, within a few years, the disseverance of these interests, the disunion of sentiment, an estrangement of feeling, and the diversion of our business relations into other channels; but we are now happy in being able to announce that old associations are revived, and so connected that they cannot be again broken asunder. This good work has been effected by the construction of the Mansfield and Sandusky city railroad. The track is now completed, and the cars are in daily operation upon it to Paris, 36 miles.

The citizens along the line have this week availed themselves of the invitation of Mr. Higgins, the agent and superintendent, to

take a ride, to view the road and visit our city. On Tuesday the cars came in with rising of 600 persons, principally Peruvians, with a portion of their neighbors from Greenfield and Sherman, starting from a place, we believe, on the railroad, called Pontiac, whose name we never heard before. We suppose this is one of the railroad's creations.

Next day, seven more cars were added, and about a thousand persons, as we are informed, came down from New Haven; and on Thursday, six or seven hundred came down from Paris. It will be a joyful day when we shall, by the enterprize of this company, be placed within three or four hours' ride of the wealthy and flourishing town of Mansfield, 56 miles distant. That day we suppose to be but a month hence. At the same time it is expected a conveyance from Sandusky to Columbus in one day, and by day-light, will be established, by means of stages and the railroad."

The Cleveland Herald also evinces the right feeling towards their enterprising neighbors of Sandusky. How much better such a course appears than that not unfrequently displayed between neighboring, or rival towns. We also like its hint to the people of Cleveland. It is to the point—"This is a free country"—at least in relation to the construction of railroads—or so think most of the citizens of New York. Yet they may not loose anything by "taking the hint" conveyed in the closing remarks of the Herald.

"We perceive, says the Herald, that an accommodation train and an express passenger train are to leave each end of the road daily—distance 56 miles—fare by the first named train, \$1.25; by the other, \$1.75.

From Mansfield a line of stages is to be run to Columbus, and it is intended to go through from the lake to the capital between 6 o'clock, A. M. and 7, P. M. This we think will be a difficult matter to accomplish, but the route will undoubtedly be a popular one till a better shall be substituted.

When our citizens have occasion to visit Columbus, they will find this, taking a steamboat hence to Sandusky, the most eligible channel to adopt, we presume, if the cars and stages be driven as intended.

One or more trains start daily on the Cincinnati road for Tiffin, 36 miles, and which is likely to be completed within a year to Xenia, making a continuous line to Cincinnati. Our Sandusky neighbors will then be entitled to the appellation of the Railroad City of the Lake.

A few enterprising men at Sandusky have done much to improve the town, and mean to do much more. They are entitled to great credit for it, and for the sagacity they exhibited in applying their means so judiciously. Unless other lake shore cities are up and doing, Sandusky will take precedence of them, and justly so. If we feel so secure in our present position, as to suppose all exertion unnecessary, or if we are so sleepy or stupid as to suppose that we can sustain ourselves without keeping pace with the age, we may find, when too late, the sad mistake we have made. Our land-holders may then find a very marked difference in their rent-rolls,

between a depreciation of one-third from rates now paid, or 100 per cent. advance.

This is a free country, and they can take either course they please—it is optional with them, either to halve their property or to double it. Which process would be the most agreeable, each man will judge for himself.

Cleveland and Pittsburg Railroad.

We have before us the report of Col. S. Dodge, engineer, on the survey and estimates of this road. As forming a connecting link between our city, the great lake trade and the West generally, in connection with the contemplated central route through our state, this road assumes a vast importance. Commencing at Cleveland, the surveyed route passes through Newburg, Bedford, Ravenna, Benton and Salem: from these it follows the summit between the forks of Little Beaver Creek, and down the valleys formed by other runs, to the Ohio, at Wellsville. The distance is nearly 97 miles, and the estimated cost, to fit the road for use, \$1,394,068 27, with a T or H rail. The highest grades are fifty feet to the mile, and the smallest curves have fifteen hundred feet radius. The route possesses every advantage of location, and offers an opportunity for the profitable investment of capital. The lake trade, which will, by this channel, be hereafter brought to Philadelphia, over the Central railroad, must be immense, and will yearly increase. It opens also a direct channel to seven thousand miles of lake and river trade, through a country unexcelled for richness and fertility by any region of the globe.—*Phil. N. American.*

Breach in the Erie Canal, near Bushnell's Basin.

SUPERINTENDENT'S OFFICE,
Rochester, April 22d, 1846.

A. C. Flagg: Dear Sir—I hasten to inform you of a break in the canal, at 12 o'clock M., a few rods east of Bushnell's Basin, near the big embankment. There are some 25 or 30 rods, at a depth of about 80 feet, taken away, and as near as can be ascertained the culvert is also gone. I think it may take some eight or ten days to make the necessary repairs. I have already commenced repairs.

Very respectfully, yours,
D. WARNER, Supt.

The Break in the Canal.—A very large number of hands are engaged in repairing the break at Bushnell's, and rapid progress is making. It is expected that the work will be finished, and that boats will be able to pass by Monday or Tuesday next.—*Rochester American, Saturday.*

Opening of the Ohio Canals.—We see it announced in the Cleveland Herald of Wednesday, that the northern end of the Ohio canal is open and ready for navigation. The Herald states that there will be a probable interruption at Winchester (some 11 miles east of Lockburn, and 34 below Newark) until the 1st of May, in consequence of the failure of the contractor to complete the locks at that place, which are in a course of being rebuilt. We are happy to assure the Herald from a conversation with the energetic acting commissioner in charge of the eastern division of the public works, that the locks at Winches-

ter will be ready to pass boats, probably by the 15th should the weather continue fine, but by the 17th or 18th without fail.

The canal is open from this point to Portsmouth, and is in improved navigable condition.

The Miami canal from near Piqua, north, has been open for some time, and near the Wabash and Erie was ready for navigation on the 10th. From Piqua south, boats will be able to pass from the 24th to the 28th of this month, in season to meet the current of business from the New York canals, which open on the 16th. The amount of work done on this canal from Dayton, south, to put it in good navigable order, has been great. It had been sadly neglected, and was very much filled up. The acting commissioner on this division has been unceasing in his exertions, and the public well understand that they are seldom misdirected.—*Ohio State Journal.*

The senate on yesterday, afternoon passed, with amendments, the bill to incorporate the Port Huron and Lake Michigan railroad company—yeas 12, nays 6.

The bill for the sale of the Southern railroad was ordered to a third reading in the house yesterday afternoon—yeas 25, nays 13.

STEPHENS' RULING AND MECHANICAL Drawing Ink, for Engineers, Artists and Designers. This article will be found superior to the best Indian Ink for the above purposes. It does not smear with India rubber or wash off with water. It flows freely from the drawing pen, and never corrodes or encrusts it. It may be used on a plate or slab, with a camel's hair brush, diluting it with water, or thickening it by drying, as required. It has the advantage of being ready for immediate use.

Sold in conical-shaped bottles, convenient for using from, without any stand, at 15 cents each.

ALSO,

STEPHEN'S WRITING FLUIDS.

These compositions, which have so remarkably extended the use of the STEEL PEN, are brought to great perfection, being more easy to write with, more durable, and in every respect preferable to the ordinary ink. In warm climates they have become essential.

They consist of a Blue Fluid, changing into an intense Black color.

A Patent Unchangeable Blue Fluid, remaining a deep Blue color.

A Superior Blue Ink of the common character, but more fluid,

A brilliant Carmine Red, for Contrast Writing.

A Carbonaceous Record Ink, which writes instantly black, and being proof against Chemical Agents, is most valuable in the prevention of frauds.

Also, a new kind of MARKING INK for Linen and Inkholders adapted for preserving Ink from evaporation and dust.

Sold in Bottles of various sizes, by all Stationers and Booksellers.

Be sure to ask for Stephens' Writing Fluid.

N. B.—These unchangeable Blue Fluids are Patent Articles; the public are therefore cautioned against imitations, which are infringements, to sell or use which is illegal.

Stephens' Select Steel Pens.

The utmost possible care having been bestowed upon the manufacture of these articles, so as to prepare the highest finish, they can be confidently recommended, both for flexibility and durability.

All the above articles are prepared by *Henry Stephens*, the inventor, No. 54 Stamford-street, Blackfriars road, London, and sold by Booksellers and Stationers in bottles of various sizes, and may be had wholesale from the agents in Boston, New York, Philadelphia, Baltimore, Washington, Charleston, New Orleans, and St. Louis.

Mr. Wm. W. Rose, Wall-street, New York, is my general agent in the United States.



RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.—Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburg, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburg, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; and the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATAILLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

(Signed,)

RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed,)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138 1/2 Water st., N. Y.

Also by Isaac Bridge, 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street, Charleston, S. C.

16 tf

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846. Spring Arrangement. 1846 Commencing April 1st.

Passenger trains leave daily, Sundays excepted—
 Boston 7½ p. m. and 4 p. m. for Albany.
 Albany 6½ " and 2½ " for Boston.
 Springfield 7 " and 1 " for Albany.
 Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
 Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Boston and New York, via Springfield: Passengers leaving Boston at 4 p. m., arrive in Springfield at 8 p. m., proceed directly to Hartford and New Haven, and thence by steamers to New York, arriving at 5 o'clock a. m.

For Buffalo: the trains for Buffalo leave Albany at 7½ a. m. and 7 p. m., arriving at Buffalo at 8 a. m. and 8 p. m. next day. Returning, arrive at Albany at 4 a. m. and 4 p. m.

New York and Boston, via Albany: the trains from Boston arrive at Albany in season for the 7 o'clock boats to New York. Returning, the boats, leaving New York at 5 and 7 p. m., reach Albany at 5 a. m., in ample season for the morning trains to Boston.—Steamboats also leave Albany at 7 a. m. and 5 p. m. and stop at the usual landing places upon the river.

The trains of the Springfield, Hartford and New Haven railroad, connect at Springfield, and passengers from Albany or Boston proceed directly on to Hartford and New Haven.

Montreal: through tickets to Montreal may be obtained in Boston, by which passengers may proceed to Troy, and thence by stage via Chester, Elizabeth, etc., and in the season of navigation by canal to Whitehall, and thence by the splendid steamers of Lake Champlain to St. John, via Burlington, and thence by railroad and steamers to Montreal.

The trains of the Hudson and Berkshire railroad connect at Chatham and State Line.

The Housatonic railroad connects at State Line. The trains of the Connecticut River railroad connect at Springfield, and passengers may proceed without delay to Northampton, and thence by stage to Greenfield, Brattleboro, Bellows Falls, Hanover, Haverhill, etc.

Stages leave West Brookfield for Ware, Endfield, New Baintree and Hardwick; also leave Palmer, for Three Rivers, Belchertown, Amherst, Ware and Monson; Pittsfield for North and South Adams, Williamstown, Lebanon Springs, etc.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES, Superintendent and Engineer.

Western Railroad Office, Springfield, April 1, 1846. } 14 1y

Philadelphia and Columbia Railroad.—Collector's office, Philadelphia, April 9th, 1846.—The following shows the collections at this office:

Railway.	M. Power.	Total.
Amount as per last report.....	12,187 84	20,650 93
Amount month of March.....	9,014 58	7,782 27
		17,796 85

Whole am't since Nov. 30, 1845, ... 21,202 42 29,432 90 50,635 82

JOHN S. CASH, Collector.

—U. S. Gaz.

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.

PETER COOPER, 17 Burling Slip. New York, January 23d, 1846. 1y 10

C. J. F. BINNEY, GENERAL COMMISSION MERCHANT and Agent for Coal, and also Iron Manufacturers, etc.

No. 1 CITY WHARF, Boston. Advances made on Consignments. Refer to Amos Binney, Boston.

Grant & Stone, Brown, Earl & Erringer, } Philadelphia. Weld & Seaver, } Baltimore. December 8, 1845. 1m 50

SCRIBNER'S ENGINEERS' AND MECHANICS' Companion. For sale at this office. Price \$1.50.

LARD OIL FOR MACHINERY, ETC.—Winter pressed, cleansed from gum, and manufactured expressly for engines and machinery of all kinds, railroads, steamboats, woollen and other manufactures, and for burning in any lamp without clogging the wick. Engineers of railroads and others who have used this oil, and to whom reference can be made, give it preference over the best sperm for its durability, and not requiring to be cleaned off like that, and costing about two-thirds the price. For sale by the barrel, and samples can be sent for trial, by addressing

C. J. F. BINNEY, Agent for the Manufacturer, Boston, Mass. 11 eop 1m

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, near Third, below Walnut, Philadelphia.

KITE'S PATENT SAFETY BEAM.

MESSRS. EDITORS.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheeled passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.

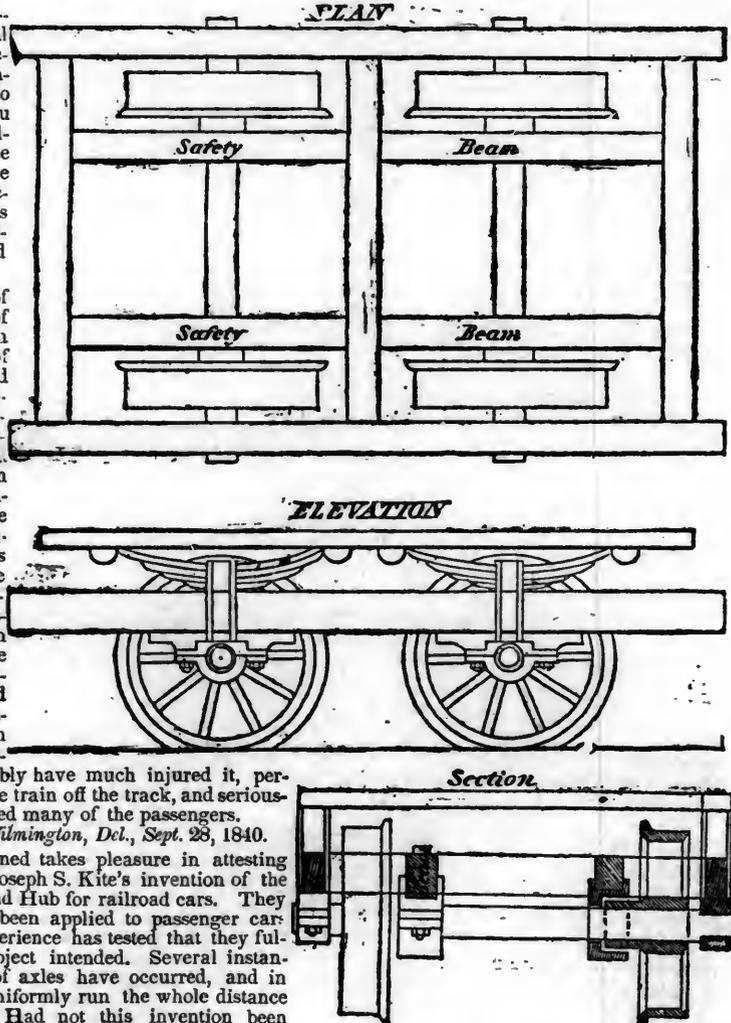
Wilmington, Dec., Sept. 28, 1840.

The undersigned takes pleasure in attesting to the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.

In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.

JOHN FRAZER, Agent, GEORGE CRAIG, Superintendent, JAMES ELLIOTT, Snp. Motive Power, W. L. ASHMEAD, Agent.

A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 1 Hanover st., N. York. ja45



PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. **JOHN F. WINSLOW, Agent.**

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved **SPARK ARRESTER**, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Mouroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. **FRENCH & BAIRD.**

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

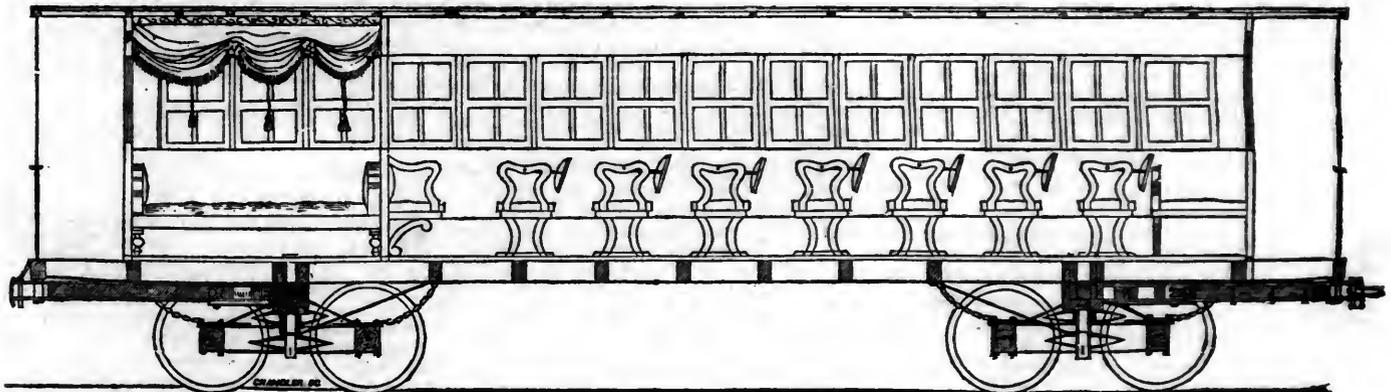
*** The letters in the figures refer to the article given in the *Journal* of June, 1844. ja45

BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

The article is complete in itself, occupies but little space, is perfectly portable, and requires no brick work, not even to stand upon. It is valuable not only in the saving of time and labor, but in the economy of fuel, as it has been ascertained by accurate measurement, that the saving in that article is fully two-thirds over other methods heretofore in use. They are now for the first time introduced into New York and Boston by the subscriber, who has the exclusive right for the New England states, New York and New Jersey, and are manufactured by

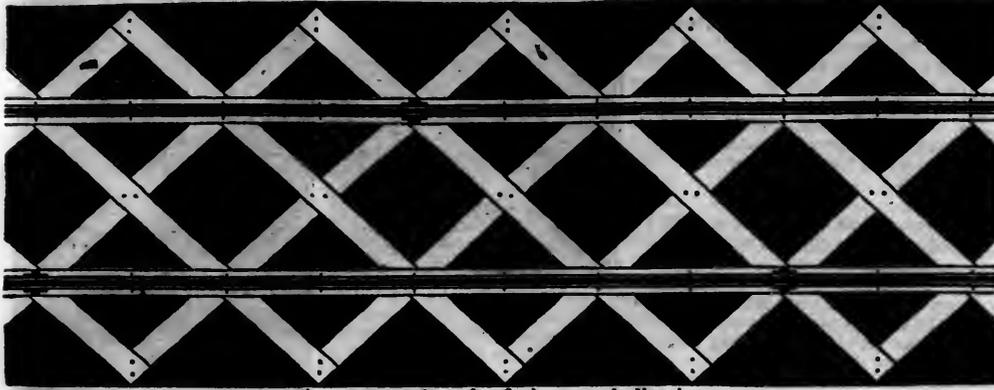
CURTIS & RANDALL, Boston; and by FORCE, GREEN & CO. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY Superstructure effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for *Two hundred dollars per mile per annum*. To insure the faithful performance of this contract, he will pledge one-fourth the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made. 1y1

W. R. CASEY, CIVIL ENGINEER, NO. 23 Chambers street, New York, will make surveys estimates of cost and reports for railways, canals, roads, docks, wharves, dams and bridges of every description. He will also act as agent for the sale of machinery, and of patent rights for improvements to public works.

THE LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

LEXINGTON AND OHIO RAILROAD. Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m. Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 26 miles. Fare \$1.25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above. 35 1y

CYRUS ALGER & CO., South Boston Iron Company.

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ¼ inch Flat Punched Rails, 20 ft. long. 25 " 2½ x ¼ " Flange Iron Rails. 75 " 1 x ¼ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel for 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,
Albany Iron and Nail Works,

RAILROAD IRON.—THE MARYLAND AND NEW YORK IRON AND Coal Company are now prepared to make contracts for Rails of all kinds. Address the Subscriber, at Jennon's Run, Alleghany County, Maryland. WILLIAM YOUNG,

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column "	50 00
One square "	15 00
One page per month.....	20 00
One column "	8 00
One square "	2 50
One page, single insertion.....	8 00
One column " "	3 00
One square " "	1 00
Professional notices per annum...	5 00

ENGINEERS and MACHINISTS.

J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
KITE'S Patent Safety Beam. (See Adv.)
FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
ROSS WINANS, Baltimore, Md.
CYRUS ALGER & Co., South Boston Iron Company.
SETH ADAMS, Engineer, South Boston.
STILLMAN, ALLEN & Co., N. Y.
JAS. P. ALLAIRE, N. Y.
H. R. DUNHAM & Co., N. Y.
WEST POINT FOUNDRY, N. Y.
PHENIX FOUNDRY, N. Y.
R. HOE & Co., N. Y.
ANDREW MENEELY, West Troy.
JOHN F. STARR, Philadelphia, Pa.
MERRICK & TOWNE, do.
HINCKLEY & DRURY, Boston.
C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.
BALDWIN & WHITNEY, Philadelphia, Pa.
THOMAS & EDMUND GEORGE, Philadelphia. (See Adv.)

LAURENCE'S ROSENDALE HYDRAULIC Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,

142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

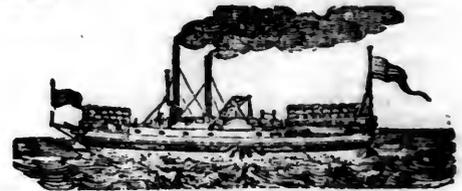
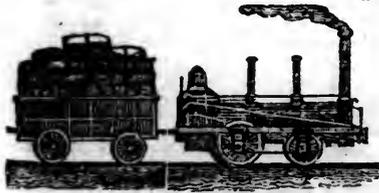
MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 19.

SATURDAY, MAY 9, 1846.

[WHOLE No. 515, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stoughton. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m. Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m. Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7-20 a.m. and 3½ p.m. All baggage at the risk of the owners thereof.

W. RAYMOND LEE, Sup't.
BRANCH RAILROAD AND STAGES CONNECTING WITH THE BOSTON AND PROVIDENCE RAILROAD. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. J. W. STOWELL, Sup't.

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846. On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows: Boston for Portland at 7½ a.m. and 2½ p.m. Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m. Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m. Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m. Portland for Boston at 7½ a.m., and 3 p.m. Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m. Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m. Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value. CHAS. MINOT, Sup't.

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 383 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot..... 16 cts. " Dry goods, shoes, saddlery, drugs, etc., per 100 lbs..... 95 " " Sugar, coffee, iron, hardware, etc..... 65 " " Flour, bacon, mill machinery, grindstones, etc..... 33½ " " Molasses, per hogshhead \$9-50; salt per bus. 20 " " Ploughs and cornshellers, each..... 75 "

Passengers \$10-50; children under 12 years of age half price. Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON, Ch. Eng. and Gen. Agent. Augusta, Oct. 21 1845. *44 ly

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS— Leave New York at 7 A. M. and 4 P. M. " Middletown at 6½ A. M. and 5½ P. M. FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT— Leave New York at 5 P. M. " Middletown at 12 M. The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York. Apply to J. F. Clarkon, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't. March 25th, 1846. Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 tf

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and

Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pitsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pitsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pitsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH. Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

RAILROAD IRON AND LOCOMOTIVE
Tyres imported to order and constantly on hand
by **A. & G. RALSTON**
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS.
etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
Albany, N. Y.

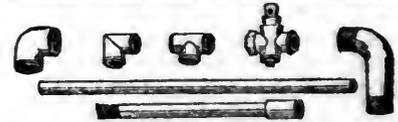
Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

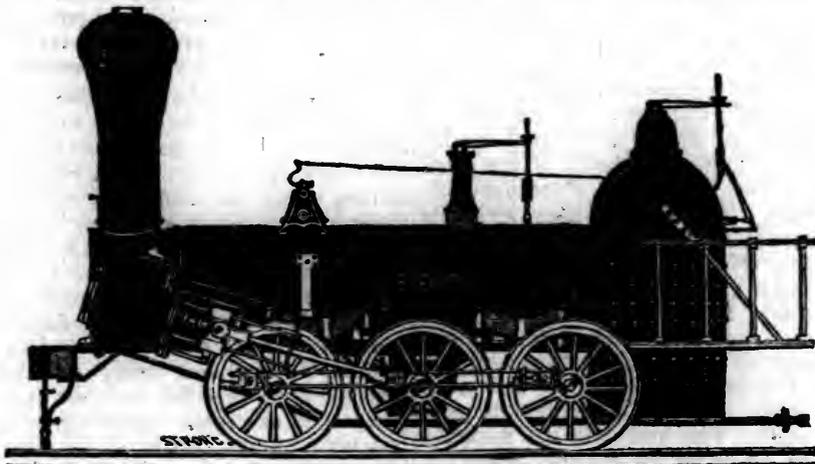
WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of	Cylinder,	×	20 inches	Stroke.
" 2,	14	"	"	×	24	"
" 3,	14 1/2	"	"	×	20	"
" 4,	12 1/2	"	"	×	20	"
" 5,	11 1/2	"	"	×	20	"
" 6,	10 1/2	"	"	×	18	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels on the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

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"Low Fares make Large Receipts."

Such is becoming the prevailing opinion, we believe, except with a few of those who have the management of railroads; and we are quite satisfied that it is rapidly gaining ground.

The following remarks on this subject are from the London Morning Chronicle, and may be profitably read by those who manage our important lines emanating from the large cities, and especially by those which connect two large cities.

Such of the leading railway companies as have tried the experiment of low fares have found their receipts increased. The Brighton, the London and Birmingham, and the Great Western companies have all reduced their fares for passengers (and partly, we believe, also their charges for goods), and the result has been that they have drawn more money in a given period after these alterations were made, than they had done in the same period of time before they came into operation. The reductions carried out by these companies, have, however, been only timidly applied. They have not gone nearly to the proper extent to afford the principle fair play. So long as the matter is left to the voluntary operation of the different boards of direction, the fares will be maintained at too high a rate. They will be partially reduced only from a fear of rivalry, and merely to the extent necessary to protect them from the fear of immediate competition. The old railway companies possess a monopoly of transit, which they have every desire to uphold; and by means of buying up and amalgamations they threaten to extend their empire over every other part of the island. The spirit of the age is, nevertheless, in hostility to this enlargement of their power, and is not unlikely to make them feel its force. In a pamphlet recently published, from the pen of Mr. Morrison, M. P., there is a passage at the 13th page, which tells them in very explicit terms that they must set their house in order, and accommodate their tariffs to the new order of things. "If," says Mr. Morrison, "the shareholders of the London and Birmingham, the Great Western, and other railway lines believe that they are to be permitted to flourish at the expense of the public, by means of that protection which is hunted down on all sides, I apprehend they will experience a disappointment. The monopoly of the landowner is not to be suppressed to make way for the monopoly of railway speculators. The latter must accommodate themselves to the new order of things. The proprietors of an old line of railway are in the position of a manufacturer, who, having constructed machinery upon an old and expensive plan, finds it superseded by more economical or powerful machinery; but were such a man to attempt to obtain a higher price for his work than would remunerate those who work with the improved machinery, and asked parliament to assist him in doing this, should we not consider him as fitter for bedlam than for the exchange?" The old trunk lines were made at much useless cost; no one disputes that fact; and it is notorious that the lines now before parliament will be made at much less expense, notwithstanding the higher price of labor and materials. The large re-

turns drawn by the established companies have enabled the directors to return high rates of dividend to their shareholders; and the promoters of the new companies naturally expect to reap profits equally great by participating in the same high rates of fares for passengers and goods. These expectations of inordinate returns for capital embarked have been the great instigators of the late speculative mania; and Mr. Morrison is of opinion that the only remedy which seems likely to check its continuance or return, to an extent which must be dangerous to other branches of trade and commerce, by withdrawing from those channels the amount of capital necessary for their support, is the establishment "of a system of low fares—that is, of fares very much lower than those now charged on most of our railways." Mr. Morrison contends that the profits on railways should be approximated to the same level as the rate of profits on other investments of capital in enterprises of equal risk; that it is the duty of the legislature to endeavor to obtain this result; and that the excess over that equalized profit should be secured for the public good by the enactment of low maximum rates of charge and other important stipulations. The rates of fares levied on passengers by the Great Northern company of France, which is a model line, are equivalent to about 1½d. for the first class per mile; a little over 1d. for the second; and about three farthings for the third class; and it is to be kept in view, besides, that every railway in France, after a greater or less number of years, becomes the absolute property of the state. The author of the pamphlet before us concludes his remarks by suggesting that an inquiry should be instituted by parliament to ascertain the rates of fares and charges which will yield a fair remuneration for the capital to be vested in such railways as offer a sufficient prospect of traffic to justify their immediate construction; that information should be obtained on the degree to which the cost of constructing railways has been reduced, the extent of the increase of traffic, the law of progressive annual increase, the effect of low charges in stimulating traffic; and that a common tariff should be framed on the results of this inquiry applicable to all railways for which acts have not yet been passed, and also to every existing railway that may apply to parliament for new powers.

The Iron Trade, as connected with schemes for railways now before Parliament, or preparing for the next session.

Sir,—The check to the upward tendency of iron, from political and other circumstances connected with the money market, being, as may be expected, of a temporary character, the considerations that bear upon iron will, ere long, be restricted to those that legitimately belong to it, and, with reference to railway undertakings, the correct inference seems to be, the prospect of a healthy and prosperous period, for the iron trade is gaining strength from the cessation in transactions in railway scrip, and the desire of all parties, concerned in the numerous schemes now before, or pre-

paring to go to, Parliament, to see them restricted to the capital the country can control for railway enterprise. The lines to be made in Ireland with the co-operation of the government, and the legislative measures likely to follow the report of Mr. Morrison's committee, together with the strength needful lines will gain from the amalgamations that may result through the committee, likewise appointed for that purpose, on the motion of Mr. W. Patten, foretell the advancement of well-directed undertakings, and the release of much capital, at present locked up in competing, or other useless, schemes. Part of this capital that will in course become released will, doubtless, afterwards be embarked (where it belongs to parties that do not otherwise require it,) with other "bona fide" capital in the country, ready for employment on remunerative terms in the needful railway accommodation wanted by the public, the extent of which the government have now before them ample materials to ascertain.

The countenance the government has given to Irish railways, it is fair to expect (if required,) may be extended to lines in England and Scotland, necessary for the respective localities, where the traffic, etc.; justifies their formation; consequently, looking at the needed railways to be made at home, with those also required in the colonies, and other places abroad, to be wholly, or in part, supplied with materials from England; the demand, that will emanate from these undertakings for iron, will be more steady and extensive than could be expected from the indiscreet progress of numerous competing, or worthless, undertakings, certain to be abandoned before a ton of iron could be required for them. By judicious amalgamations, and a satisfactory adjustment of the respective tariffs by the government, it may be expected the railway accommodation throughout the United Kingdom will be established on a footing to be accomplished to the profitable employment of spare capital, and the general welfare of the country. The bill brought forward by Mr. Moffatt (which passed the second reading yesterday, and is to be committed to-day,) to permit the transfer of railway deposits to be made to the accountant-general in exchequer bills, in stock, or other government securities, and to abolish the necessity of having a speaker's order for paying in money, or depositing these securities, will tend to facilitate the further payments required by the standing orders, so that the money market will be relieved in this respect, in the way so much required when the first deposits were made.

The release of a large amount of these deposits may be hastened by the petitions now going to Parliament for the abandonment of many of these schemes; so that the good being separated from the bad, and the attention of parties capable of carrying them out being directed only to the former, the iron trade will feel this influence; and, looking at the demand actually in operation at this time, and the accession to it for iron, to construct only a very limited portion of the really requisite railways, an improvement, to correspond with

the prices at this period last year, is a moderate estimate for the future, as the trade again assumes the buoyancy an easier state of the money market will not fail to impart to it. In this month, last year, the rates were nominally 11*l.* 10*s.* for rails; 6*l.* 10*s.* No. 1; 6*l.* 5*s.* No. 2; and 6*l.* No. 3, Welsh foundry pig; and 5*l.* 5*s.* for Scotch pig. To this point the market was reinstated for rails in October last, when the causes that have de-ranked every branch of trade, reduced the prices of iron; but this reduction is not for the foregoing reasons to be considered otherwise than temporary.—MERCATOR: London, April 1.

Galvanized Iron.—The proceedings at the meeting of the Patent Galvanized Iron Company, held on Tuesday last, affords one of those striking evidences of the improvement, and the prospective advantages attendant on the iron trade; while, we need hardly say, that this staple product is one on which we mainly depend as our national wealth. The report read tells us, that not only will 10 furnaces be in blast within a few months, but that they will be in a position to supply 700 to 800 tons of manufactured iron from the Phenix and Corbyn's-hall works; and moreover, that, at this moment, orders are in hand which will occupy two to three years in their completion. This is at least satisfactory to the shareholders, who, with a regular dividend of 8 per cent., we think, may well content themselves with their position. The adjunct of the works in Staffordshire, and the association of Mr. W. MATHEWS, the late proprietor, as a director of the company, we need hardly say, is no slight advantage acquired.

Construction of Locomotive Engines in France.—In former numbers of this Journal, we have stated, that in consequence of the numerous concessions that have been made of the principal railways throughout France to opulent companies, it has given the greatest impetus to the constructing of machinery, and the development of mining industry. The proprietors of railways in France are trying all they can to make their own engines, and all the material requisite for the lines to be laid down—so as to form a monopoly among themselves, to prevent the introduction of the English locomotives, rails, etc. This has had its effect to a very great extent, and there a most remarkable activity now prevails in all the iron works, forges, and high furnaces, and the factories for the constructing of machinery, to compete with each other, so as to furnish the requisite materials for railways—viz., iron for rails, cast iron for chairs and sleepers, and everything required for the making of steam-engines, so that they should be entirely confined to their own factories. The *Journal des Chemis de Fer* has taken up the subject with some spirit, and shows the injury it will do to the progress of mining and mechanical industry, if the proprietors of railways are determined, not only to make their own engines, but everything belonging to the railway department, by establishing their own workshops, which will be highly inju-

rious to private enterprise,—as the companies being composed generally of wealthy bankers, and the most opulent leading men, are forming a conclave to purchase not only the coal, but the great productive iron mines in France and Belgium, so as to work them themselves at a trifling cost, considering the facilities they will have over all other competition, having the means of conveyance in their hands.

Railway Through Hudson Street and the Eighth Avenue.

"The special committee of the board of assistants," says the Journal of Commerce, "to whom was referred the subject of the Hudson street railway, assign in their report the following reasons as influencing them to recommend the construction of the work."

That a railway from the extreme point of the island, on the west side of the city, must be constructed sooner or later, as public necessity, public convenience and the public prosperity demand it.

That it were better constructed by a private association, over whom the common council can at all times exercise a supervisory control, than by an incorporated company, on whom they could place no restrictions.

That the wants of the western side of the city and island demand the immediate construction of such a road.

That the route proposed is the most convenient and appropriate.

That it will greatly enhance the value of the property in that section, belonging to the city, and which is now wholly unproductive.

That it will lead to great improvements, and will call forth a large amount of idle capital, to be employed in the erection of stores, dwellings, etc.

That it will greatly increase the taxable resources of the city, and eventually afford means of meeting a large portion of the city debt.

That it will afford facilities for travel urgently demanded by, but not now offered to our citizens, and at greatly reduced rates.

That it will not create any obstruction in the street, which can be just cause of complaint.

That it will not impair the interests even of the present monopoly of omnibus lines on that route.

That it will, in a great measure, prevent the emigration of our citizens to neighboring towns, across the North and East rivers, by affording to them inducements to select salubrious and convenient residences on this island, at reasonable rents, and by affording to them the means of going to and from their places of business, with regularity, convenience and dispatch.

And finally, that it will greatly increase the comfort, welfare, happiness and prosperity of all the laboring classes.

"Appended to the report is an ordinance to carry it into effect, and providing for the regulation, etc., of the railway when constructed, there being one provision that if the Erie railroad shall, at any time, be continued as low as MacComb's dam, the rails shall be extended to the same width as that road. The

road from the southern terminus at Duane street to 24th street, is to be completed in 8 months from the 1st of June next."

We have not been inattentive observers of this enterprise, though it has not been a subject of remark in the Journal. The convenience and importance of a well regulated railway conveyance on the west side of the city has long been apparent to us; and we are gratified to learn that a few enterprising gentlemen are moving in the matter, and also that the common council look upon the measure in a favorable light, and are disposed to sanction its construction.

In a city situated like New York, upon a narrow strip of land, surrounded by water, at least on three sides, where the principal business is crowded into one corner, the great mass of the population must reside at a considerable distance from their place of business; and must, as a matter of course, have an easy, cheap and expeditious mode of getting to and from their dwellings. And there is no mode of accomplishing that object so readily, and so cheaply as by railroad; nor is there any mode of transporting a large number of people through a city, with as little liability to accident, as by a well constructed and well managed railroad. They cause less obstruction to pedestrians, to carriages, and to business, than omnibuses. They are also much less destructive to the pavements, and less annoying to the residents of the streets through which they pass. In short, they accommodate and benefit many—and especially those who most need accommodation—those who can least afford to pay for riding—yet who need to ride often—the laborer—the mechanic—and those of small means. They will enable such to go so far out as to obtain lots cheap and build snug dwellings, and enjoy fresh air, yet be able to get to and from their business at a seasonable hour. Then why should any one object to the construction of a railroad in the city.

Railroads in Kentucky.

We find the following remarks on the subject of railroads in the Louisville Democrat.—It shows that the right spirit is moving in that region as well as in Tennessee and Ohio, Indiana and many other places we might name. We are gratified with it and shall look to the people of Kentucky for a railroad from Louisville via Frankfort and Lexington to the mouth of Guyandotte in Virginia, and another to Nashville, Tenn.

Railroads.—These improvements become more and more popular, the more they are tried. Their progress in England surpasses anything which could have been conceived some years ago. The late mania, on this subject, if mania it should be called, resulted from the increasing value of railroad stock. The expedition and safety of this mode of conveyance will cause it to supersede all others. It has been generally thought that the west is yet to sparsely settled and its resources too partially developed for railroad stock to be profitable. This idea seems plausible at first sight, but experience shows that it is a mistake. The roads which have been completed and put into operation give the highest encouragement for the prosecution of these improvements. The Madison and Indianapolis road promises to be an excellent investment, notwithstanding the croakings of the over cautious.

The railroads in the United States are generally in an unfinished state. Comparatively few of them have been completed to their natural terminus, still we know enough about them to satisfy us that we are in no danger of overestimating their ultimate value. The truth is, the resources of our soil, the industry and enterprize of our people are boundless, and wherever a railroad opens a communication from any business point into the heart of the country, business and trade spring up like magic.

We subjoin from the Railroad Journal an account of the dividends made on the stock invested in these improvements in this country, so far as they are reported. It must be recollected at the same time that many of these roads have cost enormously owing to the want of experience in constructing them, the inflation of currency and other causes.

The Portland and Portsmouth road in Maine, length 50 miles, dividend in 1844, 6 per cent.

The Concord road, N. H., length 35 miles, dividend 12 per cent.

The following roads with their length and dividends are located in Massachusetts :

	Length.	Div.
Boston and Maine, - - -	56	6½
" " Lowell, - - -	26	8
" " Providence, - - -	41	6
" " Worcester, - - -	44	7½
Charlestown branch, - - -		5½
Eastern, - - -	54	8
Nashua and Lowell, - - -	14½	10
New Bedford and Taunton, - - -	26	6
Norwich and Worcester, - - -	66	3
Western, - - -	117	8
Housatonic, - - -	74	6

There are several other roads in that state, from which the reports are not given as they are yet unfinished. We have reports from only five in New York, viz:

	Length.	Div.
Auburn and Syracuse, - - -	26	6
Syracuse and Utica, - - -	56	8
Tonawanda, - - -	43	5
Troy and Saratoga, - - -	25	2½
Utica and Saratoga, - - -	78	8

In Virginia, the Richmond, Fredericksburg and Potomac road—length 76 miles, dividend 6 per cent. South Carolina railroad, 136 miles, dividend in 1844, 5 per cent., and we learn from the Commercial Review that the dividend last year was over 6 per cent.

It is to be regretted that the reports are so partial, and that the circumstances are not stated more minutely; but from Massachusetts the reports are fuller and most of her stock is much above par, only two or three below it, and these are but just in operation. This is sufficient to show what profit may be expected from this species of improvement, especially when we look at the extravagant cost of these roads, many of which swallowed up about \$20,000 per mile—10 or \$12,000 more than the fairly estimated cost of the contemplated road to Columbus.

Thus much of railroads in general. The interest of our city in this species of improvement, depends upon our connection, or upon what may be, our connection with the vast

system which is at no distant day to intersect the union in all directions, and connect the gulf of Mexico and the lakes, the northern and southern Atlantic coasts, with those of the Pacific.

In 1830, South Carolina began to cast her eyes toward the valley of the Mississippi.—An effort was made to reach the Ohio, which failed at that time in some respects, yet the work was commenced, and the railroad from Charleston is making rapid progress towards the west. It is making its way through Georgia and will soon be finished to Chattanooga on the Tennessee. A company is chartered to bring it 130 miles further, to Nashville. It will send its branches to Virginia, to Alabama, to Louisiana, and it will reach the Ohio at some point; and thence a connection will be formed to the lakes. Let a road be sent out from Louisville to Columbus and thence to lake Michigan, and there will be every inducement for those south of us to aid in bringing the Southern railroad from Nashville to Louisville. We shall then be in the great highway from the south Atlantic coast to the lakes, where we shall meet these same improvements pushing their way westward. So far there is nothing at all chimerical, nothing which will not be accomplished at no distant day. This great Southern road is making its way to the Ohio and Mississippi. It will reach both in less than ten years. It only requires that enterprize and public spirit which others will exercise if we do not, to place ourselves on this great highway.

We have heard it suggested that this route will benefit other places more than Louisville even if we are on the route; but what will become of Louisville, if the whole trade of the southeast, is carried to some other point without touching us.

We need not urge the probability of a branch from Louisville through Lexington to some point in Virginia, and thence to be connected with the northeast, nor need we take into the account Whitney's project of a railroad from the southern point of lake Michigan to the Pacific coast at the mouth of the Columbia.

The present generation may see the completion of all these projects, and see nothing more marvelous than what has occurred in the last thirty years.

It will be seen that the railroad to Columbus is only a part of a vast chain. Its value cannot be estimated by the trade it will command within the limits of Indiana. This trade, there is ample reason to believe will fully justify the investment of the funds necessary to the completion of the road, as far as contemplated. The connection which it may form with a system of incalculable magnitude, will render it a safe investment for an indefinite period of time. There is no other improvement, which, with a tolerable share of enterprize can divert the business from it at some future time and render it unprofitable, which might be the case if it did not form a natural link in the great chain of roads now in contemplation.

The Rome Branch Railroad,

The Coosa River Journal, of the 18th inst., says the Savannah Republican, states that Messrs. D. R. Mitchell, Edward Ware, John Smith and Joseph Waters, the gentlemen named in the charter granted by the legislature of Georgia, for the construction of a railroad from Rome to Kingston, met in Rome, Ga., on the 12th inst., for the purpose of adopting preliminary measures for the organization of the company, and the construction of the road. At this meeting, the incorporators appointed agents to receive subscriptions of stock at Rome, Summerville and Van Wert, in Georgia, and in Cherokee and Benton counties, in Alabama. We are glad to find, says the Journal, so much zeal and earnestness exhibited for the construction of a road which cannot fail to produce such immense advantages and benefits to the whole state, and to Floyd county in particular. Let the citizens respond to the call of the incorporators, and before many months elapse, there will be a continuous line of railroads from the Coosa to Savannah and Charleston.

The same paper, in a subsequent article, adds: "We are gratified to state to the public, that our prospects on this subject grow brighter every day, and the citizens of Floyd have nothing to do but to do their duty. Already, we understand, a considerable amount has been subscribed, and we trust that those who have the means, and are so vitally interested in the matter, will come forward immediately, and subscribe such amount as their means will warrant."

Norris' Locomotives in Austria.

A late letter from Vienna, says that there are 22 of Norris' locomotive engines finished and ready to be put on new lines of railroad in Austria. On the four roads extending from Berlin to Frankfort, Potsdam, etc., there are said to be 26 of these engines in operation.

We find this paragraph in the Journal of Commerce. We have long been aware that Messrs. Norris were shipping engines to Austria. We have frequently seen them on their travels through this city, and should be exceedingly gratified to witness their labors on the roads for which they were destined.

Mr. Wm. Norris is, we understand, engaged in the manufacture in Vienna, while the establishment in Philadelphia is carried on by Mr. O. A. Norris & Brothers.

"It is stated," says the N. H. Patriot, "that the Vermont Central railroad will not connect with the Cheshire, and that it is settled that the Central and Northern, (Lebanon,) railroads will form a connection at the mouth of White river."

This may be correct, but we have not a doubt but that the Central Vermont road will connect with both the Cheshire and the Lebanon or Northern roads; and travellers will be at liberty, as they should be, to take either route. The greater freedom of intercourse between the different railroads the better for all parties. All the railroads from the Atlantic ports of New England, in a westerly or northwesterly direction, will be connected by a continuous railroad from Hartford up the Connecticut valley to Canada line. The following paragraph from the "Bradford (Vt.) Protector," shows that operations on another

part of this line have been recently commenced. The whole line will be completed and connected within a few years, thus forming a net work of railroads, uniting all the New England states, and connecting them also with New York and Canada.

"Our Railroad.—We learn that Messrs. Fairbanks, Low, Gilmore and Weld, have been appointed a committee to go forward and build the road. The subscriptions are now ample to build forty miles or more of it. The engineer a Mr. Fox from Pennsylvania, is now upon the ground. He commenced his survey on Monday last. As soon as the location can be made, that portion between Oxford bridge and Wells river will be put under contract.

The Cambria.

We regret to record the misfortune of this noble ship. It is not necessary however, for us to give the details of her disaster, as they will be known to all our readers, through other channels, before the Journal will reach them. We therefore only give a few extracts from the Mining Journal, received by her, our other files not having come to hand. Our dates are to the 18th of April, and show a tendency to lower rates in the price of iron, as below.

The Iron Trade.

Our quotations by the Great Western were to the 3d of April, and were—

For rails.....£10 10s a £10 15s. per ton.
we now give those of the 10th.....£10 10s. "
and those of the 17th.....£10 5s. "

There is evidently a disposition in purchasers to bring down prices, while the manufacturers and holders, are exerting themselves to keep them up.—The course of parliament in relation to railways, and the somewhat unsettled condition of the relations between England and this country, will depress this branch of industry for a time—and it may be no disadvantage to those now in the manufacture, as it may deter others from engaging in the business—but we are fully of the opinion that parliament will, after all their sifting and rejections, authorize as many miles of railway this year as they did last year, viz: 3841 miles; and also that the Oregon war clouds will give place to the clear sky, and bright sunshine, of peace; which will insure a rapid extension of railways and vast consumption of iron, and as a matter of course, keep it at a high figure.

The following extracts from the Mining Journal of the 11th and 18th April, will give an idea of the general feeling among those extensively engaged in the business, at those dates.

"Iron of all descriptions remains much depressed, and very little doing since last week's Mining Journal. Scotch pig, for prompt payment, has been sold at 65s."

"**The Iron Trade.**—[From the Birmingham Journal of April 9.]—The quarterly meetings of the ironmasters of South Staffordshire commenced at Wolverhampton on Wednesday, and will be brought to a close this evening at Dudley. More than ordinary interest has been directed to the present meetings, owing to the precarious position of the trade for some months past, and the apprehension very generally entertained that the masters would be compelled to reduce prices. The opinion which we were led to express a fortnight ago, that there were no real grounds to justify a reduction, appears to be well founded, the manufacturers having, at their meeting in Birmingham, on Thursday, resolved to maintain the existing rates, and rather than yield on this point to reduce the make of iron—a course which has frequently been resorted to under similar circumstances. Indeed, masters can scarcely be said to have any alternative, owing to the high price of materials, and the difficulties which would attend

attempts to reduce wages. The Shropshire masters, who supply this district with large quantities of iron, almost indispensable to our manufacturers, and who, it is well known, exercise much prudence and foresight in their movements, were unanimous in their determination to keep up the price of pigs at £5 10s., at which figure all their sales on Thursday were effected. It remains to be seen, by the result of this day's meeting at Dudley, whether the South Staffordshire masters will confirm the agreement, which it is generally understood would be acted upon during the ensuing quarter. Although many large firms have been shaken by the operations of speculators on the one hand, and the pressure on the money market arising from the uncertainty as to the measures of government on the other, still it is a most gratifying evidence of the stability and resources of the trade, that while commerce has been all but paralyzed, the demand for iron has enabled our manufacturers to maintain their position, and, with one or two exceptions, to meet their engagements."

"**Glasgow Iron Trade.**—April 3.—The market has not varied much for the last few days. A decline was anticipated in this market, owing chiefly to the unfortunate position of some dealers; it appears, however, they do not hold any stock. The shipments last week were upwards of 9000 tons, which exceeds the production. We understand there are many others unexecuted, as vessels cannot be had at present. Sales have been made at 65s., but 67s. to 68s. cash, is the price for choice of numbers.—*National Advertiser.*

Scotch pig was quoted on the 17th at £3 2s. 6d., and Welsh cold blast pig at £4 10s. to £5 5s.

A correspondent of the Mining Journal says that—

"Iron of all descriptions is somewhat easier this week, and business has been limited—buyers holding back for further decline. Scotch pigs are very depressed; sellers at 62s. 6d.—buyers at 60s. In foreign, nothing new."

"**The Iron Trade.**—The ironmasters held the last of their district quarterly meetings on Saturday last, at the Swan hotel, Dudley; and, so far as the expressed determination of the large proprietors not to reduce the prices can be taken as a standard for the ensuing quarter, the quotations of the Birmingham meeting may be considered permanent. Nothing, however, but absolute necessity will induce some very large buyers to pay the present demand. Some gentlemen have withheld their orders, on the ground that the prices are such as to render it impossible for them to meet competition. On the other hand, the ironmasters say they cannot reduce; that, during the last two years, men's wages have been increased to a great extent, and that any attempt to reduce them now would only be attended with inconvenience and injury, without any actual necessity for it. It is also confidently expected, that the arrangements of the government with respect to the proposed new railway bills will have a most beneficial effect, by cutting off all doubtful and unnecessary speculations, and facilitating the progress of those lines in this district which are held to be indispensably necessary, and for which large quantities of iron will be required."

"**Glasgow Pig Iron Trade.**—April 10.—No improvement can be quoted in this article—sales amongst speculators ranging from 62s. 6d. to 67s. 6d.—the former for low Nos., the latter for No. 1 quality. Makers seem firm at considerably higher quotations.—*National Advertiser.*"

"April 14.—The price of Scotch pig iron, delivered here, may be quoted to-day at 65s. for all No. 1, and 62s. 6d. for all No. 3, per ton—net cash. At these rates, limited sales were made to-day. Market rather heavy, in consequence of the export orders falling off. Common bars, £9 10s.; railway bars, £10 10s.; railway chairs, £5 7s. 6d.—*Chronicle.*"

Railroad Iron.—The Danville Intelligencer says: "The Montour rolling mill, at this place, has for some time past been making over 200 tons of railroad iron per week. At one turn, last week, the night set of hands made 182 rails within the twelve hours. They made a hundred rails in six hours, having that number finished at midnight."

Suspension Aqueduct.—The strength of the Suspension aqueduct, says the Pittsburg Gazette, was fully tested on Monday afternoon. We noticed no less than six line boats, heavily laden, upon it at one time—one boat on each span. The quantity of water displaced by them was very large, and the motion communicated to it was of that kind to test the strength of the cables as severely as it is possible to do.

Railroad from Raleigh to Columbia.—We are glad to be able to state that this project, so important to the interests of the travelling public, not less than to those of the country upon the route, is not all lost sight of, but that it engages the earnest attention of those interested, here and elsewhere. It is believed that by the meeting of the next legislature, arrangements can be made to connect this enterprise with the purchase of the Raleigh and Gaston road from the state, and that, at the reduced price which the whole will cost, they can be made exceedingly valuable, and reasonably profitable. We think we may promise that the people of this town and county will do their part in furtherance of the work.—*Fayetteville Observer.*

The Railroads.—This being the finest season of the year, says the N. H. Courier, for working on the railroads, they are everywhere in full blast. Of the roads in this quarter we made mention in our last. The Keene Sentinel says that the Cheshire road experienced considerable difficulty in getting from the Massachusetts legislature a suitable connection with the Massachusetts' roads. On the Western road from Albany to Boston has lately been arranged an express train, running through by night, in about eight hours, at a fare of only \$3, (instead of 5.) It is quite successful. A new railroad has been proposed from Boston to New York, through Connecticut, which will be shorter than the Long Island, and will need no ferry.

New Railroad Scheme in New Hampshire.—We have supposed, says the N. H. Patriot, that no new route could be projected for chequering our state with railroads; but we were mistaken. The next legislature will be asked for a charter for a railroad from Connecticut river, through Claremont, Charlestown, Walpole, Westmoreland, Chesterfield and Hinsdale, to the Massachusetts line, with authority to use a portion of the Cheshire road.

Railroad Iron.—T. Belknap's N. H. Gazette says there are five railroad iron mills in this country—one in Massachusetts, one in Rhode Island, one in New Jersey, one in Pennsylvania, and one in Maryland. It is said these mills will work up a thousand tons of pig metal per week; and we say there will be five times that number in five years from this date.

Troy and Greenbush Railroad.—The number of passengers that passed over this road last week was within a trifle of 5,000 being more than an average of 800 per day.—*Jour. Com.*

LACHINE CANAL.—Official notice has been given by the Board of Works, that this canal will be opened on the 1st of May, instead of the 15th, as formerly advertised.

North Branch Canal.—The supervisor of this division of the Pennsylvania State works gives notice that navigation will be resumed on it on or before the 7th of May. Vast quantities of iron, coal and produce, are awaiting the opening of that channel, to be shipped to an eastern market.

Extension Canal.—This canal, says the Eric Gazette, is now in full tide of successful operation.—Heavy amounts of groceries, glass and glassware, and other Pittsburg manufactured articles, have been carried from Pittsburg to Erie, to be there transhipped to various points on the lakes. From the auspicious commencement, we should judge that a brisk trade will be carried on this season.

Rates of Freight.—The rates of freight, on the Connecticut river railroad, between Springfield and Northampton, were, we understand, reduced on the 13th inst. to \$125 per ton on first class freight, and \$1,00 per ton on second class.

Crampton's Safety Locomotive Engine.

At a meeting of the Society of Arts that took place last week, William Henry Bodkin, Esq., M. P., being in the chair, a very interesting paper on Mr. Crampton's patent locomotive was read. At this meeting were present many practical men, competent to enter into its merits, and the engine was very fully canvassed, and every point thoroughly investigated, more particularly by Mr. Gooch, superintendent of the locomotives on the Southampton railway, and by other competent judges present, and the engine received the unanimous approbation of the meeting. We have in a previous number, in 1843, given this engine a place in our columns, and think, after the investigation it underwent before so many competent judges, it gains increasing importance.

The advantages to be gained in this engine are, an increase of power and speed, combined with safety, or the concentration of all the existing advantages of the wide-gauge or the narrow.

As to the question of attaining high speeds, we think they are desired by the public. The rapid increase lately of express trains, shows plainly the partiality in the public taste for rapid travelling, and the merchants of Liverpool have lately sent a petition to the Grand Junction railway company, requesting an additional express train, to enable them to leave Liverpool in the morning, spend five hours in London, and return to Liverpool the same evening.

It appears from the report of the gauge commissioners just published, that the speed of the narrow gauge trains, express and otherwise, does not equal that of the Great Western railway. We can see no reason why the present speed on the Great Western should be considered as a maximum; but even at the present rate adopted on the narrow gauge lines, it is clear that the limit of safety is approached. It is stated in the report just referred to, that only six accidents occurred from engines running off the line, from October, 1840, to May, 1845; whereas, there have been no less than seven within the last seven months, all attributable to excessive speed. From this it does not appear that the narrow gauge engines, with their present arrangements, are in a fit state to supply the public demand for still higher speeds.

It appears to us, therefore, that Mr. Crampton's engine is no less called for on the consideration of safety than of speed.

Mr. Crampton proposes to avoid two principal sources of danger—topheaviness, or height of centre of gravity, and overhanging weight, causing the oscillating motion, so pregnant with danger, as shown but too plainly by the recent accidents to the long-boiler engines.

The better to enable us to make the arrangement clear, we have struck off the same cut we gave in the previous number already referred to, and will quote the explanations of the different diagrams.

Fig. 1 represents an elevation, and fig. 2 a plan of the engine with the proposed alterations.

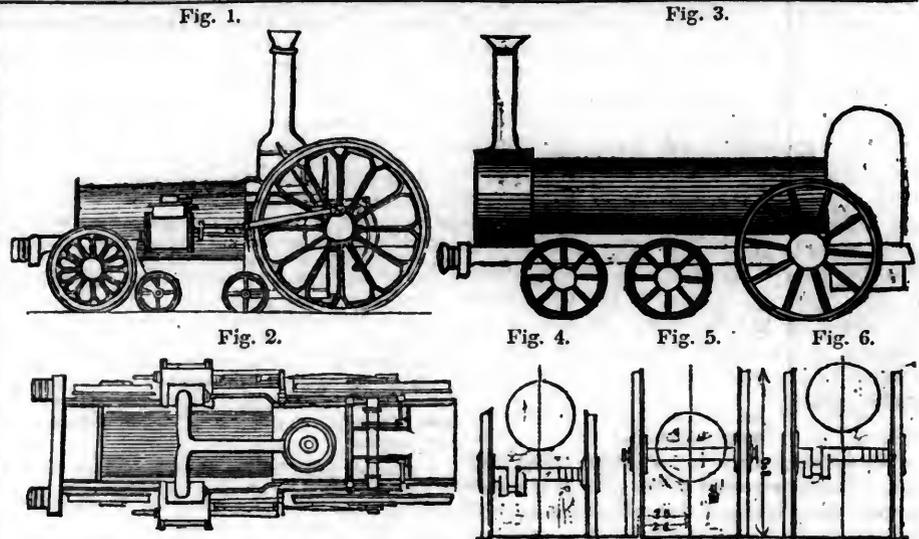


Fig. 3 is an elevation of the long-boiler engine, the merits of which have been fully discussed.

Fig. 4 shows the height of an ordinary six-foot wheeled engine.

Fig. 5 shows the height of Mr. Crampton's engine, with eight-foot driving wheels.

Fig. 6 shows the height of the ordinary description of engine, with eight-foot driving wheels.

The main point in the arrangement seems to be, placing the driving axle at the back of the fire box instead of underneath the cylindrical part of the boiler. The advantage of which is, the whole boiler can be very much lowered, and consequently the height of the centre of gravity reduced. The second advantage arising from this arrangement is, that the boiler is entirely within the points of support. These are two very important points—lowering the centre of gravity and bringing the whole weight between the supports, instead of having any portion overhanging. Between the driving and leading axles two sets of wheels are introduced, idle or otherwise. These are for the prevention of accident either from the fracture of the leading or trailing axle. In the case where the leading axle broke on the London and Birmingham railway in 1843, the engine turned over, and loss of life was the result. In similar accidents to six-wheeled engines, the smoke-box end has fallen, on account of the leading axle bearing more weight than the trailing. But with eight wheels, supposing the leading axle to break, the balancing point of the boiler would be within the base formed by the remaining six wheels. For it is evident that the part of the boiler overhanging the front small wheel could not overbalance the whole remaining boiler and engine. It may be remarked, one or both of these axles may be inserted or dispensed with, without at all interfering with the arrangements of the engine. As to the details of the machine, the cylinders are placed outside, fixed on to the boiler without any frame, and drive direct in the wheels. The valve gear is in the driving axle, and is boxed in, forming two seats for the convenience of the

enginemen, and thus the whole machinery is within the reach of the driver. As to the matters of detail, such as the capability of applying the most approved method of driving the slides, we do not ourselves enter into, but from the fierce of questions Mr. Crampton withstood on that head, at the meeting of the Society of Arts, from Mr. Gooch and many other practical men, we received the impression that no objection on that score could be maintained. The greatest amount of heating surface in the engines on the Great Western railway is between 700 and 800 square feet, and Mr. Crampton states that with his boiler lowered as has been described he can obtain 1,500 feet on the narrow gauge, without injuriously increasing the height of the centre of gravity.

In the evidence before the gauge commissioners, Mr. Daniel Gooch stated on behalf of the Great Western, that the angle of stability in the engines on that line was sufficiently large to be safe at any speed. Now, it was shown at the meeting before referred to, that the angle of stability in Mr. Crampton's engine with 8 feet driving wheels on the narrow gauge was, if not larger, at least as large as the angle of stability in the engines of the Great Western; or, in other words, the centre of gravity in Mr. Crampton's engine is as much lower than that of the Great Western, as the narrow gauge is less than the wide; and consequently as safe.

By inspecting the diagrams, the superiority of the position of the new engine over the ordinary plan is self-evident. It is not only lower and the weight confined between the axles, but any size wheel can be used without altering the height of the boiler, whereas wheels of 6 feet 6 inches diameter are considered the limit of size on the old plan.

Looking at the public demand for high speeds, and at the accidents that have occurred to fast trains, on the narrow gauge, as shown in the report of the gauge commissioners, looking at the increased liability to danger that will be incurred by larger engines capable of obtaining higher speeds, we cannot but regard this engine of Mr. Crampton's, concentrating as it does the power, sta-

bility, safety, and speed of the wide gauge—we cannot but consider this engine as highly important to the country, commercially and socially.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N.Y.

Saturday, May 9, 1846.

WANTED, the following numbers of the RAILROAD JOURNAL, to complete volumes, viz:

- No. 44 of volume four, for 1835;
- Nos. 44 and 45 of volume five, for 1836;
- No. 1 of volume six, for 1837;

Or the entire volumes of those years will be purchased at subscription price, if in good order; or the current volume will be cheerfully given in exchange for volume four or five, to any gentleman who prefers a new book to an old one; and we shall be very much obliged to those who will aid us in obtaining these numbers.

The numbers may be forwarded by mail, accompanied by a letter, stating when forwarded, and the volumes may be sent by express, or other safe conveyance, at our expense.

"Le Chemin de Fer Belge."

We have several times acknowledged the receipt of this journal, whose files are now regularly sent to us. Of the character of the journal itself we have as yet said nothing. We, however, purpose giving, as interesting to the railroad cause, a short notice of this, we believe, the only railroad journal of Belgium, the land of railways.

"Le Chemin de Fer Belge" is a spirited sheet, now in its fifth year—the size somewhat less than that of our Journal, but small when compared with the larger Belgium papers, which are jocularly styled "nos grands oncles, les journaux de la grand presse." This paper is, as well as our own, a weekly. It gives a summary of railway news, both domestic and foreign, well digested and pithy—an account of reports and official acts, which sometimes fill an entire sheet. Also a synopsis of improvements in the arts and sciences, having any relation to railroads or manufactures. In this latter department we find much that is interesting, and of which we shall from time to time give a notice for the benefit of our readers. There are also notices of matters of local affairs, theatres, new publications, etc.; and in a corner by itself, the editor weekly indulges in jokes upon matters and things, some of which seem to be very fair, although not susceptible of translation.

One striking peculiarity of the journal arises from the fact that the Belgian railways are under the immediate control and direction of the government.—Thus we find in one number the appointments for

the railway police for 1846-7—each officer is named—his station and duty. In another number, the regulations of the steam packets are to be found—the number of officers, and their duties in a series of regulations, 84 in number. Though totally differing from our railways in this respect, there are many things which may furnish useful hints for those on this side the Atlantic.

Our Belgian editor appears to have his own troubles, as well as others of the fraternity. It seems that the director of the state roads demands as a condition for subscribing to 200 numbers for the use of the state, that the proof of the journal shall be submitted to him before going to press, with the intention, the editor hints, of transforming said journal into a means of glorification for M. the director.

We hope our friend over the ocean will not allow himself to be disturbed by this very modest director, but that he may continue in his course with profit to others and profit to himself.

The Belgian papers are full of the proceedings relative to the destruction of the tunnel of Cumpitch—which is said to have been caused by an injudicious plan, and a fraudulent execution of the contract. A number of arrests have been made, one or more of the parties seem to be Englishmen. Bad work it seems cannot be easily covered up in Belgium. A Russian officer has been sent to Brussels to procure an engineer to aid in the construction of a very important line of railway.

In a discussion in the Belgian chamber of deputies upon the subject of parallel lines of canal and railway, the case of the Erie canal was cited, although without a due understanding of the circumstances of the case.

M. Vicat, so well known for his valuable researches in the nature of limes, mortars, and cements, has received a commandership of the legion of honor from the king of France.

Report of a Committee of Investigation into the Affairs of the Philadelphia and Reading Railroad Co.

The Philadelphia and Reading railroad has, from the very moment that operations were commenced upon it, excited an amount of attention, without a parallel in the history of railways in this country, and with the exception of the Liverpool and Manchester, we may say in any country. Nor is it difficult to assign good and sufficient causes for this notoriety. The road was intended to derive its revenue mainly from the transport of coal, the article best calculated to test the capability of railroads for the carrying of freight—it had to compete with a canal hitherto unrivalled in profitableness and facilities for its peculiar trade—it excited the highest hopes in the friends of railroads that it would prove incontestably the superiority of this mode of transport, as it was constructed with a grade entirely level, or descending in the direction of its trade.

These circumstances were alone sufficient to draw an unusual amount of attention to its operations—but others were soon added. The stock of the canal was injured in value by the prospective rivalry of the railroad, and as soon as the latter was opened, the business of the canal was largely diverted by the new channel. This led to a series of hostilities, continued with unremitting zeal, the object of which was the injury of the credit of the railroad, and the destruction of confidence in its capabilities. The railroad was unfortunately in a position to be influenced by such efforts, from the fact that, in compliance with the erroneous practice of our country, an insufficient capital had to be made good by loans. To meet the increased demand for the machinery of

the road, floating debts were incurred, which were continually falling due, and must either be met with new loans, or from the earnings of the road. In this way the machinery of the road was prevented from reaching the completeness so necessary for a traffic of gigantic nature. Most of the difficulties have been met successfully, by the indomitable energy of the managers of the road.

To meet the various charges which had been spread abroad by the opponents of the road, and to devise means for the improvement of its affairs—the stockholders and bondholders in New York and Boston appointed a committee of investigation, charged with a series of specifications, embracing all the charges against the road or its managers. The report now before us is the result of these investigations. One of the objects of the committee—the funding of a portion (\$1,100,000) of the floating debt having been accomplished (as will be seen by the annual report already published in the Journal, No. 11) the publication of this paper has been deferred to suit the convenience of the committee.

The members of this committee are gentlemen of the highest standing in the community, and well known for their intimate knowledge of the working of some of our best railroads—their opinions will therefore be entitled to a more than usual share of the public confidence. The impression produced by a perusal of their report is very favorable. The amount of labor required for the investigation, was enormous, and yet appears to have been faithfully performed. Moreover, we like the tenor of the paper, which is remarkably candid and independent, and totally different from that of "white washing."

We shall not trouble our readers with a detail of the specifications, but merely point out such portions as appear of interest in connection with their corresponding answers in the report.

Specifications I. and II. inquire into the accuracy of accounts of monies received and expended during the year ending Nov. 30, 1844. A careful examination of the books and vouchers proved that the monies had been correctly accounted for. To the question,

"Whether the sums of money so expended have been carried to the proper accounts, whether of transportation or construction."

We give the reply in full, as showing the candor of the committee in stating their opinion, and at the same time the small amount of change in the arrangement of the accounts required even by those who differ in opinion from the agents of the company, who have made out the accounts.

"In classifying expenditures, in all such cases, items will occur which stand on debatable ground, and in regard to which a difference of opinion may fairly, and no doubt does practically exist, in determining to what account they shall be carried. The classification, however, which is contained in the books, accords with our judgment, except in the following instances:

The interest account contains an item of. \$1,807 58
 Profit and loss, do. 431 28

Amount \$2,238 86

"Both of these items consist of discount allowed, for satisfactory reasons, upon the freight of coal, and should in our opinion be deducted from the gross receipts of transportation.

"Again, profit and loss is charged with \$10,000. This sum was allowed as discount upon the freight of coal brought down before November 30th, 1843, but, by reason of disagreement, not settled till the year following, when the claim was compromised by this allowance.

"Again profit and loss has an item of \$140 89, for freight and damage of merchandize transported by the company.

"Again profit and loss has an item of \$391 03, for freight on missing coal, which is coal that fails through some accident happening on the way, to reach Richmond, and is accounted for by the company. These charges also grew out of transactions antecedent to Nov. 30th, 1843, and belong to that year. The suspension of these claims until after the transportation account of 1843, to which they were properly chargeable, had been closed, is the reason why they were finally carried to profit and loss.

"Again profit and loss has an item of \$1,519 50, which sum was paid to the owners for the freight on missing coal. The freight bills are usually, as a matter of convenience, settled without reference to the missing coal, and the company reimburse the owners, both for the coal and the freight upon it.—The loss on the coal thus left on the way has uniformly been put down among the expenses of transportation. The freight upon it when refunded, should in our opinion be charged to a separate account, which would show its amount in any given period, and at the end of the year, or at other regular times, it should be merged in transportation account, thus reducing the gross profits of that account.

"Construction has an item of \$3,125 07, which in our opinion belongs more appropriately to transportation. The costs of suits at law are generally charged to interest account, which appeared to us to be an improper mode of entering them.

"Beyond these items we met with nothing, during the period in question, in the classification of the accounts, which merits comment."

The statements of the circular of March 10th are in accordance with the books.

To the question as to the correct statement and classification of the items of cost of transportation of coal in the report and circular—the committee reply,

"We examined the accounts of transportation which were found to be kept systematically, and in such minute detail as to afford all the data essential to the formation of a satisfactory opinion. The books of the engineer, so far as connected with this subject, were also examined, and were kept in a manner that met our approval."

They add that the object of that report appears to have been the statement of the bare expenses of transportation, that the cost so stated, 41 8-10th cents per ton. Adding the sums which the committee, as above mentioned, have transferred to transportation account—the corrected cost is 42 54-100 cents; and adding in the proportion of *general* expenses of the transportation chargeable on coal, the committee assert,

"The cost of transporting a ton of coal during the above period, including the proportion of all expenses properly chargeable upon coal is therefore 47 79-100 cents."

Specification III. requires the same examination of the accounts since Nov. 30, 1844, as far as made up—the quantity of coal carried, and the cost of transportation. The answer embraces a period of eight months, from Nov. 30th, 1844 to July 31st, 1845, including the winter season. The amount of coal brought down was 429,920 tons—the aggregate of expenses, determined in the manner adopted by the committee, \$192,724 15, or 44 83-100 cents per ton.

Specification IV. relates to the bond account of the company. The answer contains much information, but as it is mainly corroborative of the accounts of the company, we must refer to the published reports. Appended are several laboriously compiled tables, which present this information in detail. The following extract will show the nature of the charges which have been urged against the company.

"Whether any other, or more correct statement of such bonds had been prepared for the stockholders, which statement was suppressed with a view to deceive the stockholders or the public, and particularly parties, then in negotiation with the company."

"We met with no account of any such occurrence in the books or papers submitted to our inspection,

but a verbal explanation was made by some of the officers to this effect. The report was prepared in the usual way, and sent to the press, containing an account of the mortgages then executed, and to be held by certain trustees, for the benefit of such persons as might become the purchasers of the bonds intended to be secured by them. The statement contained the whole amount of bonds thus authorized to be issued, when in fact only a part of them had been negotiated. Under these circumstances it was feared that the true character of the statement would be misapprehended, and the debt be supposed to exceed its actual amount. This portion of the report was, therefore, stricken out, which neither changed the character, nor altered the amount of actual liabilities. The amount, as stated in the report, is correct, and we were further informed by the officers that no negotiation for a loan was pending at that time."

The following items of information are also given in answer. The amount of bonds paid from Nov. 30th, 1844, to Aug. 1st, 1845, is \$42,500. The amount negotiated during the same time, \$20,142. Charges and commission, do., \$1,160. The whole amount of bonds outstanding to August, \$6,619,200. The whole commission, charges and loss on these, \$1,494,046 89. Bonds pledged as collateral, \$1,443,800.

The answer to specification V. states that no reason whatever could be found to distrust the correctness of the weekly and monthly statements.

"Specification VI. 'What is dumpage? What the amount of the charge for dumpage in the year ending the 30th November, 1844? What has it been since that time? What has it averaged per ton during these periods respectively?'

"Dumpage is represented to be an allowance made to the consignee of coal when it is dropped upon a wharf at Richmond, instead of being delivered on board of a vessel, and is designed to compensate in part for the additional charges incurred under such circumstances in shipping it. It is thus dropped, when from any cause vessels are not ready to receive it, or the owner is not desirous to ship it, because the company cannot without serious interruption of their business, permit their cars to remain idle. To avoid this alternative, they have shared the necessary additional expense with the consignee. The amount paid for the year ending November, 1844, was \$26,416 64, and from that day to August 1st, 1845, \$21,724 76. The average per ton for the first period is 6 79-100 cents—for the second is 4 12-100 cents.

"The facts show that the allowance for dumpage was made on 40 per cent. of all the coal transported on the road for the eight months ending July 31st, and that its total amount causes a considerable drain upon the income of the company."

Specification VIII. answer, states that no bonus appears to have been paid at any time by the company to induce boatmen to run from Richmond.

The answer to specification IX. is of such importance, and conveys so much information, particularly in regard to the much disputed point—wear of rails—that we give it entire.

"The condition of the *roadway, bridges and track* generally of the road; whether they are kept in such good and proper order and repair, as on well managed roads generally; and the state of the several kinds of rail in use on the road, and their adequacy to sustain for the future the heavy trade now on the road."

"The road as we have remarked is ninety-four miles long, extending from Mount Carbon, near the sources of the Schuylkill, down the valley of that river, with a double track, and without any ascending grades to a point about six miles from the Delaware river, where the coal trade diverges, crossing from the west to the east bank of the river, and thence direct to tide water at Richmond above Philadelphia, while the track for passengers and other purposes is continued down the Schuylkill valley till it unites with a railway belonging to the state of Pennsylvania, called the Columbia or State road, which leads into the city of Philadelphia. The track designed exclusively for the coal trade has an

ascending grade between the Schuylkill and Delaware rivers, of 40 feet to the mile for 1 40-100 miles, and on this part of the road the coal trains are aided by an additional heavy engine. The road connects upon the bank of the Delaware with thirteen commodious wharves projecting from the bank into the river with ample docks between, and so arranged as to accommodate in a safe and convenient manner, a large number of vessels. When a loaded train arrives, the cars are run upon any of the wharves which suit convenience, and the bottoms being so constructed as to open at pleasure, the load of any one is carried almost instantly by a chute into the hold of the vessel designed to receive it. For despatch and economy of labor the arrangements for unloading the cars, and loading the vessels can scarcely be surpassed.

"As the road penetrates the region of coal branches, which are the property of others, diverge from it, and connect with the important points where mining operations are carried on. The cars are taken up these lateral tracks, and return to the points where the trains are arranged and despatched for tide water."

"These brief explanatory remarks will make the extent of the work and its general adaptation to the purposes for which it is designed, by a connection at one terminus with the mines, and at the other with navigable water and the city of Philadelphia sufficiently obvious. We will, therefore, without further comment, proceed to reply to the proposed inquiries.

"We passed up and down the road, saw the operations of business, inspected the principal stations and workshops, examined and compared the different qualities of rail, and the effect produced upon the rail and particularly upon the curves by the action of the trains at many points, noticing, as we passed, the general appearance and condition of the work. Our observations upon many parts were necessarily hurried, but upon others, time was taken for a more deliberate and careful examination.

"The road bed is well formed, neatly finished, judiciously prepared for the superstructure, and the system of drainage is well arranged and well executed.

"Such of the bridges as required it, have been suitably strengthened, and appear to sustain with firmness the heavy trains, loaded with from four to five hundred tons of coal, and are well protected against incendiaries by watchmen.

"The track both in line and surface is superior to the roads generally in the middle states, and compares favorably with those in the eastern states.

"The rails are united in an approved manner, the joints being well made, and the cross ties are of sufficient dimensions and generally sound.

"The form of the rail is uniformly H but varies in weight and proportions in different parts of the track. From the foot of the inclined plane, on the Columbia railroad to Reading, the weight of the rail is 45 lbs. to the yard, and 52 lbs. to the yard upon the residue of the route. The outer rail of some of the curves, as might be anticipated, is considerably worn by the flange of the wheels, and we noticed occasionally, rails, the caps of which had spread, but saw no such evidence of wear, as led us to believe that extensive renewals will be required for a long time to come.

"We noticed one mile of this track laid with the lightest rail which, owing to circumstances connected with the preparation of the road bed for the second track had been used more than any other part. The fact that more than 1,300,000 gross tons had passed safely over it, induced us to bestow upon it great attention, and to note with exactness its present condition and probable capacity for future service. The rails upon the straight part were in a sound condition, and disclosed no visible indications of any inferiority to the rest of the track. Those upon the outer line of the curves were considerably worn, but they had neither failed nor given any indications of failure, and though their strength is of course somewhat impaired by the wear, we entertain the belief that with ordinary repairs they will continue to do good service for years.

"In speaking of this track our object is to present its leading characteristics, and having done so, we will barely repeat that in our judgment its condition is quite satisfactory.

"The new track, with the exception of ten miles,

is laid with iron, weighing sixty pounds to the yard.

"This heavy rail is well proportioned, and of a form that promises great durability. It now exhibits an appearance similar to new iron generally. It scales in places, and occasionally a defective rail is seen, but these are results incident to new iron when put upon such service. The rail from Baughm's town to Reading, which constitutes the exception, is neither equal to the above in weight, form or material. It weighs fifty-five pounds to the yard, scales more, exhibits more defects, and promises less durability. The down trains run upon this new track."

"We conclude our remarks on the rails by saying, that after examination, and on comparing their appearance and condition with those of the rails of other roads, with which we are familiar, we have found no such definite indications of wear as will enable us to calculate either the amount of service, or the length of time, which is to render them inadequate to the work to be done upon them. That they will share the common fate of railroad iron and of everything else, and wear out at last, and that their duration will depend mainly upon the weight and speed of the trains passing over them, is evident; but that the particular service to which they are appropriated is much more destructive than that of railroads generally is not manifest. We say confidently that the experience upon this road does not yet furnish just reason for apprehension. Trains of great weight, making in the aggregate an immense tonnage, have been drawn over these rails by engines of great weight and power at a speed of 14 miles an hour, and the rails, even the lightest, are yet in a good condition. The weight to be transported will be greater by far than that to be borne on any other railroad in the country, and the wear and tear of the road, otherwise expensive, by reason of its numerous bridges, will be in proportion to its business. But we entertain the opinion that by the use of engines of uniform and great weight, and of trains of a maximum length, and by having an ample supply of engines and coal wagons, the company will be able to reduce the speed of its trains to less than eight miles per hour, and that this reduction of speed will compensate in a great degree for the wear occasioned by the greater weight of the trains. Hence we see no reason to doubt that this railroad is well adapted, with ordinary and seasonable repairs, to sustain a great trade without any extraordinary destruction of the iron."

Specification X. regards the machinery; this is pronounced to be in good working condition, as otherwise it would be inadequate to the severe demand upon it.

"That some idea may be formed of the magnitude of the business, we will bring to notice the fact, that in the month of July last, 104,000 tons of coal were brought from the mines to tide water, being an average of 4,000 tons daily, requiring 2,000 cars out of 3,100 to be in motion up and down the road daily."

The following remarks are given by us with the most sincere pleasure, conveying, as they do, a well deserved commendation of the abilities of the excellent superintendent, Mr. G. A. Nicolls. We have reason to know that this is not a mere compliment, but that the extraordinary abilities of the superintendent produced a strong impression upon the gentlemen of the committee, as well as upon all others who have seen the immense amount of business controlled by a single mind.

*. In order to show the precise character of the injury done to the rails which have been removed from the track, the committee caused a special examination to be made of so many of them as chanced to be in the company's yard in Pottsville. The whole number on hand was 209 bars. Of this number,

13	were split.
10	were spread, flattened, or crushed at the end.
5	" " " " one foot from the end.
8	" " " " two feet from the end.
7	" " " " three " "
6	" " " " four " "
8	" " " " five " "
2	" " " " six " "
10	" " " " in the centre.

209 total.

"In closing our remarks upon matters appertaining particularly to the transportation department, we think it proper to add, that we were struck with the order, harmony and efficiency of the arrangements, and with the regularity and ease with which results of such magnitude were effected. We consider the organization of the system, which thus regulates a business equal in a single month to the whole annual trade of many other railroads, to be a proof of a degree of skill, ingenuity and perseverance in the superintendent, quite uncommon, and worthy of being thus brought to the particular notice of the stockholders."

In answer to specification XI. the wharves, workshops, stations, etc., are said to be in excellent order and well arranged to facilitate business.

Specification XII. refers to the liabilities of the company, and their increase since Nov. 30th, 1844. The information conveyed in the answer is of no general interest, further than that given in the annual report. The total investment up to July 31st, 1845, is \$10,603,992 15; the actual liabilities, \$8,596,705 21. From Nov. 30th, 1844, to July 31st, '45, the additions to the company's property amount to \$657,681 77; to which we conceive an item of \$21,933 57 for land damages should be added. The committee give the details of this expenditure, which show that the outlay has been judicious, and for actual increase of property, not for repairs or any other purpose.

Specification XIII. requires a comparison of the estimated traffic of 1845, with the actual traffic. The estimated receipts were \$1,124,000—the actual receipts for eleven months, \$1,015,374 69. The quantity of coal to be transported estimated at 800,000 tons—the actual quantity for eleven months, 783,000 tons.

In answer to specification XIV. the trade for 1846 is estimated at 1,250,000 tons, to meet which an increased force is recommended.

In conclusion the committee advise the measure already referred to, the funding of the floating debt, and as this has already been accomplished, we need not repeat what has been given in the annual report.

To estimate the future prospects of the road three periods are considered: November, 30th, 1843, to November 30th, 1844—November 30th, 1844, to July 31st, 1845—and six months ending November 30th, 1845. Taking the net revenue for these periods, and allowing for repairs, etc., the committee say:

"The profit on the first period would give a dividend at the rate of 2 21-100 per cent. per annum on \$10,000,000.

"The profit on the second period would give a dividend at the rate of 3 22-100 per cent. per annum on \$10,000,000.

"The profit on the third period would give a dividend at the rate of 8 61-100 per cent. per annum on \$10,000,000."

The conclusion of the report we give entire.

"We have now disposed of the long and complicated list of propositions submitted for our examination, and repeat that we have in all cases referring to matters of account, stated the facts as we found them upon the books and papers of the company. These examinations have necessarily brought us into contact with many of the officers and agents of the company, who have been called upon for vouchers and explanations in regard to their respective departments, and we have discovered in none of them any disposition to conceal, withhold or disguise the facts, but on the contrary a hearty willingness to aid our inquiries.

"Our statements in regard to the road, the shops, wharves, machinery, etc., are the result of personal inspection made in the manner and under the circumstances which we have mentioned. We may perhaps with propriety add, that two of our number have had much experience in the superintendence and management of similar public works, that another has for many years been a director upon one of the principal roads in Massachusetts, and that

we are all familiar with the working of some of the best railroads in New England.

"Such qualifications as we possess have been devoted to this service, with no other aim than to collect and state the facts as they have from step to step, through a minute examination in detail, come to our knowledge. We cannot of course vouch for the truth of the books, the vouchers and memoranda, laid before us, but we can say, that as far as our investigations went, we met with nothing which indicated to us the existence at any time of any purpose to make false or fraudulent entries in the books, or to withhold, disguise or conceal the facts. If any one has been guilty of such misconduct, during the periods of our inquiry, and in relation to the matters investigated by us, the evidence of it has entirely eluded our observation.

"Having now distinctly stated our views, we forbear to enforce them by argument, leaving their merits to be tested by your judgment, as it shall decide for their adoption or rejection.

"To say that this investigation has been long, tedious and perplexing, but imperfectly describes its character, yet if it shall terminate in reviving the credit of the company, and in placing its affairs in a state of prosperity, it will have been neither vain nor fruitless.

JOHN DAVIS,
ROBERT SCHUYLER,
AMOS BINNEY,
W. RAYMOND LEE.

The Outlet Lock on the Delaware Division.

The legislature, at its recent session—says the Ledger—passed a law authorizing the construction of an outlet lock at Wells' Falls, to form a connection between the Delaware division of the Pennsylvania canal and the feeder of the Delaware and Raritan canal. The following communication which we have received shows the importance of this measure to Philadelphia:

"Outlet Lock on the Delaware Division.—The legislature have at length settled a controversy of eleven years' standing, and which has excited no little animosity between the contending parties, by passing an act for the construction of an outlet lock, to form a connection between the Delaware division of the Pennsylvania canal and the feeder of the Delaware and Raritan canal. It is to be located at the head of Wells' Falls, about half a mile below New Hope. The governor approved this act on the 20th inst.

"By this outlet the Lehigh coal will be saved the expense of running the boat fifty-four miles, and a lockage of 224 feet, in addition to the expense and detention caused by towing on the Delaware river, from Bristol to Bordentown and back, in going to the New York market.

"An immense opposition was got up to this improvement, originating in the desire of the Morris canal company to force the trade away from the Delaware division, and into the Morris canal from Easton to New York. Rival coal interests joined in the opposition, and alarmed the councils of Philadelphia with the idea that this outlet was to carry all her trade to New York.

"Now the law is passed, and the outlet certain to be made, people may calmly examine the matter. By doing so, they will find that the outlet will induce a new trade. It will offer, to the country watered by the north branch of the Susquehanna, and to the southwestern counties of New York, by means of the Lehigh and Susquehanna railroad, connecting Wilkesbarre with Whitehaven and the Lehigh navigation, the choice of three markets—Baltimore, Philadelphia and New York. Of these, Philadelphia is the nearest by about fifty miles; and if her markets will afford only equal inducements, she must have the preference.

"It would be derogatory to the character of

her merchants to anticipate a contrary result. Let them then turn their eyes to this route.— They will then perceive that they have a deep interest in the completion, at as early a period as possible, of the North Branch canal. The legislature of New York, I am informed, have consented to the connection of this work with the improvements of that state, which will complete the chain of communication with the lakes and the whole west.

WELLS' FALLS."

St. Lawrence and Atlantic Railroad.

"Letters from Montreal," says the Portland Advertiser of 28th April, "bring information of the choice of directors of the St. Lawrence and Atlantic railroad company on the 15th. The following are the names of the gentlemen chosen:

- Hon. George Moffatt, Wm. Molson, Esq.
- " A. N. Morrin, John Young, Esq.,
- " Peter McGill, of Montreal.
- " Thos. A. Stayner, A. T. Galt, Esq. and
- John Torrance, Esq. Samuel Brooks, Esq.,
- John Frothingham, Esq. of Sherbrooke.
- Thomas Cringan, Esq. Wilder Pierce, Esq.,
- George Desbarats, Esq. of Stanstead.

"The board is a very strong and influential one. A greater interest was manifested than was ever before witnessed, and all were desirous of seeing the work go forward. Great unanimity and harmony prevailed.

"A. C. Morton has been appointed principal superintending engineer of the whole line, by the joint action of both boards. Engineering parties are organized, and in a month or two, 30 miles of the line from Montreal will be ready for contract."

We are gratified to learn that this work is to be commenced and pushed forward with spirit.

Iron Region of the West.

The Maysville (Ky.) Eagle furnishes the following statement in relation to the manufacture of iron in that immediate region. There are few people at a distance who have any idea of the extent of the manufacture of iron in that region; and there are other sections of country where an equal amount of iron is made, of which as little is known. We are obliged to the editor of the Eagle for this list of furnaces, and should have been still more so if he had given their location more definitely—their postoffice for instance.

"The present tariff has operated very favorably in the revival and heavy increase of the iron business all over the union. There are now six furnaces in Greenup county, in this state, and seventeen in the three adjoining counties of Scioto, Lawrence and Jackson, in Ohio, all profitably engaged. Nearly, or quite one-half of these were compelled to suspend operations in consequence of the low price of iron, several years since. A glance at the following table, which we find in the last Portsmouth Tribune, will show how intimately connected with those of the whole state of Pennsylvania are the interests of those sections of Ohio and Kentucky in the preservation of a reasonable tariff upon foreign iron. If twelve thousand persons, in less than four counties, are directly and as many more indirectly, dependent upon the iron business for the necessaries of life, what an immense interest is at stake, when reckless politicians are not content with a tariff whose minutest workings have been felt beneficially upon the business of the country. The great amount of capital invested, the growing competition, and the steady demand at a fair living profit for all that can be manufactured, has revived business. No country is so rich in mineral resources as our own, and we cannot too greatly encourage every enterprise that develops them, and contributes so powerfully to swell the national wealth.

BLAST FURNACES IN SCIOTO AND LAWRENCE COUNTIES, OHIO.

Names of Furnaces.	Names of Owners.	Will make this year tons of pig iron.	Heat.
Franklin.....	Gould, Hurd & Co.....	1600..	hot.
Junior.....	J. W. & D. A. Glidden.....	2000..	"
Scioto.....	Vorbes & Mansur.....	1800..	h. & c.
Bloom.....	James Murfh & Co.....	1500..	hot.
Clinton.....	Gaylord & Co.....	1500..	cold.
Buckhorn.....	Willard, James & Co.....	1800..	hot.
Mt. Vernon.....	Campbell, Ellison & Co.....	1850..	"
Lawrence.....	Culbertson, Means & Co.....	1900..	"
Center.....	Hamilton, Shiras & Co.....	1600..	"
Etna.....	Dempsey, Rogers & Co.....	1500..	cold.
Vesuvius.....	W. A. McClurg.....	1500..	hot.
La Grange.....	W. A. McClurg.....	1500..	"
Hecla.....	Henry Blake.....	1700..	cold.
Pine Grove.....	R. Hamilton.....	1800..	hot.
Union.....	Sinton & Means.....	1500..	"
Ohio.....	Sinton & Means.....	1800..	"
Jackson County, Ohio.			
Jackson.....	Hanna, Ellison & Co.....	1500..	"
Greenup County, Ky.			
Raccoon.....	A. Cole & Co.....	1500..	cold.
Amanda.....	A. Paull.....	1500..	"
Bellefonte.....	L. Pogue.....	1600..	"
Clinton.....	Wm. Patterson.....	1500..	"
Pennsylv'a.....	Wurtz & Brother.....	1500..	"
Greenup.....	Campbell & Willard.....	1500..	"

Making, tons,..... 37,450, which at \$30 per ton, the current market price, amounts to \$1,123,500.

Each furnace employs on an average	hands.	100
And sustains.....	persons.	400
Consumes Flour.....	bbls.	360
Corn meal.....	bushels.	1,000
Corn.....	"	10,000
Bacon.....	pounds.	50,000
Beef.....	"	20,000
Potatoes.....	bushels.	1,500

Besides other provisions, and teas, sugar and coffee in proportion.

Distances from Oahu, Sandwich Islands.—A correspondent of the Polynesian gives the following memorandum of distances:

From	Degrees.	Eng. miles.
From Oahu to Panama.....	76	5,282
" " Tahiti.....	40	2,780
" " Port Jackson.....	63	5,073
" " Columbia river.....	36	2,502
" " Kamschatca.....	44½	3,092½
" " Valparaiso.....	97	6,749½
" " Lima.....	85½	5,942½
" " Canton.....	80	5,560
" Canton to Boston, per Cape Good Hope.....	217	15,081½
" Boston to Oahu, per Cape Horn.....	217	15,081½
" Oahu to Canton, Boston and back.....	514	35,723
" Oahu to New York, per Panama.....	108	7,506
" Oahu to New York, per S. Blas.....	89	6,116
" Oahu to Lands' End, per Panama.....	147	10,216½

Western Railroad Receipts.—Comparative statement of receipts on the Western railroad for three months ending March 31st, 1845 and 1846, viz:

	1846.	1846.	Increase.
Passengers.....	\$60,825 01	\$76,346 77	\$15,521 76
Freight.....	79,063 72	99,726 58	20,662 86
Othersources.	5,670 33	6,554 34	884 01
	\$145,579 06	\$182,637 69	\$37,058 63
Total increase in 3 months.....			\$37,058 63

Comparative statement of the business on the Philadelphia and Reading railway during the third week in April, for three years, viz:

	1844.	1845.	1846.
Travel.....	\$1,767 91	\$2,230 67	\$2,998 32
Freight on goods.	1,124 94	2,158 29	3,803 98
Do. do. coal..	7,492 08	10,629 19	27,817 79
	\$10,384 93	\$15,018 15	\$34,620 09
Coal trans., tons.	7,646	10,872	22,421

Erie Railroad.—The earnings of the eastern division of the Erie railroad for the month of April, 1846, were as follows:

From freight.....	\$10,033 41
" Passengers and mails.....	5,381 59
Total.....	\$15,415 00
Same time last year.....	13,105 18

Increase..... \$2,311 82

On the 1st of April, the rates of fare were reduced 30 per cent.; still, the receipts from passengers were \$921 30 (or more than 20 per cent.) greater than they were in the same month last year.

Yet, with results so encouraging, and prospects so fair, a bill to ensure the early construction of the road has been lost!

Business of the Madison and Indianapolis railroad.—The following account of the business of the railroad during the week ending April 18, 1846, is from the Indianapolis Sentinel of 23d April.

Outward.	Inward.
257 passengers,	213 passengers,
163,000 lbs. merchandise,	716 bbls. flour,
24 bbls. salt,	2,055 bush. wheat,
45 bbls. whiskey,	731 bush. corn,
16 bbls. molasses,	30,000 feet lumber,
10 bbls. tar and oil,	10,000 staves,
10 hf. bbls. beer,	20 cords wood,
250 bush coal,	21,000 lbs. other freight.
6 kegs powder,	
10 ploughs,	
Flour, 3.75. Wheat, 66.	

Yours, W. N. J.

Railroad Passenger Trains Leaving Boston Daily, Except Sundays.

We copy the annexed list of departures from Boston by railroad and steamboat, from the Traveller. It will be found exceedingly useful to travellers: and interesting to many, who like to know how such matters progress, even though they do not travel much. For the convenience of our readers we shall keep it standing, and endeavor to correct it as changes are made.

PASSENGER TRAINS LEAVE BOSTON DAILY.

For	Depot.	Hours.
Albany.....	Worcester.....	7½ a.m., 7 p.m.
Andover.....	Me. Extension.....	7½, 11½ a.m. 2½, 4½, 6 p.m.
Concord, Ms.	Charlestown.....	7 a.m. 1½ p.m.
Concord, NH	Lowell.....	7, 11 a.m. 5½ p.m.
Dedham.....	Providence.....	8 a.m. 12½, 3½, 6½ p.m.
Dover.....	Me. Extension.....	7½ a.m. 2½, 4½ p.m.
Fitchburg.....	Charlestown.....	7 a.m. 1½, 5 p.m.
Fresh Pond.....	".....	6, 10 a.m. 1½, 4½ p.m.
Fall River.....	Providence.....	8½ a.m. 3½ p.m.
Hartford.....	Worcester.....	7½ a.m. 4 p.m.
Haverhill.....	Me. Extension.....	7½, 11½ a.m. 2½, 4½, 6 p.m.
Lowell.....	Lowell.....	7, 9, 11 a.m. 2½, 5½ p.m.
Millbury.....	Worcester.....	7½ a.m. 4 p.m.
Nashua.....	Lowell.....	7, 11 a.m. 5½ p.m.
Newburyport.....	Eastern.....	7½, 11½ a.m. 2½, 5½ p.m.
New Bedford.....	Providence.....	7½ a.m. 4½ p.m.
New Haven.....	Worcester.....	7½ a.m. 4 p.m.
Newton.....	".....	7½, 9½, a.m. 1½, 2½, 4½, 6½, [8½ p.m.]
Norwich.....	".....	7½, 8½, a.m. 5 p.m.
Plymouth.....	Old Colony.....	7½ a.m. 5 p.m.
Portland.....	Eastern.....	7½ a.m. 2½ p.m.
".....	Me. Extension.....	7½ a.m. 2½ p.m.
Portsmouth.....	Eastern.....	7½ a.m. 2½, 5½ p.m.
Providence.....	Providence.....	7½ a.m. 4 and 5 p.m.
Reading.....	Me. Extension.....	7½, 9, 11½ a.m. 2½, 4½, 6, [8 p.m.]
Salem.....	Eastern.....	7½, 9, 11½ a.m. 12½, 2½, [3½, 5½, 6½, 8½ p.m.]
Somersworth.....	".....	7½ a.m. 2½ p.m.
".....	Me. Extension.....	7½ a.m. 2½, 4½ p.m.
S. Braintree.....	Old Colony.....	7½, 10½ a.m. 2½, 5, 7 p.m.
Springfield.....	Worcester.....	7½ a.m. 4 p.m.
Stoughton.....	Providence.....	11½ a.m. 5½ p.m.
Taunton.....	".....	7½ a.m. 4½ p.m.
Worcester.....	Worcester.....	7½ a.m. 1½, 4½ p.m.
Waltham.....	Charlestown.....	7, 10 a.m. 1½, 2½, 5, [55 p.m.]
Woburn.....	Lowell.....	8, 11½ a.m. 3, 6 p.m.

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 17

RAILROAD IRON—500 TONST RAILS
—60 lbs. to the yard. Depth of rail, 3 1/4 inches; width of base 4 inches; width of top, 2 1/2 inches; length of bars 15 and 17 1/2 feet. Apply to,

A Steam Pile Driver—built by "Dunham & Co."—in complete order; has never been used, and for sale a bargain. Cost originally \$5,000. Also 12 Railway Passenger Cars, that have never been used, which will be sold a bargain. 8

DAVIS BROOKS & CO.,
39 Wall street

April 11. 17

TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture and for sale by

MORRIS TASKER & MORRIS,

Waratouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by

JOHN W. LAWRENCE,
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1/2

A. & G. RALSTON & CO., NO. 4

South Front St., Philadelphia, Pa.
Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/4 x 1/4 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/2 x 1/4 " Flange Iron Rails. 75 " 1 x 1/4 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/4 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,
Albany Iron and Nail Works,

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.
Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

STEPHENS' RULING AND MECHANICAL Drawing Ink, for Engineers, Artists and Designers. This article will be found superior to the best Indian Ink for the above purposes. It does not smear with India rubber or wash off with water. It flows freely from the drawing pen, and never corrodes or encrusts it. It may be used on a plate or slab, with a camel's hair brush, diluting it with water, or thickening it by drying, as required. It has the advantage of being ready for immediate use.

Sold in conical-shaped bottles, convenient for using from, without any stand, at 15 cents each.

ALSO,

STEPHEN'S WRITING FLUIDS.

These compositions, which have so remarkably extended the use of the STEEL PEN, are brought to great perfection, being more easy to write with, more durable, and in every respect preferable to the ordinary ink. In warm climates they have become essential.

They consist of a Blue Fluid, changing into an intense Black color.

A Patent Unchangeable Blue Fluid, remaining a deep Blue color.

A Superior Blue Ink of the common character, but more fluid.

A brilliant Carmine Red, for Contrast Writing.

A Carbonaceous Record Ink, which writes instantly black, and being proof against Chemical Agents, is most valuable in the prevention of frauds.

Also, a new kind of MARKING INK for Linen and Inkstands adapted for; preserving Ink from evaporation and dust.

Sold in Bottles of various sizes, by all Stationers and Booksellers.

Be sure to ask for Stephens' Writing Fluid.

N. B.—These unchangeable Blue Fluids are Patent Articles; the public are therefore cautioned against imitations, which are infringements, to sell or use which is illegal.

Stephens' Select Steel Pens.

The utmost possible care having been bestowed upon the manufacture of these articles, so as to prepare the highest finish, they can be confidently recommended, both for flexibility and durability.

All the above articles are prepared by Henry Stephens, the inventor, No. 54 Stamford-street, Blackfriars road, London, and sold by Booksellers and Stationers in bottles of various sizes, and may be had wholesale from the agents in Boston, New York, Philadelphia, Baltimore, Washington, Charleston, New Orleans, and St. Louis.

Wm. W. Rose, Wall-street, New York, is my general agent in the United States.

VALUABLE PROPERTY ON THE MILL

Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 1/2 feet two stories high, with a shed part 45 1/2 x 20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & CO., Philadelphia. ja45



RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.—Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited. S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open. JOHN BATAILLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat. (Signed.)

RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards. (Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138 1/2 Water st., N. Y.

Also by Isaac Bridge, 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street, Charleston, S. C. 16 1/2

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846. Spring Arrangement. 1846
Commencing April 1st.
Passenger trains leave daily, Sundays excepted—
Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6½ " and 2½ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Boston and New York, via Springfield: Passengers leaving Boston at 4 p. m., arrive in Springfield at 8 p. m., proceed directly to Hartford and New Haven, and thence by steamers to New York, arriving at 5 o'clock a. m.

For Buffalo: the trains for Buffalo leave Albany at 7½ a. m. and 7 p. m., arriving at Buffalo at 8 a. m. and 8 p. m. next day. Returning, arrive at Albany at 4 a. m. and 4 p. m.

New York and Boston, via Albany: the trains from Boston arrive at Albany in season for the 7 o'clock boats to New York. Returning, the boats, leaving New York at 5 and 7 p. m., reach Albany at 5 a. m., in ample season for the morning trains to Boston.—Steamboats also leave Albany at 7 a. m. and 5 p. m. and stop at the usual landing places upon the river.

The trains of the Springfield, Hartford and New Haven railroad, connect at Springfield, and passengers from Albany or Boston proceed directly on to Hartford and New Haven.

Montreal: through tickets to Montreal may be obtained in Boston, by which passengers may proceed to Troy, and thence by stage via Chester, Elizabeth, etc., and in the season of navigation by canal to Whitehall, and thence by the splendid steamers of Lake Champlain to St. John, via Burlington, and thence by railroad and steamers to Montreal.

The trains of the Hudson and Berkshire railroad connect at Chatham and State Line.

The Housatonic railroad connects at State Line. The trains of the Connecticut River railroad connect at Springfield, and passengers may proceed without delay to Northampton, and thence by stage to Greenfield, Brattleboro, Bellows Falls, Hanover, Haverhill, etc.

Stages leave West Brookfield for Ware, Endfield, New Baintree and Hardwick; also leave Palmer, for Three Rivers, Belchertown, Amherst, Ware and Monson; Pittsfield for North and South Adams, Williamstown, Lebanon Springs, etc.

Merchandize trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES,
Superintendent and Engineer.
Western Railroad Office,
Springfield, April 1, 1846. } 14 1y

MANUFACTURE OF PATENT WIRE
Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by
JOHN A. ROEBLING, Civil Engineer,
Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.
PETER COOPER, 17 Burling Slip.
New York, January 23d, 1846. 1y 10

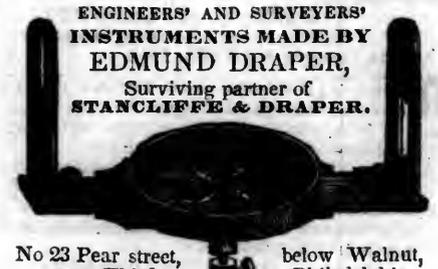
C. J. F. BINNEY,
GENERAL COMMISSION MERCHANT
and Agent for Coal, and also Iron Manufactures, etc.
No. 1 CITY WHARF, Boston.
Advances made on Consignments.
Refer to Amos Binney, Boston.
Grant & Stone,
Brown, Earl & Erringer, } Philadelphia.
Weld & Seaver, Baltimore.
December 8, 1845. 1m 50

SCRIBNER'S ENGINEERS' AND MECHANICS' Companion. For sale at this office.
Price \$1.50.

LARD OIL FOR MACHINERY, ETC.—Winter pressed, cleansed from gum, and manufactured expressly for engines and machinery of all kinds, railroads, steamboats, woollen and other manufactures, and for burning in any lamp without clogging the wick. Engineers of railroads and others who have used this oil, and to whom reference can be made, give it preference over the best sperm for its durability, and not requiring to be cleaned off like that, and costing about two-thirds the price. For sale by the barrel, and samples can be sent for trial, by addressing
C. J. F. BINNEY,
Agent for the Manufacturer,
Boston, Mass.

11 eop 1m

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER,
Surviving partner of
STANCLIFFE & DRAPER.



No 23 Pear street, near Third, below Walnut, Philadelphia.

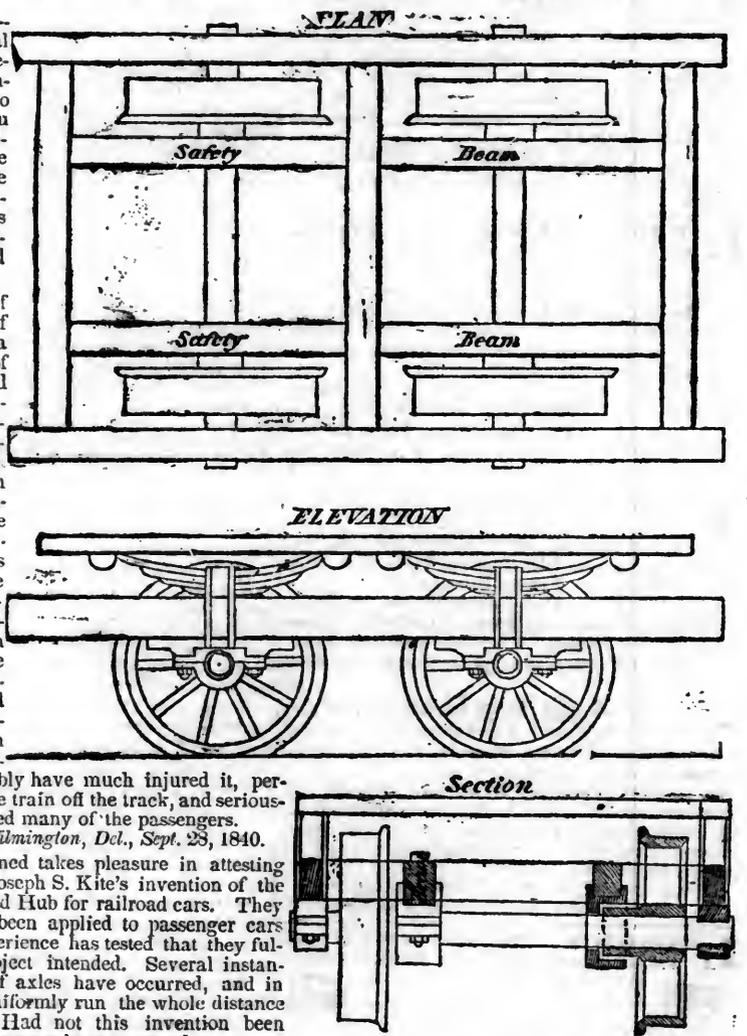
KITE'S PATENT SAFETY BEAM.

MESSRS. EDITORS.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheel passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.
Wilmington, Del., Sept. 28, 1840.

The undersigned takes pleasure in attesting to the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.

In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.
JOHN FRAZER, Agent,
GEORGE CRAIG, Superintendent,
A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 1 Hanover st., N. York.



JAMES ELLIOTT, Sup. Motive Power,
W. L. ASHMEAD, Agent.
ja43

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

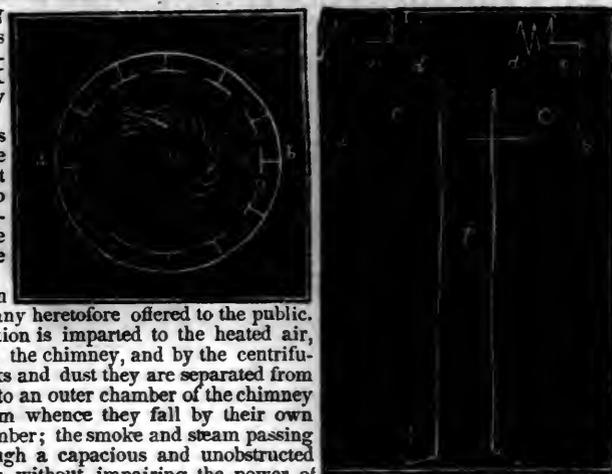
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844. ja45

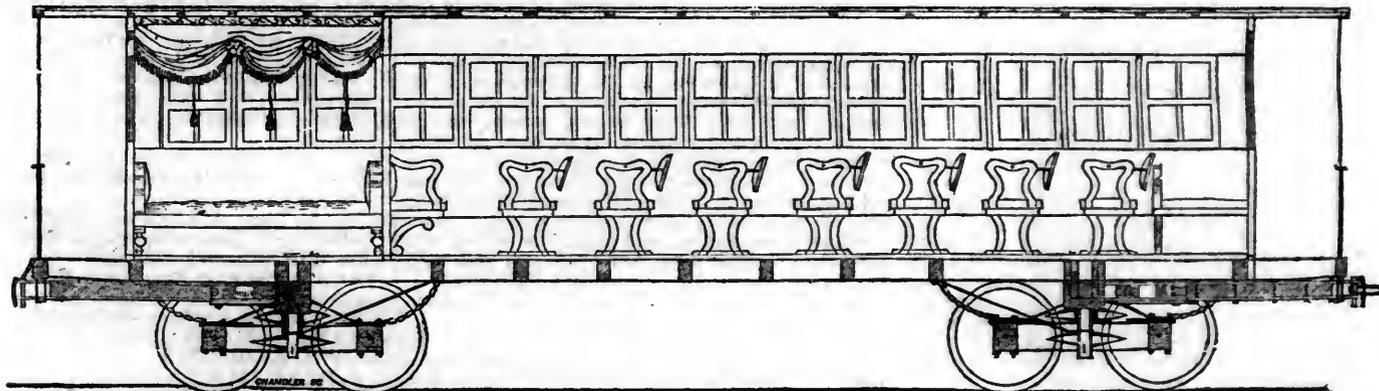
*** The letters in the figures refer to the article given in the Journal of June, 1844.



BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

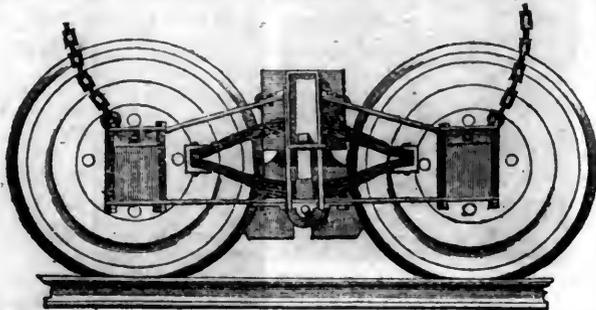
The article is complete in itself, occupies but little space, is perfectly portable, and requires no brick work, not even to stand upon. It is valuable not only in the saving of time and labor, but in the economy of fuel, as it has been ascertained by accurate measurement, that the saving in that article is fully two-thirds over other methods heretofore in use. They are now for the first time introduced into New York and Boston by the subscriber, who has the exclusive right for the New England states, New York and New Jersey, and are manufactured by CURTIS & RANDALL, Boston; and by FORCE, GREEN & CO. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Supt Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

Jersey City, November 4, 1845.

[Signed,] T. L. SMITH,

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

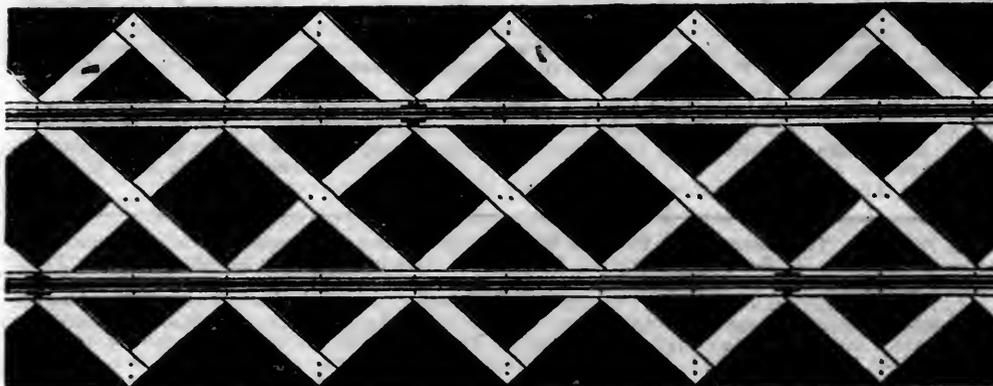
Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

Supt Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY Superstructure effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

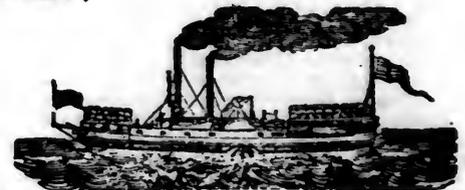
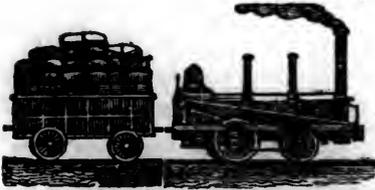
One page per annum.....	\$125 00
One column "	50 00
One square "	15 00
One page per month	20 00
One column "	8 00
One square "	2 50
One page, single insertion.....	8 00
One column " "	3 00
One square " "	1 00
Professional notices per annum...	5 00

- ENGINEERS and MACHINISTS.**
- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
 - TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
 - ROGERS, KETCHUM and GROSVENOR, Patterson, N. J. (See Adv.)
 - VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
 - NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
 - KITE'S Patent Safety Beam. (See Adv.)
 - FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
 - NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
 - ROSS WINANS, Baltimore, Md.
 - JYRUS ALGER & Co., South Boston Iron Company.
 - SETH ADAMS, Engineer, South Boston.
 - STILLMAN, ALLEN & Co., N. Y.
 - JAS. P. ALLAIRE, N. Y.
 - H. R. DUNHAM & Co., N. Y.
 - WEST POINT FOUNDRY, N. Y.
 - PHENIX FOUNDRY, N. Y.
 - ANDREW MENEELY, West Troy.
 - JOHN F. STARR, Philadelphia, Pa.
 - MERRICK & TOWNE, do.
 - HINCKLEY & DRURY, Boston.
 - C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 20.]

SATURDAY, MAY 16, 1846.

[WHOLE No. 516, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m. Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m. Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3½ p.m. All baggage at the risk of the owners thereof. 31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD and STAGES connecting with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m. The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the ½ p.m. train from Boston. New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday. Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich. New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville. Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent. *Fares are Less when paid for Tickets than when paid in the Cars.* 32 ly J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco. Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows: Boston for Portland at 7½ a.m. and 2½ p.m. Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m. Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m. Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m. Portland for Boston at 7½ a.m., and 3 p.m. Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m. Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m. Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m. The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value. CHAS. MINOT, *Super't.*

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and the Western and Atlantic Railroad now forms a continuous line, 368 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia. Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot.....16 cts. " Dry goods, shoes, saddlery, drugs, etc., per 100 lbs.....65 " " Sugar, coffee, iron, hardware, etc.....65 " " Flour, bacon, mill machinery, grindstones, etc.....33½ " " Molasses, per hogshead \$9.50; salt per bus. 20 " " Ploughs and cornshellers, each.....75 " Passengers \$10.50; children under 12 years of age half price. Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga. J. EDGAR THOMSON, *Ch. Eng. and Gen. Agent.* Augusta, Oct. 21 1845. *44 ly

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS— Leave New York at 7 A.M. and 4 P.M. " Middletown at 6½ A.M. and 5½ P.M. FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT— Leave New York at 5 P.M. " Middletown at 12 M. The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P.M. in New York. Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, *Sup't.*

March 25th, 1846. Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 lf

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Piusburgh. Time of arrival at both Cumberland and Baltimore 5½ P.M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pitsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pitsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P.M., and from Frederick to Baltimore at 8 A.M.

WASHINGTON BRANCH. Daily trains at 9 A.M. and 5 P.M. and 12 at night from Baltimore and at 6 A.M. and 5½ P.M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13yl

BALTIMORE AND SUSQUEHANNA
Railroad. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a.m., and arrives at 6 1/2 p.m. Arrives at York at 12 1/2 p.m., and leaves for Columbia at 1 1/2 p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62 1/2. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3 1/2 p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc.

Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day any passenger train.

D. C. H. BORDLEY, *Supt.*
Ticket Office, 63 North st.

31 ly

CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$3 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods... 13 cts. per cubic ft. On brls. wet (except molasses and oil)... \$1 50 per barrel. On brls. dry (except lime)... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery... 40 cts. per hundred. On bhds. and pipes of liquor, not over 120 gallons... \$5 00 per hhd. On molasses and oil... \$6 00 per hhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, Gen'l. Supt. Transportation.

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows: Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4, 30, 5, 6, and 6 30 p. m. Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m. Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m. Leave Harlem and Yorkville, at 7, 10, 8, 10, 9, 10, 11, 10 a. m., and at 12, 40, 2, 3, 10, 5, 10, 5, 30, 6, 10, and 7 p. m. Leave Williams' Bridge and Fordham, at 6, 45, 7, 45, and 10, 45 a. m., and at 12, 15, 2, 45, 4, 45, and 5, 45 p. m. Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams' Bridge trains will be regulated according to the state of the weather. 18

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,** Agents.

Corner of Cedar and Greenwich Sts. 43 ly

LITTLE MIAMI RAILROAD.—1846.—Summer Arrangement.

Two passenger trains daily. On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1 1/2 p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m.

On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m.

Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.

Tickets may be procured at the depot on East Front street.

The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount. W. H. CLEMENT, Superintendent.

19

CALIGRAPHIC BLACK LEAD PENCIL Manufactured by E. Wolff and Son, 23 Church Street, Spitalfields, London.

The Caligraphic Pencils have been invented by E. Wolff and Son, after the expenditure of much time and labor. They are the result of many experiments; and every effort that ingenuity and experience could suggest, has been made to insure the highest degree of excellence, and the profession may rely upon their being all that can be desired.

They are perfectly free from grit; and for richness of tone, depth of color, delicacy of tint, and evenness of texture, they are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use.

The Caligraphic Pencils will also recommend themselves to all who use the Black Lead Pencils as an instrument of professional importance or recreation, by their being little more than half the price of other pencils.

An allowance will be made on every groce purchased by Artists or Teachers.

May be had of all Artists, Colourmen, Stationers, Booksellers, etc.

A single pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

Caution.—To prevent imposition, a highly finished and embossed protection wrapper, difficult of imitation, is put around each dozen of Pencils. Each Pencil will be stamped on both sides, "Caligraphic Black Lead, E. Wolff and Son, London."

The subscriber has on hand a full supply of Wolff and Sons celebrated Creta Loevis, or Colored Drawing Chalks, also their pure Cumberland Lead and extra prepared Lead Pencils, and Mathematical Lead Pencils.

P. A. MESIER,
Stationer and Sole Agent,
No. 49 Wall Street.

N. B.—A complete assortment of Steven's *Genuine* Inks, Fluids, Imitating Wood stains, and Graining Colours at the Manufacturers prices.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Allaire, } New York.
- Peter Cooper, }
- Murdock, Leavitt & Co. }
- J. Triplett & Son, Richmond, Va. }
- J. R. Anderson, Tredegar Iron Works, Richmond, Va. }
- J. Patton, Jr. } Philadelphia, Pa.
- Colwell & Co. }
- J. M. L. & W. H. Scovill, Waterbury, Con. }
- N. E. Screw Co. } Providence, R. I.
- Eagle Screw Co. }
- William Parker, Supt. Bost. and Worc. R. R. }
- New Jersey Malleable Iron Co., Newark, N. J. }
- Gardiner, Harrison & Co. Newark, N. J. }

25,000 to 30,000 made weekly. 35 ly

FLAT BAR, ENGLISH ROLLED, RAILROAD IRON, 2 1/2 x 1/4 — a large part suitable to relay. For sale by C. J. F. BINNEY, Commission Merchant, 1 City Wharf, Boston, Mass

11 lm

TROY AND GREENBUSH RAILROAD. Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at 6 1/2 A.M.	Leave Albany at 7 A.M.
" " 7 1/2 "	" " 8 "
" " 8 1/2 "	" " 9 "
" " 9 1/2 "	" " 10 "
" " 10 1/2 "	" " 11 "
" " 11 1/2 "	" " 12 M.
" " 1 P.M.	" " 1 1/2 P.M.
" " 2 "	" " 2 1/2 "
" " 3 "	" " 3 1/2 "
" " 4 "	" " 4 1/2 "
" " 5 "	" " 5 1/2 "
" " 5 1/2 "	" " 6 "
" " 6 1/2 "	" " 7 "

The 6 1/2 a.m. and 2 o'clock p.m. runs from Troy, to Boston runs.

The 12 m. and 6 o'clock p.m. trains from Boston runs.

Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT,
Superintendent.

Troy, April 1st, 1846.

14 ly

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J.

The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery

of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
a45 Paterson, N. J., or 60 Wall street, N. York.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.

THE SUBSCRIBERS, AGENTS FOR the sale of Codorus, Glendon, Spring Mill and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L. KIMBER, & CO.,
59 North Wharves,
Philadelphia, Pa.

Jan. 14, 1846. [1y4]

RAILROAD IRON AND LOCOMOTIVE
Tyres imported to order and constantly on hand
by **A. & G. RALSTON**
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS.
etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. GUSHMAN, Civil Engineer,
Albany, N. Y.

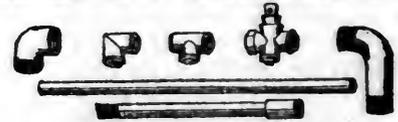
Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

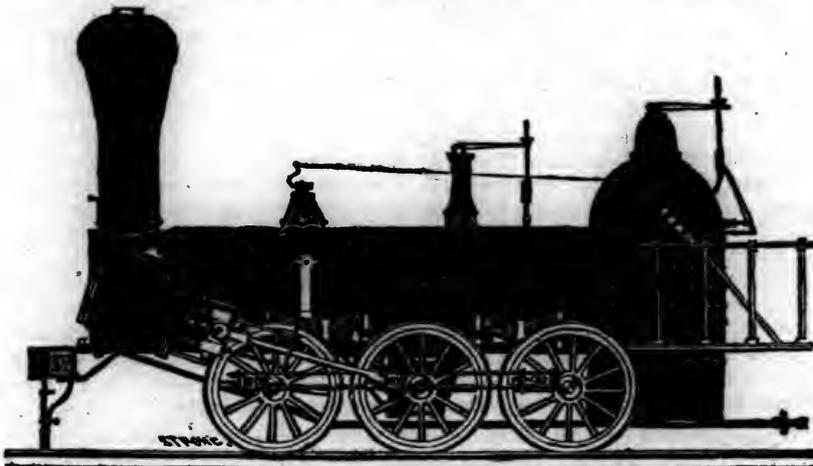
WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with stop cocks, T, L, and other fixtures to suit, fitting together with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
Warehouse E. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
" 2,	14 " " "	× 24 " "
" 3,	14 1/2 " " "	× 20 " "
" 4,	12 1/2 " " "	× 20 " "
" 5,	11 1/2 " " "	× 20 " "
" 6,	10 1/2 " " "	× 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels on the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4 1/2 P.M., Philadelphia at 10 P.M., and Baltimore at 6 1/2 A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00
" " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to
STOCTON & FALLS, Agents.

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions.
ja451y

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee.
G. A. NICOLLS,
ja45 Reading, Pa.

RAILROAD IRON WANTED. Wanted, 50 tons of Light Flat Bar Railroad Iron. The advertisers would prefer second-hand iron, if not too much worn. Address Box 384 Philadelphia P. O.—Post paid. 8 4t

Amalgamation of Railways and the Atmospheric.

We are often amused at the free and independent tone of discussion adopted by the able editor of *Herald's Railway Journal*; and, though we do not always coincide with him in opinion, we read his strictures with both pleasure and profit, and as often give place to those in opposition to, as in accordance with our own views, that our readers may have the advantage of his investigations and suggestions.—The particular remarks to which we now allude are upon the policy of "amalgamation," or bringing several railways under one management, and the "Atmospheric railway," or principle of propulsion, which we find in the number of 29th March.

Upon both of these important questions the editor early recorded his disapproval, and neither of them has thus far gained his favor—as our readers will perceive by the remarks above alluded to. He says:

"We have long been desirous to see more limits put to the extensive amalgamations going on with companies. It will be remembered that we raised our voice against amalgamations years ago, but we were borne down in that by the all but unanimous voice of the country. An amalgamating fever had come over shareholders, and after several vain and fruitless combats, we gave up the contest. It affords us however, satisfaction to find that our views were then right—that these gigantic unions have at length attracted the attention of a power capable of dealing with them.

Amalgamations were at first instituted on the supposition that the working expenses would be naturally lessened. In certain cases of small lines and of particular branches that is so, but it is not a fact when a line exceeds about 100 miles, as we years ago pointed out. An engine generally runs about 50 miles out, and 50 miles home. It is so on the London and Birmingham, Great Western, and Grand Junction. Wolverton, Swindon, and Crewe are about the middle of these lines, and are placed there from the results of their experience. There their locomotive depots are, at which all making, repairs, etc., are executed. The London and Birmingham early saw the necessity of a central point for their locomotive staff. The Great Western for some time had theirs at the London end, and the Grand Junction at the Liverpool.—But though the latter line is only 97 miles, and Liverpool, from being a port, and so near the manufacturing districts, had superior conveniences, they gave up their large establishment there, and removed to the little village of Crewe. The object was to have their locomotives at a more central point, in case of accident. The Great Western have shops at Bristol, where a fresh engine goes on to Exeter. Every one knows that nothing but necessity would induce companies to have their head establishment distant from their principal offices. That necessity determines all lines, above 70 or 80 miles, at whatever inconvenience, to fix their locomotive head quarters about the middle of the line. The object, as we have said, is economy and centralization of power, in case of accidents. If that were not the case, would the Midland have their locomotive establishment at Derby, rather than at Birmingham, the focus of iron man-

ufactures? The companies have indeed themselves pointed out, that 100 miles or thereabouts are sufficient for one length of line; and there is no economy in a greater length, except in the insignificant fraction of expense of management. That indeed is not generally true, as has been proved by the London and Birmingham, themselves increasing their number of directors, on account of the increased length of the lines under their control.

We say therefore, that experience has proved that which we years back contended for, namely, that about 100 miles are as much as should be in any one line.

But another reason against extensive lines is the public safety. In all very long lines, the power is very feeble. It is selfevidently impossible for a board of however many directors it consists, to watch over 200 or 300 miles of line with the vigor and promptitude it can over 80 or 100. It is left, and must be left to servants, and they can be but under a very indifferent control, and therefore, very slovenly perform their duties.

A parade is sometimes made about a long line being under one management. Suppose there was a superior power that should tell companies, and enforce by strongest laws, how they shall work together for the public convenience, would not that be far better than a management spread so thinly over a large space as to be feeble and inefficient? We think it would be infinitely better.

But there are other considerations of far more weight, namely, the public welfare.—Englishmen are naturally jealous of too much power being even in the hands of their sovereign. Is it, therefore, proper that a power should be raised up within us by the mere force of wealth to control the government, and of course the country? In the case of Mr. Hudson at Derby, we have seen the facility with which millions can be raised—a facility that our premier cannot equal—and not a question asked for what purpose. If money can be got in this manner, it can be abused. It has been reported, but we hope it is not true, that £30,000 was paid by one company last year for certain influences. Be this so or not, it is time a stop should be put to large amalgamations, which are of no use to the shareholders, and may be converted to very improper purposes against the public weal.

We are a friend to railways in their commercial relations, but we do not want to see them made political ladders of; we do not like to hear of chairmen and secretaries of railways united together in bribery and corruption cases at elections.

What we have said of amalgamations applies also to leases of trunk lines. We think both improper and mischievous, unless when they are necessary branches or short lines.

The first of these amalgamations to any extent was the Midland. That arose from the ridiculous contention of the Midland Counties and Derby Junction, and the erroneous estimate made of the traffic from the population on the North Midland railway.—Mr. Hudson having been fortunately connec-

ted with the North and York Midland, a cheap line, was conceived to be a man who would introduce a more vigorous system of economy and retrenchment, and was therefore with his friends installed into the direction, to the exclusion of the old board. Changes—and great reductions were made, in some cases very just, in others very hard on the old servants, which, aided by a fortunate turn of the times, raised the line from a deplorable plight into prosperity. The amalgamation helped it by putting an end to the mad competition between the Midland Counties and Derby Junction. The success of these measures brought Mr. Hudson, extensions and amalgamation into fashion. The spirits of the Great Western soon saw the advantage to be made of it, and the senseless quarrel between the Grand Junction and the London and Birmingham, owing to the unwise policy of Mr. Moss, chairman of the former company, furnished them with reasons for pushing their line in almost all directions until they have the whole of the west of England and a great portion of Wales under their control. The restless spirit of this company is said to have driven the London and Birmingham and the Grand Junction into an amalgamation—a step, we have heard, that the London and Birmingham would never have desired had it not been as a measure of defence against the encroachments of the Great Western. Profiting by these examples, and on account of their quarrels with Mr. Hudson, the Manchester and Leeds are seeking to extend their arms from Great Grimsby to Lancaster and Fleetwood, that is, from the German ocean to the Irish sea. All the canals are brought up by them, and they have now only to get possession of the Sheffield and Manchester railway—which object they have once attempted—to have within their own grasp the entire traffic of the country, comprehending both body and soul of the manufacturing districts.

Mr. Hudson's dominions, now he has the Eastern Counties, extend from London and Bristol to Edinburgh, with branches to the right and left, and comprise a capital little short, we expect, of 50 millions. The London and Birmingham united capital has been estimated at 30,000,000, and its control extends from London to Manchester, Liverpool, and Holyhead; the Great Western capital is about the same as the London and Birmingham, and its dominions reach from London to the extremities of Wales and the Land's End. What the Manchester and Leeds capital is altogether, we hardly know. It is short of the others, no doubt; but what it wants in that is amply made up in the importance and value of the districts they have at their mercy.

Thus our country is divided into four parts, and our locomotion subject to the control of four great powers, with a united capital little, if anything short, when all the projects are completed, of 110 to 120 millions of money. Is this a proper state of things? Ought such an oligarchy, such *imperia in imperio* to exist? What can prevent all these great rivers, when they shall have swallowed up all the

little rivulets, flowing one into the other, and forming a torrent altogether irresistible to the government itself? If railways are to merge one into the other in this way, we prefer by far that they should be under the control of a responsible body as the government, than under parties who, like directors, are, by their acts of parliament, irresponsible both to the shareholders and to the public for whatever they do in their administrative capacity. We do not say or imagine that any of the present railway directors would abuse their powers. We do not believe they would, though there are one or two boards not over remarkable for their honor and good faith. But are these gentlemen, like Gulliver's Strulbugs (we believe they are called,) destined to live forever? and if they are not, what security have we that the future will be like the present?— Let us take for example, one district, the Manchester and Leeds, and suppose that falls into the hands of parties who may take it into their heads, as the Garnkirk and Glasgow directors once did, to put the screw on, in what state should we be? The whole of the manufacturing districts would be almost as bad as if they were surrounded and cut off from us by an enemy's army. The welfare of the three kingdoms, and of 26, perhaps then of 30 millions of people, would be at the mercy of a few irresponsible petty monarchs, sitting in a board room at Manchester, for years, until new lines could be granted and made. From the possibility of these evils we call on the government, while it has the power to relieve us, and to put an end to those extensive combinations which are not more injurious to the welfare of the country, than they are to the permanent welfare of the shareholders.

We shall probably return to this subject.

Incrustation of Boilers.

We find in the London Railway Chronicle, of the 14th of March, the following statement of Dr. Ritterbrandt, made to the Society of Arts on the 4th, in relation to the cleansing of steam boilers. The experience of Mr. Gooch, on the Southampton railway, will probably induce a trial by others.

The report says, that

“ Dr. Ritterbrandt made a further communication on the subject of the ‘formation of incrustations in steam boilers, and on the means of preventing it,’ and a number of interesting and valuable experiments were made, which proved, that although the muriate of ammonia effectually disintegrates the incrustation, still it does not have any injurious effect upon the boilers, whether they are of copper or iron. Mr. Gooch, of the Southampton railway, stated that he had made a number of practical experiments on locomotive engines with the ammonia, but when the subject first came under his consideration, there were two points which he was desirous of having made clear to him. The first was, that the ammonia would actually prevent the deposit; and the second was, that the application of the muriate of ammonia, when applied to cleanse the boilers did not produce any injurious effect upon the metal. Upon both of these points he is now perfectly satisfied, and has adopted the plan with all the

engines under his superintendence. The quantity of ammonia used on the Southampton railway is 1½ lb. to every 160 miles, or at the rate of 1 lb. for every 1,500 or 2,000 gallons of water. The cost of ammonia is about 3d. per lb. He had also seen a number of experiments made on the engines of steam vessels, one of which, the George the Fourth, had its boiler completely incrustated, but after the experiment had been carried on for six weeks, the boilers were perfectly clean, and the vessel afterwards steamed for twelve days without blowing off the water from the boilers. It had also been tried in a small stationary high pressure engine of eight-horse power, and working with salt water, and the same results followed; but the owner, in order to satisfy himself as to whether or not any injurious effect would be produced upon the boiler by the ammonia, put 14 lbs. of it into the boiler, and the whole of the pipes soldered up to prevent any portion of it escaping, and after three days a small quantity of the water was taken out and tested, but not the slightest trace of metal was discovered, and after about six weeks, during which time the engine had worked for fifty-eight hours, the boiler was opened, and a deposit was found to have taken place at the bottom of the boiler, but upon inspection he ascertained that it was nothing more than pure sand, which had been kept in suspence in the water during the time the engine was at work. Various other experiments were made, the whole of which proved to Mr. Gooch, that the advantages arising from the use of ammonia are very great.”

Atmospheric Railway.—[The following experiments from a correspondent, with those we published a fortnight ago, startle us.— There is something behind the scenes against this scheme more formidable than we had ever anticipated. Thus, in the experiments we mentioned, (pp. 372 and 373,) 15 and 28 inches of vacuum, were applied to draw respectively, not 165½ and 254, but only 32½ and 11½ tons respectively. Our correspondent who makes the computations for us, says that they had a power of 220 tons applied to draw 36 tons. We may here by the way observe that if there was no friction or resistance from the atmosphere, every inch of vacuum would, with their tube and level road, draw 11 tons of load. According to our correspondent's observation there is a waste of power of 510 per cent. on the useful effect. We need hardly observe, that exclusive of the resistance of the atmosphere, the friction would be the same at all velocities. That was and is a law of nature, unless Brunel and Samuda have altered it. Hence, classing the experiments according to velocity, we have—

Velocities in miles per hour.	12	19½	43
Powers exerted in tons loads.	165½	220-00	254-00
Loads taken.....	32	36	11½
Ditto in resistance of atmosphere in ditto.....	3-3	9-00	44-3
Total draft in tons, exclusive of piston friction.....	35½	45-00	55-8
Ratios to powers employed..	4-70	4-90	4-55

The effect of the resistance of the atmosphere we have taken from the 5th column of our table, page 95, vol. 1, octavo series of the “Railway Magazine,” supposing the front area of the carriages to 50 square feet. The very close agreement between themselves of 4-7, 4-9, 4-6, the multiples which the powers exerted are of the total loads, including resistance of road and of atmosphere in so rough a subject, show that we have got the law of the loss of power, which is about 370 per cent. on the friction of the road and resistance of the atmosphere conjoined, or 370 per cent. on the force that a locomotive would exert to draw the same loads at the same velocities in overcoming all obstacles of air and roads.

We put it to any honest man if such a system as this can ever succeed against the locomotive, let them save in other respects what they may?

Were we asked to what this enormous loss is owing, we should say, a small portion to the friction of the piston and other gearing but the main part to the friction of the air, as pointed out by Mr. Herapath, before and behind the piston. Before the piston the air cannot get fast enough away, and thereby diminishes the effect of the vacuum; and behind it cannot follow up quickly enough to exert its full pressure on the back of the piston. This being the case, it is utterly hopeless to attempt its remedy. The atmospheric scheme is and will continue to be a pretty ingenious toy, but as a commercial speculation, can only be persevered in by deliberate fraud or blind ignorance.

The promoters of this scheme, for reasons best known to themselves, will not permit either Mr. Stephenson or Mr. Herapath, or anyone competent to make experiments, to investigate the matter, and it is only by chance that we can get at any facts from which useful conclusions can be drawn. The above are by very different individuals, and at different times. Properly analyzed, we see their almost perfect coincidence in condemnation of the project.]

“ The every day working of this system on the Croydon railway is worthy of attention. Facts are stubborn but instructive things. The following being a similar relation of the performances of a journey to Croydon and back a day or two ago, by the Atmospheric railway, will I hope, be interesting to you and to your readers. Results of actual working are surely the best test of the capabilities of any contrivance. In going to Croydon the train (not a special, but an ordinary one,) left Forrest Hill station, the commencement of the Atmospheric railway, at 22 minutes to 5 o'clock in the afternoon. The barometer showed 19 inches of vacuum.

“ The train consisted of 9 carriages, with a somewhat light load of passengers.

“ We reached Sydenham at 19½ minutes to 5—distance one mile; therefore this portion, a favorable one, was run at the rate of 24 miles an hour.

“ Upon starting from Sydenham, the mercury rose to 21 inches, owing of course to the air being pumped out while waiting at that station; but in this, as in every other in-

stance when the train had proceeded some short distance from the station, the mercury sunk. It did so now to 20 inches. Reached Norwood at 11½ minutes, having left Sydenham at 14½, being at the rate of 18½ miles an hour.

"Upon starting from Norwood the mercury stood at 22½ inches. At a short run from this station, sufficient to acquire a good momentum, but not sufficient to collect any quantity of repelling atmosphere in the vacuum pipe, as shown by the barometer maintaining about the same or a little less height of mercury, occurs a gradient of 1 in 50 for a short distance over a wooden viaduct, which the train mounted with no great labor, but with a sensible diminution of speed. Under the circumstances, what else could be expected? Do not locomotives with two or three times the weight of train perform much greater exploits on the Birmingham, Manchester and Leeds, Folkestone branch, and other railways, having equally heavy and heavier gradients? The train descended the viaduct with fearful velocity; and perhaps it is the performance over this part that has given rise to the rumor that the Atmospheric can go at 70 miles per hour.

"We arrived at Croydon at 5½ minutes to 5. Thus the five miles of the Atmospheric line was traversed in 16½ minutes, or at the rate of about 18½ miles per hour.

"The stationary engine house at Croydon is situated a short distance from the station. While waiting here, the working of the station engine in pumping out the atmosphere from the pipe, was heard like the noise of the well-known sausage machine in Oxford st.

"The time occupied in going over the atmospheric portion, on returning to London, was 15½ minutes; being at the rate of 19½ miles an hour. The train was composed of only eight carriages, and the load was very light. The locomotive took the same train the rest of the distance to London in 11 minutes. This distance is about 5½ miles as opposed to the atmospheric portion of 5 miles. Therefore by locomotive power the same train was propelled at the rate of 30 miles against the rate on the Atmospheric of 20 miles per hour.

"When the train on the Atmospheric railway had got some distance from Sydenham towards London, and attained full swing of speed, a Dover train to London was seen to be in chase on the other parallel line of rails, and presently passed us—to use an illustrative expression—'like a shot;' the stoker of that train being observed as it passed to whirl his cap several times round his head, and the engineman distinctly heard, at the top of a hoarse voice, to salute us by 'holloa, atmospheric—shall I tell 'em yo're coming?'

"The Dover train consisted of twelve carriages; and we had to wait, when arrived at London, full a quarter of an hour, until that train, which had got in before us, and was heavily laden, had unloaded and got clear to make room for us.

"The following will serve to enlighten your readers more accurately with a notion of the properties of the atmospheric propulsion.

"In performing the journey over the Atmospheric line, the average height of the mercury in the barometer was somewhat more than 20 inches. I will make my calculations upon 20. The barometer, your readers are aware, measures the amount of vacuum in the pipe, or in other words, the amount of atmospheric pressure on the piston, at the rate of half a pound weight on every square inch of mercury. The pressure, therefore, on the square inch was 10 lbs, and as there are in the area of the piston (15 inches diameter) 176 square inches, it follows, (omitting fractions) the power on the piston was 1,760 lbs.; 8 lbs. being the weight that will draw a ton, by dividing 1,760 by 8, we find the number of tons 220, which the force that was applied ought to propel. That is, there was force applied sufficient to propel a train weighing 220 tons. Now, what was the weight of the train? Take the train going to Croydon, consisting of nine carriages, and say that each, with passengers, weighed 4 tons, and we have 36 tons—the weight of the Atmospheric train. Thus a power sufficient to propel a train of 220 tons was applied to one of 36 tons, and the speed attained was only 18½ miles an hour!!

"I have ascertained that the Dover train which passed the Atmospheric one in a twinkling was composed of 12 carriages, and weighed, with the locomotive and tender, about 80 tons!—being, therefore, more than double the weight of the atmospheric train which it so easily passed. It had but one locomotive to propel it, and that one, I am told not the most efficient in the stock of the South Eastern company.

"These are facts, not theory; the results of practice, not vague speculations based on unproved principles. They confirm the statements made in your journal a fortnight ago."

Comparative Charges on Railways.

The Sheffield Mercury has an article on the comparative charges on different railways in England, which may well be read by some of our American companies—we therefore give it a place in the Journal, and ask attention to the closing paragraph:

"Comparative Charges.—We have frequently felt it a duty to point out the disadvantages under which the inhabitants of this district labor as to the cost of railway accommodation. We are gratified to perceive that something in the way of reform has been effected. Day tickets, at two-thirds the usual fare, have been issued on the Midland as well as on other lines, since the commencement of the present year. But it is worthy of remark, that the railway king was the last man to move in that direction. Whether we have by our remonstrances assisted him to adopt more sound principles of action than those which induced the man 'to kill the goose' we know not, nor is it of much importance, so long as the public reap the benefit.

"We have more than once intimated that the lines of railway over which Mr. Hudson presides are the heaviest in their charges of any in Great Britain. We are not aware of a single exception to this fact; and, in some instances, the demands made upon the public on Mr. Hudson's amalgamated lines are most

enormous. If we inquire why it is that between Bristol and York we are kept in ignorance of the fares, the answer is, because the Midland directors do not court comparison; in short, that they are ashamed of their exactions when contrasted with the fares on the other lines. We will, however, supply the deficiency in some instances; after which, if the interests of those connected with the Midland lines are brought down by competition, let them thank their own management for consequences. We have frequently expressed our disapprobation of amalgamations, and have all along insisted upon the certainty that the public would be made to pay for them. Let us see how strictly this is the fact on Mr. Hudson's lines.

The power of the railway king stretches from Bristol to York, if not from Bristol to Newcastle-upon-Tyne. We will compare his charges with those for similar distances on other lines:

	Miles.	First Class.	Second Class.
From Birmingham to Gloucester.....	53	14s. 0d.	10s. 6d.
From London to Brighton..	50½	10s. 0d.	7s. 6d.
From Gosport to Farnboro' (South-Western).....	57	10s. 0d.	7s. 6d.
From London to Watlington (London and Dover)	51	7s. 0d.	4s. 6d.
From London to Wolverton (London and Birmingham)	52½	9s. 6d.	6s. 6d.

"It will be seen that in no case in the foregoing is the excess of charge less than 40 per cent; and from Birmingham to Gloucester, as compared with the charges on the Dover line, the fares are double what the people are paying in the south. But this is not all.—Not only do the Midland lessees of the Gloucester line charge from 40 to 100 per cent. more than on other trunk lines, but the very slowest trains on all the lines above quoted are those between Birmingham and Gloucester. Bradshaw's time table will bear us out in the last named fact.

"It may be supposed that we have been invidious in selecting one piece of railway, and that our complaint does not hold good in the main. We regret to say, whether we go west or come north of Birmingham, it is all the same. Let us first go to the western extremity of Mr. Hudson's dominions, and then come to the north. From Birmingham to Bristol, as per returns, is 90 miles; from London to Gosport, 88 miles; from London to Dover, 88 miles.

"The fares are as under:

	First Class.	Second Class.
From Birmingham to Bristol..	22s.	15s. 6d.
From London to Gosport.....	16s.	12s. 0d.
From London to Dover.....	15s.	10s. 0d.

"Here, again, the slowest travelling is between Birmingham and Bristol.

"It may now be instructive to notice how much, or rather how little, the public has to be thankful for north of Birmingham. The distance from Birmingham to Sheffield is 86 miles; the reduced fares are:

First class.....	21s.
Second class.....	14s.

"Compare these and the Bristol charges with those out of Birmingham, with which Mr. Hudson has nothing to do. You can travel the same distance on the Grand Junc-

tion line for 15s. as compared with 21s.; and in a second class for 11s. 9d. instead of 14s. In the direction of London the charges are, from Birmingham to Boxmoor—further than from Birmingham to Sheffield—1st clas, 15s. 6l.; 2d class, 11s. So much for the blessings of amalgamation.

"If we stretch further north the exactions do not lessen. South to London from Birmingham is 112½ miles; north to Leeds 113 miles—say the same distance.

"Notice the money and the time consumed in the two journeys:

	First Class.	Second Class.	Time.
From Birmingham to Leeds.	23s.	18s. 6d.	5h. 20m.
From Birmingham to London.	20s.	14s. 0d.	4h.

"It needs not a Solon to see that Mr. Hudson's policy must be short-lived as it is short-sighted. The public voice will produce the needful reforms in a short time. It would be wise to anticipate the exercise of public opinion in a matter of such vital importance to the manufacturing parts of Yorkshire, as the best and cheapest means of travelling and transit. Railway companies have responsibilities which did not belong to stage-coach proprietors. Under the old system the road was open to all, and high fares were brought down by temporary opposition; but, under the new system, the power is concentrated, and may be wielded as an injurious monopoly, unless wisely directed and for the public advantage.

Viaduct over the Ouse.—The viaduct over the Ouse is the finest piece of architecture on the Brighton railway. Uniting the picturesque and useful in a high degree, rare among modern structures, it is really a good subject for the artist's pencil. The best views of it are on the banks of the river below. It is said to be at present the largest work of its kind in England. It rests on thirty-seven arches, each of a span of 30 feet, and rising 100 feet from the water. The height of the abutments is 40 feet, its length 1,437 feet, or somewhat above a quarter of a mile. The Ouse is fed by two branches, one rising at Bantrudge farm, St. Leonard's forest, not far from the source of the Adur, and the other at Selsfield, in Worth forest, and flows through Lewes to Newhaven. It is navigable to within one hundred yards of the viaduct.

Southern, or Vicksburgh and Montgomery (Ala.) Railroad.

The Savannah Republican, of 30th April, contained an interesting extract from the report of Wm. S. Bodly, Esq., upon which the editor makes the following remarks:

"It is not our wish, he says, to say or do anything which might tend to draw off the attention of the people of this region from the enterprise which is now agitating them, in common with the citizens of Burke and Richmond. It is a bad rule to have "too many irons in the fire" at once. It is better for communities, as well as individuals, to select a single object and pursue with united energies. If that object is a reasonable one—if its accomplishment is practicable—success is likely to follow. Whereas, if several enterprises are undertaken simultaneously—if opin-

ions are divided, and purposes distracted, a failure in everything must be the consequence.

These general remarks we make preliminary to a statement of our views in regard to the "Southern railroad company," a representative of which is now in this city for the purpose of inducing capitalists to subscribe for the stock preparatory to its organization. This company holds a charter from the legislatures of Alabama and Mississippi, for the construction of a railroad from Montgomery, Alabama, connecting with the Vicksburg road at Jackson, Mississippi. The purpose of the originators of the enterprise, is to connect the Mississippi at Vicksburg, with the south Atlantic ports, through the railroads of Georgia. This route was alluded to in the report of the committee on internal improvements at the Memphis convention. It was also favorably noticed in the last annual message of Gov. Brown of Mississippi, and we have now before us, a very able and well reasoned report on the subject, from the pen of Judge BODLEY, of Vicksburg, the gentleman before alluded to as being present in our city. From this report we glean the following facts, viz: The capital stock is \$3,000,000, but the company is allowed to organize, when \$500,000 have been subscribed. The charter is a perpetual one, and the state of Mississippi, to encourage the enterprise, has appropriated for the building of the road, the 2 per cent fund, amounting to about \$300,000, whenever an equal amount shall have been paid in or secured in the state. There are other conditions prescribed, all of which, are eminently favorable to the company and which it is unnecessary now to specify."

The following extract from the report referred to contains important facts which have been often sought, but not easily, if at all, obtained.

We are glad to see the movements in the south, in relation to the connection of the Mississippi with the Georgia railroads. It is a matter of vast importance, not only to the people of that region, but also to the business and travelling community, and still more to the United States government, in times like the present, when its gallant little army is within an enemy's territory, in the immediate vicinity of a superior force, liable to be attacked at any moment—but not destined to be beaten, if attacked. With a continuous railroad to the Mississippi, ample reinforcements and munitions might be sent to their aid if deemed necessary. We hope to hear that the work is to be commenced this year, and completed as early as possible.

We copy the following remarks, in regard to the length and uses of this road from Judge Bodley's report: he says,

"The Southern railroad will extend from Jackson, Mississippi, to Montgomery, Alabama, a direct distance of 103 miles in Mississippi, and 124 miles in Alabama, or total air line 227 miles on any probable location of the railroad.

"From Jackson it connects with the Mississippi river at Vicksburg by means of the railroad now in use.

"Eventually, it will probably have a branch to Natchez, and extensions westward from the Mississippi river towards Texas.

"At Montgomery it connects with the

Montgomery and West Point railroad, of which about 45 miles are completed and the remainder of near 45 miles principally graded and the work in active progress. It is the expectation of the managers to have it completed to West Point next year.

"From this point to the Macon and Western railroad is a distance of 53 miles. The right to construct that connection, as well as one to Columbus, and thence to intersect the Montgomery and West Point road, has been granted; and there is no doubt that in one or both these modes Montgomery will be connected with the Macon and Western railroad. This road binds together the Charleston and Savannah lines, and is within a few months of entire completion, 101 miles from Macon to Atlanta. For all practical purposes, therefore, we may consider the Southern railroad as the only wanting link in the chain to bind the Mississippi river to the Atlantic ocean, both at Charleston and Savannah.

"The distances are as follows:

From Savannah to Macon.	190½ miles, complete.
" Macon to Griffin.	50 " "
" Griffin to West Point.	53 " chartered.
" W. Pt. to Montgomery.	90 " nearly com.
" Mont'g. to Jackson.	240 " chartered.
" Jackson to Vicksburg.	46 " complete.

" Savannah to Vicksb'g. 669½ miles.

"A direct road from Macon through Columbus would reduce this distance to about 660 miles.

Charleston to Hamburg.	136 miles complete.
Augusta to Atlanta.	173 " "
Atlanta to Griffin.	51 " nearly complete.
Griffin to West Point.	53 " chartered.
West Pt. to Montgomery.	90 " nearly complete.
Montgomery to Jackson.	240 " chartered.
Jackson to Vicksburg.	46 " complete.

Charleston to Vicksburg. 789 miles.

A direct road from the Georgia railroad to connect the routes, might diminish the distance to 750 miles.

"The distance from Savannah to Vicksburg may therefore be set down at 670 miles. From Charleston to Vicksburg, at 790 miles.

"The uses of this road.

"When completed and connected with the Atlantic and Mississippi termini, it reduces the time of travel from end to end to about two days. It reduces travel between Charleston and St. Louis to six days—New Orleans, three days—Galveston, five days. It brings down the time of travel between Vicksburg and Washington city to a little over four days, and New York five days. And on the completion of the Chattanooga and Nashville railroad, this will be the ordinary route of travel to Nashville, which will be reached from Vicksburg in 48 hours.

"In regard to freights, it will reduce the time of conveyance from New York to Vicksburg to about ten days, of which six days are allowed for the sea trip to Charleston and four for railroad conveyance to Vicksburg. It will reduce insurance from at least two per cent. from New York or Boston to Vicksburg down to one per cent. or less to Charleston, and none thence to Vicksburg. If the goods be worth 50 cents a pound, this difference will pay more than half the railroad charge—leaving profit to the road.

"It will enable a merchant, whose packages are usually valuable, (much beyond 50 cents per pound on the average,) to save in direct expenditure, to have his orders promptly supplied, to maintain a large business upon comparatively light stocks, and to exclude from the western markets all merchants who shall persist in continuing the risks, delays and loss of capital by the cape of Florida route.

"It will open a direct avenue for western supplies for the interior of Alabama, Georgia and Carolina. These produce ordinarily over 1,000,000 bales of cotton per annum. If we estimate but 60 pounds of western produce to the bale, the aggregate pounds weight of this trade is sixty millions; or 30,000 tons of 2,000 pounds each.

"It gives us an interior communication between the most important highways in the world, which is not subject to the casualties of storms, wrecks, pirates or war.

"It makes the South Atlantic states, identified, as they are with us in all respects, to be neighbors to the great west: and by this means gives assurance of an equitable management of the government of the United States, by which our interests, will be protected and our prosperity promoted.

"It gives to the public force that rapidity of motion, which is the greatest element of its efficiency either to suppress insurrection or repel invasion."

"These things and more does it accomplish in its general uses. To the country in which it runs it brings navigable waters without their overflows, and commerce without hazard or interruption. To that country all times of the year are thus rendered times of commerce and travel; supplies from other places are cheapened, and its own productions can reach the market at small cost and at times to suit the owner."

The report proceeds to give an estimate of the cost and income of the work. The former is put down at \$12,000 per mile, or \$2,880,000, the latter at \$1,248,960, or, deducting expenses, at \$585,387.

Of the importance of this road, no one can for a moment doubt. That it will in time be completed, we think it highly probable, that it will be of advantage to Savannah and to the Georgia improvements in both the items of freight and travel is beyond doubt; but there is certainly no money here now to be invested at so great a distance from home.—Savannah has already expended nearly \$3,000,000 upon her own end of this line of improvements. If any money is left, prudence dictates that it should be invested in our own state, and for the development of our own resources. In endeavoring to reach too far we may lose everything. We make these remarks with the more regret, because we are convinced that the Southern railroad enterprise is one which deserves encouragement, and which under other circumstances, would receive encouragement from our people. Our columns, however, are open for any one who may differ from us in opinion, and who may desire to press the subject upon the consideration of the public.

Railroad System for Maine.

The following article on the "railroad system for Maine," is from the Portland Advertiser:

"Suppose that Maine wake up and contemplate her noble prospect, and be true to herself. The Atlantic and St. Lawrence railroad should be so located as to become a sort of grand trunk with which all our other railroads should connect as best they could. It is believed that the Montreal road may be so located, with due reference to the proper points to receive branches, and not be essentially lengthened. This would be far more than compensated by the increased accommodation, better country to be traversed, and better grade.

"Let the main trunk cross the Androscoggin at Lewiston, thence run through Winthrop and Redfield for the valley of Sandy river, and along that valley run for the forks of Dead river, and along the valley of the northwest branch of Dead river to the boundary, in a direction for the eastern branch of the river St. Francis.

"The following are some of the branches that would probably, in due time, be connected with the main trunk:

"From Bath by Brunswick, corresponding with another to connect at the same point from Rumford by Paris.

"From Gardiner by Augusta, to connect at the same point with one from Bangor by Waterville, say at or near Mount Vernon.

"Another to come in near Farmington, from one or more points up the Kennebec.

"In Massachusetts, their railroads all concentrate at one point—Boston. It would seem that our system ought to be to connect all by branches with one main line, and so, as far as practicable, to extend and equalize the advantages. In due time the Bangor branch would be extended by Frederickton to the extreme eastern point of the Nova Scotia—say to the Gut of Canso—to accommodate European emigration and travel. As to this travel, no matter between what points of Europe or North America bound—whether between England, Ireland, France or Germany and Canada, New York, Texas or California—a great point would be to choose the route having the shortest sea voyage.

"Looking ahead, it is plain that manufacturing must be the controlling business in Maine, the operatives, in a great measure, to be fed from the great west, where would be sent for a market a great proportion of the goods manufactured. The best seats for manufacturing, such as Brunswick, Lewiston, Augusta, Waterville and Rumford, would be so situated as to compete on fair terms with all other places.

"For the export and import trade between the great interior and the broad Atlantic, other places, such as Bath and Gardiner, would compete with Portland. To be sure, from its better harbor, of easy access at all seasons, Portland would hold much the superiority. At a proper time, a merchant, say at Gardiner, could put up a ship to sail for Liverpool on a set day, and at Montreal have her cargo put into the same cars to be discharged from, into the ship. If the channel

of the Kennebec can be deepened, Augusta and Hallowell could come in for a share of the great transit trade. Such will be the untold amount of exports to come out from the great interior, that Portland alone could not well accommodate it." WALDO.

"[Our correspondent above, introduced his article by a suggestion in reference to patronage by the state, of the ground part of his plan. But as that subject has never been discussed or mentioned in our paper, he will excuse us for leaving out the intimation on that head.]"

Cost of Canal Repairs.

The following table, showing the cost of repairs upon all the New York canals, since they were first opened in 1826, was prepared, we understand by Mr. Senator Denniston, chairman of the canal committee of the senate, and is a valuable document—we therefore place it on record. We take it from the remarks of Mr. Bishop Perkins, on canal superintendence, published in the Albany Atlas.

Mr. Perkins says:

"It is true that the expense of repairs on the canals for the last year has been perhaps greater than ever before, though after all not so great per mile as they have been at some former periods of time. To show this I will read from a table prepared by Mr. Denniston, the chairm an of the canal committee in the senate, which I have examined and found correct."

The total annual cost of superintendence and repairs on each canal, from 1826 to 1845, inclusive, and the average cost per mile of superintendence and repairs on all the canals during the same time.

Year.	Erie and Champlain 440 miles	Owego 38 ml's.	Cayuga & Seneca 22 miles	Chemung 37 miles	Crooked lake 8 ml's.	Chenango 97 miles	Genesee valley 52 ml's.	Ontario lake and feeder 6 miles	Total.	Total average per mile.	Total miles.
1826	\$182,162								\$182,162	\$414	440
1827	232,472								232,472	532	440
1828	225,846								225,846	512	478
1829	232,931	13,003	\$8,499						234,433	491	500
1830	202,958	12,500	5,447						210,905	422	500
1831	168,240	9,170	3,363						180,773	361	500
1832	327,302	12,259	5,356						344,917	694	500
1833	328,585	11,295	8,243	\$24,656					372,780	879	537
1834	429,659	12,181	8,832	25,639	\$2,653				478,964	879	545
1835	392,921	16,327	9,685	9,616	3,966				432,115	793	545
1836	310,163	51,637	20,801	9,655	4,759				406,115	745	545
1837	365,406	57,998	28,539	14,569	6,214	\$19,506			492,144	766	694
1838	374,713	49,350	18,984	13,494	4,454	20,809			481,774	730	694
1839	207,722	24,463	23,396	13,382	3,557	17,248			379,769	591	644
1840	364,992	34,796	24,740	12,401	6,051	15,427	\$4,520		460,686	663	642
1841	255,687	26,406	13,940	23,360	6,034	15,563	10,468		357,898	511	700
1842	392,354	31,427	15,829	34,624	8,113	18,955	17,749		452,559	646	700
1843	297,614	28,678	10,938	14,206	4,047	15,062	15,201		383,076	547	700
1844	371,440	28,598	14,442	12,739	3,951	15,959	15,556		460,330	664	700
1845	399,094	46,639	14,191	17,978	4,765	18,951	16,901		520,452	743	700

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.

Saturday, May 16, 1846.

WANTED, the following numbers of the RAILROAD JOURNAL, to complete volumes, viz:

- No. 44 of volume four, for 1835;
- Nos. 44 and 45 of volume five, for 1836;
- No. 1 of volume six, for 1837;

Or the entire volumes of those years will be purchased at subscription price, if in good order; or the current volume will be cheerfully given in exchange for volume four or five, to any gentleman who prefers a new book to an old one; and we shall be very much obliged to those who will aid us in obtaining these numbers.

The numbers may be forwarded by mail, accompanied by a letter, stating when forwarded, and the volumes may be sent by express, or other safe conveyance, at our expense.

New Method of Mining and Constructing under Water.

The peculiar situation of an extensive coal basin on the banks of the Loire, in France, has led to the invention of a new mode of operation under water, which promises to be rich in useful results, and which we wish to make known to the profession in this country.

The coal deposit mentioned has been known for more than a century, but it has never been worked, as it is below a stratum of sand and gravel, through which the river Loire flows, and to all parts of which its waters have free access. It is evident that no pumping would suffice—the river itself must be pumped dry before the porous stratum could be penetrated. To meet this unusual case, Mr. Triger has contrived and carried into execution the plan to which we refer. A suitable iron pipe, somewhat like a smoke-stack, is sunk to the surface of the water, by means of a chamber and valves, or rather doors, at its upper end; this pipe is made air tight and connected with a condensing cylinder. Air is then forced into the vessel, and the workmen, who are previously introduced, continue the excavation, and the pipe is gradually lowered—the water being constantly kept out by the condensed air. In this manner the operations were continued until the water stratum had been penetrated, when the lower end was properly secured, the pumps, etc., removed, and the entrance opened. The mines were then accessible, and could be worked as any others at the same depth—the shaft passing through the water stratum and terminating in hard rock, was precisely in the same condition as if it had penetrated solid rock for the whole distance.

The apparent obstacle to this mode of proceeding was the danger, or even impossibility, of supporting

life under so great pressure. Experience has proved that no difficulty is to be apprehended from this source—except on their first entrance—the men are perfectly comfortable, and move and work under a pressure of two or three atmospheres, as readily as in the open air. The only change noticed is, that the voice becomes weak and the men cannot whistle. One of the laborers who was deaf, to his great surprise, found that he regained his hearing under this extraordinary pressure.

The success of M. Triger's process, has led to its adoption in Belgium, under circumstances of even greater difficulty. A few modifications have been made, such as the substitution of a wooden trunk of greater diameter than that of the iron one used in France, but the principle is the same.

It will be seen at once, that this mode of operation is superior to that by the diving bell, unless at very great depths; and, under certain circumstances, it is probable that it may supercede the use of coffer dams. For instance: a foundation has to be laid on a rocky bottom and in a rapid current, where it would be difficult to secure the tightness of a coffer dam; or in building a foundation in circumstances similar to those on the banks of the Loire. In such cases, it is highly probable that the use of condensed air would be found not only more expeditious, but far more economical.

We think this to be a matter worthy of the attention of engineers, as well as miners.

Items from the Foreign Papers.

The Destruction of the Viaduct of Barentin, on the Havre Railroad, has excited much notice. The engineer of the road, the well known Mr. Locke, is handled rather roughly by the Frenchmen, and if the statements published in the French papers are correct, we must say that he deserves rough treatment. It seems that the viaduct was built of brick—the distance of the piers from centre to centre 59 feet, and common mortar was used, although the contractors remonstrated, and offered to bear a portion of the increased expense of hydraulic cement. It is said, too, that Mr. Locke had built a viaduct in England on the same plan, and that this fell likewise.—A comparison is also made between the dimensions of the Barentin and other French viaducts of undoubted stability, which certainly throws the professional skill of the English engineer into the back ground.

Investigation in Relation to Steam.—M. Regnault has been entrusted by the French academy with the investigation of the laws which regulate steam in all its relations to the steam engine. No philosopher of the present age is better prepared by previous investigations, nor more richly endowed with the necessary mental qualifications for this difficult task. The experiments have already required three years of labor, and cost 10,000 francs. The results obtained we purpose giving to our readers at our earliest convenience.

Novel Idea.—At the commencement of the works on the Liege and Namur railroad, a very imposing ceremony took place, quite different from anything to which we are accustomed in this part of the world. A very elegant silver spade, and mahogany wheelbarrow, were on the ground, and the president of the company, through Mr. Rennie, the engineer requested the inspector general of railways to break ground. After the usual amount of speeches, and a visit to the famous establishment of Seraing, near which the ceremony took place, 3000 francs were ordered by the directors to be distributed to the poor of the neighboring places. A magnificent dinner concluded the af-

fair. The donation to the poor is a novel idea—and certainly much the best part of the ceremony. We commend this to the special notice of those about to commence operations.

Railroads in France.—The Paris correspondent of the Boston Atlas writes under date of 1st inst.:

"There are now 849 miles of railroad open in France, and 1703 more conceded and in progress, of which over 200 will be completed during the present year. Adding to this the lines for which companies have petitioned the chamber, France will have in 1850, 7,310 kilometres, or about 4,000 miles of railroad completed—forming an immense net work, of which Paris is the centre. The capital will be only six hours distant from Havre, eight from Calais, seven from Lille, nine from Metz, twelve from Strasbourg and Lyons, twenty-four from Marseilles and Toulouse, twelve from Nantes, and fifteen from Bordeaux. The concessions of these roads were at first as in America, perpetual—they were soon reduced to ninety-nine years, and now speculators are willing to bear the whole expense, and surrender up the road to the state at the end of forty or fifty years."

Pennsylvania Railroad.

We find the following comparative statement in the Philadelphia Inquirer, and give it a place in the Journal, as it contains useful facts in convenient form for reference; and also because we desire to repeat what we have before said, and what has been often said by others, and more recently by the Pittsburgh Gazette, viz: that "if we presume to advise, we would recommend them to spend their means in constructing the Sunbury and Erie road, with a branch to Pittsburgh"; as, by this course, another, and the most important line of communication would be opened through Pennsylvania, with two terminations, one on lake Erie and the other on the Ohio, at Pittsburgh—thus opening a medium of communication through a region of country now wholly unaccommodated, and also between an important point on lake Erie, which has no direct and easy intercourse with Philadelphia; and which would become to Philadelphia what Buffalo is to New York. The state works through central Pennsylvania, will meet the necessities of that region. Now let PHILADELPHIA, with her ample means, open a second line with its two termini, and let the Baltimore and Ohio railroad company open a third line, if it will, and then let Philadelphia, and Pittsburgh, and Cleveland, construct a railroad from the Ohio at Pittsburgh to lake Erie at Cleveland, and work it at the lowest rate of fare, and it needs no prophet, as we think, to foretell the results, not to Philadelphia alone, but to the entire state of Pennsylvania. What most surprises us is, that the subject is not so viewed and acted upon by the citizens of Philadelphia.

The writer in the Inquirer says, that

"The most approved locomotive engines now in use on the Reading railroad, work at an expense for motive power alone, of one mill and a half per ton per mile—the worst grade for the load being a level. Of this expense, the fuel amounts to about one-third, which is wood at \$3 per cord. The Pennsylvania railroad would very probably run through a country which could supply the engines with wood at \$1 50 per cord; this would reduce the motive power by such engines to one mill per ton per mile over a level. Every 20 feet rise in the road would cost one motive power additional—so that a road of 45 feet grades would require 3 1/2 mills per ton per mile for motive power. To this we add for the expense of maintaining cars, which would be at the same rate on all roads, viz: 2 1/2 mills per ton per mile.

To make a complete comparison between different roads, it would be necessary to compute the number of miles of heavy grades on each road; but for ordinary practical purposes, and without going into engineering accuracy, we presume an equal number of miles of heavy grades to exist on each road.

Pennsylvania railroad, from Pittsburgh to Philadelphia—distance, 336 miles—grades, 45 feet heaviest:		
Motive power	Mills. Per ton.	
Cars	3.25	
	2.50	
	5.75	\$1 93
The common rule is to double the working expense for toll.....		
		1 93
		\$3 86
Baltimore and Ohio road, from Pittsburgh to Baltimore—distance, 342 miles—grades, 60 feet:		
Motive power	4.00	
Cars	2.50	
	6.50	\$2 23
Toll at an equal amount.....		
		2 23
		\$4 46
Pennsylvania road extended to Cleveland would make a distance of 466 miles—suppose grades not over 45 feet:		
Motive power would cost	3.25	
Cars	2.50	
	5.75	\$2 68
Tolls.....		
		2 68
		\$5 36
New York and Erie railroad, extended to Cleveland, 640 miles—grades, 66 feet:		
Motive power, by the same rule.....	4.30	
Cars	2.50	
	6.80	\$4 35
Doubled for tolls.....		
		4 35
		\$8 70
From Cleveland to New York by the lake and canal—distance, 714 miles:		
Working rate of transportation, 5 mills per ton per mile on all these waters.....		\$3 57
Two agency charges for transshipping at Albany and Buffalo, with drayages included, cannot be maintained under 50 cents per ton each.....		
		1 00
Toll to the canal, 364 miles, at the same rate as to the road, viz: 5½ mills per ton per mile.....		
		2 09
		\$6 66
The Pennsylvania road, extended to St. Louis, would make a distance of about 1000 miles—half the distance with grades of 45 feet, the other half with grades of 15 feet:		
Motive power	2.5	
Cars	2.5	
	5	
Doubled for toll.....		
		5
		\$10 00
From St. Louis to New York, by sea, the distance is 3000 miles:		
The lowest rate of freight across the Atlantic in large ships, is ¼ of a cent per ton per mile, (3000 miles,) equal to.....		
To which must be added, for transshipping at New Orleans and for insurance, at least.....		1 50
		11 50
Time for going from St. Louis to New York by sea..... 20 days.		
Forgoing to Philadelphia		
by railroad.....	4 " at 10 miles pr. hour.	
Passengers would go in.....	3 " 15 " "	
	2 " 20 " "	

Railroads and the U. States Government.

We find the following remarks, in relation to the construction of railroads in those states where the public lands are yet unsold, in the Journal of Commerce of May 6th. Of the propriety, justice and "constitutionality" of the United States government constructing, or aiding in the construction of railroads, or canals, or other works, in any of the states, which, when made, shall promote the *safety, prosperity and happiness* of the people of the country, we have never entertained a doubt; even though some of those who are deemed the wise and great men of the nation have pretended to see great danger to the constitution for the government to aid in such works. Without laying claim to any great sagacity, or research in constitutional matters, or to an extraordinary amount of patriotism, we are always inclined to watch closely those men who make great pretensions to more than an ordinary share of watchful care and affection for the constitution. They are the first to oppose or approve of measures—on constitutional grounds of course—according to circumstances; and they are always prating of their consistency!

If the United States government were to construct a line of railroad from Maine to Georgia, and thence to New Orleans, on the south and southwest; and another from Maine to Chicago, and St. Louis on the north and northwest—or contribute *one-half* the cost of a first rate road, to those companies which will construct them, and guarantee to carry the mails, and transport United States troops and munitions of war without charge, and passengers at low rates, to be regulated every five years, or oftener—thus benefiting *all*, both in peace and in war, by increased facilities for business, and at the same time the most efficient system of defence, that can be devised, for an extended frontier like ours—they would not, in our opinion, transcend the spirit, or letter either, of the constitution; but would keep more within bounds than those who use it as though it were made by Day, or Goodyear, of *India rubber*.

We hope that congress will contribute largely of the public lands in aid of railroads through the states at the west and south, where the population is sparse, and the people unable to build them. We hope also that there will not be longer delay in making an appropriation for the construction of a canal at the *Sault St. Marie*, which will allow of the passage of large vessels into lake Superior. This important work has been quite too long delayed.

The article in the Journal of Commerce is as follows, viz:

"Local Internal Improvements.—An important discussion has just taken place in the United States senate, on this subject, in which the extent of the power and authority of the general government over it has been defined, perhaps it may be said authoritatively.

"The veto applied to the Maysville road, and its approval by the country, determined the question that an appropriation for a local road within the limit of a particular state was unconstitutional; no power to raise revenue for such a purpose having been contemplated.

"The power to aid a local improvement through the public lands is of a different character, inasmuch as it does not involve the question of the application of revenue, but simply that of the right of a proprietor of lands, having full power over their management, to apply a part of them towards improvements which are for the benefit of the adjacent lands.

"This, in our judgment, is a legitimate and proper exercise of the power of the general government, under the clause authorizing it 'to dispose of and make all needful rules and regulations respecting the territory and other property belonging to the United States.'

"To the renewed application of this power now to such improvements, and the general acquiescence in it by the country, the movements of the Memphis convention, and the course of Mr. Calhoun in it, have contributed in no slight degree.

"A recognized friend of internal improvement to their fullest extent, even when descending from his ground and advocating sound views of the power of the government in regard to them, would have far less influence in obtaining the concurrence of the nation, than a well known opponent of the doctrine of *implied construction* would have, in taking a decisive step in favor of improvements coming within the power of Congress, and perhaps before the subject of doubt.

"Such is the tendency of the human mind. Notwithstanding, however, the manifest difference between the raising of revenue for improvements under a constitution not authorizing it, and the act of a proprietor devoting part of his land, over the deposition of which he has full power towards improvements which are to benefit the whole estate, Mr. Calhoun is charged by Mr. Niles with inconsistency in regard to the doctrine of internal improvements, because, forsooth, he has been opposed to devoting revenue to the purpose.

"To this it was triumphantly answered, that Mr. Calhoun had voted to give every alternate section to the state of Illinois to aid in building her canal, and has always done so on similar applications; thus vindicating on this subject his claim to *consistency*—a matter made of far more importance in this country than is at all necessary.

"The exercise of this power within reasonable limits, is certainly expedient, and will contribute greatly to the advantage of the west, by helping to construct avenues for their growing trade; and the east ought not to hesitate about the exercise of a power from whence not only those results will flow, but others calculated to bind us together in bonds of greater amity."

New York and Erie Railroad.

We give below the result of the legislative proceedings at Albany, upon the bill to allow this road to select the most *favorable* route and to build the road where it will *cost the least* and *carry freight the cheapest*. It will be seen that 107 members only, out of 128 voted upon the bill. Where were the *other TWENTY ONE* members? Can any one inform the friends of the road upon what important business they were absent from their seats?—Can they answer to their own consciences for this neglect of an important duty? We should like to see the reasons of each absentee set out at full length, that the public may appreciate their conduct as it merits. That they may judge of the relative importance of the *private* and *public* duties of those who assume to act

North Branch Canal.—The Danville Democrat says that the water has already been let into the upper level, and it is expected that the whole line will be in a navigable state in a few days.

as legislators—and that a just degree of censure may be visited upon them for neglecting duties of such magnitude, of such vast importance to the business community, but especially to the southern part of the state.

Of those who openly opposed and voted against the measure, we will only say that it is very difficult for some men to feel that great public measures should be considered and acted upon without regard to individual or local interest—of others we might perhaps say that they should be excused for their errors, on the score of inability to judge between right and wrong—not so, however, with those who elected them to discharge duties so far above their comprehension, they deserve no better servants.

It will be recollected that, on the third reading and final passage of this bill, it was lost by one vote, and that vote was from this city! a motion to reconsider was made, which motion came up for consideration on Friday the 1st inst. and with the following result.

ASSEMBLY—May 1.

Mr. Cooper called for the special order, being the third reading of the general manufacturing law.

Mr. J. Young moved that this order be suspended until the vote could be taken on the bill in relation to the New York and Erie railroad. Agreed to.

The question was then taken and the house refused to reconsider by the following vote:

Ayes—Messrs. Albertson, Angle, Barton, Beach, Benedict, Blakely, Blodget, Bloss, Boughton, Boyce, Burnell, Bush, Chatfield, Chase, Clark, Coe, Collins, Cook, Cooper, Cornwell, Cost, Develin, Dorrance, C. Drake, Durfee, Ensign, Fleet, Foote, Foster, French, Fuller, Fullerton, Graves, Hall, Harris, Hayner, Haywood, Heermance, Hover, Johnson, Kingman, Lake, S. Lawrence, Low, Ludlow, Marvin, E. Marshall, O. F. Marshall, McClellan, J. Miller, Montgomery, Moore, Nolton, Phillips, Pitts, Primmer, Rathbun, Rice, Rogers, Searl, W. S. Sherwood, Small, Smith, Spofford, Stevenson, Storrs, J. R. Thompson, R. R. Thompson, Tilden, Titus, Townsend, Viele, Walbridge, Ward, Wisner, Woodruff, Woodworth, Worden, A. W. Young, J. Young—80.

Noes—Messrs. Baily, Baird, Cole, R. Drake, Eysaman, Gardner, Gregory, Grinnel, Hawks, Huxton, King, N. Lawrence, Lawyer, Lewis, Liddle, Loomis, Morehouse, Oliver, Pierce, Sands, Seacord, Speaker, Stewart, Tefft, Van Burgen, Voorhees, Watson—27

So the bill was lost.

Mr. Worden moved to recommit the bill to the standing committee.

The chair said it was now too late.

Mr. Pierce asked consent to give notice of a bill in relation to the New York and Erie railroad—providing for an extension of the time to expend \$750,000.

Mr. Chatfield suggested that unanimous consent be given to refer back the petitions and papers.

Mr. Pierce thought that objectionable.

Mr. Worden explained the action of the committee on this bill.

Mr. J. Young said the chair was right. The only way to reach this matter was to suspend the rules. But he did not believe any bill could be drawn that would meet the approbation of certain gentlemen, who evidently desire to defeat the road.

Mr. Chase desired to speak, but it was objected. Leave however was given. Mr. Chase thanked the house for standing by this bill as they had, notwithstanding the influence which has been brought to bear around this capitol to defeat this bill. It had been insinuated that the New York and Erie railroad co. had entered the field in Chemung to defeat Col. Young. It was false, and yet creatures out of the house, who crawled at the footstool of power, had gone around among members here with that story, to defeat the bill. They had succeeded and now let them take the responsibility, and he would tell them the people of the southern tier of counties would remember them.

The chair here peremptorily arrested the debate.

The house then resumed the consideration of the manufacturing law.

Pittsburg and its Lines of Communication.

Well may the editor of the Gazette ask "where is there a city possessed of more advantages, present and prospective for an immense trade?" How few at a distance duly appreciate the extent and importance of the resources of Pittsburg?

Sandy and Beaver Canal.—This very important work to Pittsburg and Pennsylvania has been too much neglected and overlooked by our citizens. In the arduous struggle for western rights, in regard to the "right of way," we have forgotten almost that another work scarcely less important to us, has been steadily and rapidly prosecuted. We would do well therefore, to turn our attention somewhat to the west, and examine the facilities for transportation, travel, and commerce, soon to be opened up by the completion of the above named work.

The western terminus of the Sandy and Beaver canal is at the town of Bolivar, on the Ohio canal, immediately on the west bank of the Tuscarawas river, in the county of Tuscarawas. Its eastern terminus is at the mouth of Little Beaver on the Ohio river about forty miles below this city. It runs through the counties of Columbiana, Carroll, and part of Stark. Its length is about fifty miles. The whole line is now under contract, and the eastern portion, from New Lisbon to the Ohio river will be finished the coming fall, probably in September. The western section, from New Lisbon to Bolivar, will be finished during next season.

This improvement runs through a fine agricultural region, and the best wheat district in Ohio, the produce of which will naturally seek a market at or through Pittsburgh.—But this is not its chief recommendation. It intersects the Ohio canal at a point so far south of Cleveland, as to secure to it nearly all the trade of that great improvement south of its intersection. The principal part of the flour, wheat, bacon, pork, lard, and other produce of the rich valleys of the Muskingum and the Sciota, which are transported on the Ohio canal to Cleveland, and find a market at New York, is shipped at points south of this intersection; and when it arrives at the junction, at Bolivar, it is 288 miles nearer to Philadelphia, by this canal and the Pennsylvania main line, than it is to New York by the lakes. Add to this, that we have several weeks earlier and later navigation than the

New York line, and it is seen that a large portion of the produce of the interior of Ohio will seek a market through this city. In 1844, there were shipped on the Ohio canal, at seven ports, 275,576 barrels of flour, 1,534,075 bushels of wheat, 3,614,448 pounds of bacon and pork, 56,034 barrels of pork, and 3,462,462 pounds of lard, making in all 84,961 tons. All this produce was shipped from points south of the intersection, except that from Massillon, and a large portion of the trade of that place will naturally find an outlet by this improvement. When this canal is finished, the bulk of this immense trade will pass through Pittsburg, provided our canal commissioners pursue a liberal policy on our main line.

But this aspect of the case is not the most important one to Pittsburg. The completion of the Sandy and Beaver canal opens up Pittsburg, for the sale of her manufactures and heavy merchandize, such as groceries, etc., the whole country watered by the Ohio canal and its tributaries—a country, which for fertility of soil, rapid improvement, and ability for production of produce, and consumption of our peculiar manufactures, is not exceeded in the Union. It includes about one half of the great producing state of Ohio, and decidedly the best wheat growing section.—This trade must add greatly to our prosperity, and will place Pittsburg on a high elevation as a great produce market.

A line of steamboats will be ready to be put on this trade this fall, between Pittsburg and the outlet of this canal, as soon as water is let into the eastern section of the work, and when the whole line is finished, we predict more produce will arrive at Pittsburg from that quarter than from any other at present open to us.

Here let us pause a moment and survey the various lines of communication radiating to this point, pouring their crude materials and produce into our lap, and carrying off our manufactures and merchandize. On the east we have our main line of improvement extending to Philadelphia. On the southeast the Monongahela slack water navigation, bringing to our doors the produce of that rich valley, and connecting us with the National road and with Baltimore. To this we expect soon to add the Pittsburg and Connellsville railroad. On the southwest we have the Ohio river, on which ply hundreds of steamboats, and connect us intimately with all the country watered by the great rivers of the west. On the west, the Sandy and Beaver canal will soon connect us with the rich counties of the interior of Ohio. On the northwest, the Cross-cut canal connects us with the Western Reserve and with Cleveland. On the north, we have the Erie extension, connecting us with our northwestern counties and with Erie, and on the northeast, the Allegheny river, the trade of which is all ours, supplies us with lumber and staves and pig metal, and carries off in return our manufactures and merchandize of all descriptions.

Taken as a whole, where is there a city possessed of more advantages, present and

prospective, for an immense trade? Where is there one which commands a wider extent of country, the resources of which are only partly developed? We could enlarge much here, did room permit, but we must forbear. We may say, however, that few persons abroad are aware of the extent and resources of the country of which Pittsburg is the centre, and which will inevitably make this one of the chief interior cities of the Union—not only in manufactures but in commerce. As to manufactures, take every thing into consideration, her position is unrivalled in this country or any other.

We ask the privilege of endorsing the sentiments contained in the following well expressed paragraph from the pen of the accomplished editor of the Philadelphia U. S. Gazette.

"FULTON.—A correspondent of the N. York Gazette earnestly recommends to the public the duty of erecting a statue to Robert Fulton. It is a good idea—Fulton's services deserve such a memorial. But besides being a man of genius and patriotism, Fulton was a husband and a father, and had all the good feelings that belong to those important relations. A bill has been before congress for many years, appropriating a small sum to pay to the heirs of Fulton a sum honestly due to that great man. Let that debt be paid. Let the nation erect that monument of its own justice. Let the bread be first given, and then the stone."

The Approaching Exhibition of American Manufactures at Washington begins to attract general attention, and we are glad to see that the *Virginia* papers are stirring up the citizens of the old dominion to send some of the products of their industry, that she too may be represented in the grand convention of American manufactures!

The Philadelphia U. S. Gazette, in connection with this movement, recalls the following historical incident:

"Many years since, at one of the early exhibitions of the Franklin Institute, an elderly gentleman of dignified appearance, and remarkable simplicity of manners, was seen moving slowly through the several rooms and examining articles of beauty and with great care. Here was a quantity of printed calicoes from Rhode Island, there samples of beautiful sheeting from Massachusetts, broadcloths of great delicacy, blankets, and other cotton and woolen fabrics inviting his applause. He looked at and admired the well finished cutlery, and the rich silver ware that decked the central table. Everywhere his eye detected something to approve. It was pleasant to see the interest which the venerable stranger manifested in all he saw. At length his eye caught a label on something laid almost out of view. He stepped rapidly forward, took up the article, lifted the pendant paper, and read, 'Manufactured by ———, Richmond, Virginia.' A tear dropped from the eye of the venerable man, as he read the last word. It seemed to be a feeling of pride, and not of grief, that moved him.

"Who is that old gentleman?" asked a person who had observed his emotion.

"That," said the attendant, as he lifted his hat, "is CHIEF JUSTICE MARSHALL."

Chief Justice Marshall was an American—a whole American—and nothing but an American; but he loved old Virginia, and he felt proud to see her taking a step towards her true place in the cause of national independence.

The Southern Railroad Company.—Attention is called to the notice of the opening of the books for subscriptions to the capital stock of this company, which will be found among our advertisements.—This road is to connect the Mississippi at Vicksburg with the Alabama at Montgomery, and thus, with the roads already completed and in progress, to open an uninterrupted communication between the Mississippi and the southern Atlantic cities, through the heart of the great cotton region. We hope to be able to present the merits of this great enterprise more fully hereafter.—*Charleston Mercury.*

Railroad Incident.—A young fellow travelling in one of the counties in England, found that the only passenger in a first class car was a beautiful young lady, with whom he was quite smitten, and to whom he made himself very agreeable during the travel. Not being able to ascertain her name, he presumed to steal a kiss; and when the car arrived at Birmingham she gave the gentleman in charge of the police, and made a complaint against him for the assault,—precisely the thing he wanted. He learned her name and address—paid the fine—adopted means to be introduced plead his suit—and was finally accepted by the lady, after a courtship commencing in a manner so very singular. The Hereford Times vouches for the truth of this anecdote.

Reduction of Fare.—It will be seen that a material reduction in the rates of travel has been made on the Baltimore and Susquehanna railroad. Passengers are now conveyed between Baltimore and York, Pa., a distance of sixty miles, for \$1 50, in three hours and a half; and to other portions of the road at proportionable rates. We doubt not that the reduction will be followed, as it has been in all similar cases, by an increase of travel and an increase of profits.—*Balt. Am.*

Fare to the National Fair.—While every one seems ready to admit that it would be proper to reduce the charges for travel on the railroads between New York and Washington, during the approaching great national fair, we are not apprised that any positive movement on the subject has been made towards effecting the object. We recur to the matter again, in the hope that speedy and definite favorable action may be taken by the railroad companies in reference to it. The rates suggested a few days since—ten dollars for the trip from New York to Washington and back, six dollars from and back to Philadelphia, and two dollars from and back to Baltimore—would set additional thousands in motion, and add materially to the revenues of the railroad companies.—*Balt. Am.*

Montreal Railroad.—We are happy to announce to our readers that a convention has been entered into by the St. Lawrence and Atlantic railroad companies, by which it is agreed that the St. Lawrence terminus of the road shall be on a wharf extending to the navigable waters of the St. Lawrence opposite Montreal, and the Atlantic terminus shall be on a wharf extending to the navigable waters of Portland harbor. The work is to be commenced without delay, and to be completed within a stipulated time.—It is settled that the road shall be of one uniform construction, and be built on the same plan or system. It provides a mode of determining the point of junction and connection at the boundary of Canada, and stipulates within what time the road shall be completed. It provides for a uniform system of management and operation, and regulates the mode of adjusting amicably all differences that may possibly arise between the two companies.—*Port. Adv.*

Canada Railroads.—The application for a renewal of the forfeited charter of the company that proposed to build a railroad from opposite Buffalo to Detroit, has been rejected in the Canada parliament. The Hamilton company have succeeded in obtaining a charter to carry their road from Detroit river, and from Hamilton to Toronto. These results are highly favorable to the project of an extension of the Lockport and Niagara Falls railroad to Rochester or Batavia. It must tend to give it a new impetus.—*Niagara Dem.*

Danville Affairs.—Eight Hundred Tons per month.—During the month of April, the rolling mill of the Montour iron company, at this place, made and finished eight hundred tons of railroad iron. As the water is coming into the North Branch canal, and the other divisions of the public works are now in navigable order, in a short time the several thousand tons of iron made at Danville during the past winter, will be forwarded to tide water, and thence eastward. Could the iron, lumber and produce travel of this region take the Pottsville route, the Reading railroad would find an increase of business which, perhaps, they could not now accommodate, but which they might attend to with interest, when the Schuylkill canal is widened.

The Pittsburg papers contain a notice announcing that books of subscription to the Pittsburg and Connellville railroad are about to be opened, and the Pittsburg Chronicle, alluding to the subject, says:

'Our citizens can then show the amount of interest which they feel in a railroad connection with Baltimore. The charter of this road authorizes it to be constructed to the state line. We need not wait until July, 1847, before we commence a railroad towards Baltimore.'

This is the bill which is intended as a substitute for the right of way, and which was smuggled through at the close of the session.—*Philadelphia Inquirer.*

Wiconisco Canal and Lykens Valley Railroad.—The Halifax (Dauphin county) Herald, has the following information in regard to these improvements:

'The contractors have about finished their work on the Wiconisco canal. The company have some repairs and alterations yet to make before the water will be let in, all of which may be done in two months—when the citizens residing along the line will, after so many suspensions and hope deferred, realize their wishes.

'The Lykens Valley railroad company have nearly completed their arrangements for the immediate construction of this road. A full corps of engineers are busily engaged in locating it, and timber, iron and locomotives have been contracted for. It is expected that the road will be completed in the early part of the fall.'

Plank Road.—The work on the plank road between Salina and Central Square has been commenced in earnest. Two sections of the road are already completed, and the whole, it is expected, will be finished by the first day of July. All who are acquainted with the road between those places will rejoice to know that such an improvement is so near completion. The specimens finished are excellent. It has been contemplated to lay down another track; but our opinion is, that one will be quite sufficient, and that a saving may be made by reserving the materials provided for that purpose to repair the present track when needed.—*Black River Jour., May 5.*

Wanton Mischief.—Some miscreant threw a piece of iron into the driving wheels of the Montour rolling mill, on Wednesday night, when the machinery was in motion. The concussion produced was frightful to all hands in the mill. The engineer stopped the engine, and the lump of iron was taken out of the wheel, without having broken any of the machinery. Fifty dollars reward is offered by the proprietors, to any person who can find out who the villain is that thus endangered the lives of the hands and attempted to break the works.

The Illinois and Michigan Canal.—The trustees will remain until Thursday, completing the preliminary arrangement, preparatory to putting the entire work, including the feeders, under contract, and to receive from the guarantors of the delinquent Illinois subscribers to that loan, the instalment due upon such subscriptions and remaining unpaid.

The present quarterly estimate due contractors for work amounts to \$127,000, which will be paid on Friday. We learn that the board have decided to make 60 day payments hereafter, instead of 90 as heretofore, as the work progresses.

Capt. Smith and Mr. Leavitt express themselves pleased with the situation and progress of the work, under its present efficient charge in the engineer department; and it is confidently anticipated that the line will be in navigable order on the 4th of July, 1847.*

Capt. Smith and Mr. Leavitt leave for the east on Thursday, previous to which time a decision will be made by the board relative to the feeders.—*Chicago Journal, April 28.*

* Notwithstanding this assertion, we learn that contracts are outstanding for the completion of different portions of the canal, including some locks, in September, 1847; and that the water cannot be let into the canal till after that period.—*Journal of Commerce.*

THE WESTERN AND ATLANTIC
 Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

GHAS. F. M. GARNETT,
 Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 17

RAILROAD IRON—500TONST RAILS
 R—60 lbs. to the yard. Depth of rail, 3½ inches; width of base 4 inches; width of top, 2½ inches; length of bars 15 and 17½ feet. Apply to,

A Steam Pile Driver—built by "Dunham & Co."—in complete order; has never been used, and for sale a bargain. Cost originally \$5,000. Also 12 Railway Passenger Cars, that have never been used which will be sold a bargain. 8

DAVE BROOKS & CO.,
 39 Wall street

April 11.

LOCOMOTIVE AND MARINE EN-
 gine Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture! and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

LAWRENCE'S ROSENDALE HYDRA-
 ulic Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,
 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1f

A. & G. RALSTON & CO., NO. 4
 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ¼ inch Flat Punched Rails, 20 ft. long. 25 " 2½ x ¼ " Flange Iron Rails. 75 " 1 x ¼ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES,
 Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,
 Albany Iron and Nail Works,

LEXINGTON AND OHIO RAILROAD.
 Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1.25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 351y

STEPHENS' RULING AND MECHANICAL
 Drawing Ink, for Engineers, Artists and Designers. This article will be found superior to the best Indian Ink for the above purposes. It does not smear with India rubber or wash off with water. It flows freely from the drawing pen, and never corrodes or encrusts it. It may be used on a plate or slab, with a camel's hair brush, diluting it with water, or thickening it by drying, as required. It has the advantage of being ready for immediate use.

Sold in conical-shaped bottles, convenient for using from, without any stand, at 15 cents each.

ALSO,

STEPHEN'S WRITING FLUIDS.

These compositions, which have so remarkably extended the use of the STEEL PEN, are brought to great perfection, being more easy to write with, more durable, and in every respect preferable to the ordinary ink. In warm climates they have become essential.

They consist of a Blue Fluid, changing into an intense Black color.

A Patent Unchangeable Blue Fluid, remaining a deep Blue color.

A Superior Blue Ink of the common character, but more fluid.

A brilliant Carmine Red, for Contrast Writing.

A Carbonaceous Record Ink, which writes instantly black, and being proof against Chemical Agents, is most valuable in the prevention of frauds.

Also, a new kind of MARKING INK for Linen and Inkstands adapted for, preserving Ink from evaporation and dust.

Sold in Bottles of various sizes, by all Stationers and Booksellers.

Be sure to ask for Stephens' Writing Fluid.

N. B.—These unchangeable Blue Fluids are Patent Articles; the public are therefore cautioned against imitations, which are infringements, to sell or use which is illegal.

Stephens' Select Steel Pens.

The utmost possible care having been bestowed upon the manufacture of these articles, so as to procure the highest finish, they can be confidently recommended, both for flexibility and durability.

All the above articles are prepared by Henry Stephens, the inventor, No. 54 Stamford-street, Blackfriars road, London, and sold by Booksellers and Stationers in bottles of various sizes, and may be had wholesale from the agents in Boston, New York, Philadelphia, Baltimore, Washington, Charleston, New Orleans, and St. Louis.

Wm. W. Rose, Wall-street, New York, is my general agent in the United States.

VALUABLE PROPERTY ON THE MILL
 Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

RICH & CO'S IMPROVED
 PATENT SALAMANDER SAFES.—Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, resin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited. S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open. JOHN BATTAILE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 133½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat. (Signed,) RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 133½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards. (Signed,) WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by A. S. MARVIN, General Agent,

133½ Water st., N. Y.

Also by Isaac Bridge, 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street, Charleston, S. C. 16 1f

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846.. Spring Arrangement.. 1846
Commencing April 1st.
Passenger trains leave daily, Sundays excepted—
Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6½ " and 2½ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Boston and New York, via Springfield: Passengers leaving Boston at 4 p. m., arrive in Springfield at 8 p. m., proceed directly to Hartford and New Haven, and thence by steamers to New York, arriving at 5 o'clock a. m.

For Buffalo: the trains for Buffalo leave Albany at 7½ a. m. and 7 p. m., arriving at Buffalo at 8 a. m. and 8 p. m. next day. Returning, arrive at Albany at 4 a. m. and 4 p. m.

New York and Boston, via Albany: the trains from Boston arrive at Albany in season for the 7 o'clock boats to New York. Returning, the boats, leaving New York at 5 and 7 p. m., reach Albany at 5 a. m., in ample season for the morning trains to Boston.—Steamboats also leave Albany at 7 a. m. and 5 p. m. and stop at the usual landing places upon the river.

The trains of the Springfield, Hartford and New Haven railroad, connect at Springfield, and passengers from Albany or Boston proceed directly on to Hartford and New Haven.

Montreal: through tickets to Montreal may be obtained in Boston, by which passengers may proceed to Troy, and thence by stage via Chester, Elizabeth, etc., and in the season of navigation by canal to Whitehall, and thence by the splendid steamers of Lake Champlain to St. John, via Burlington, and thence by railroad and steamers to Montreal.

The trains of the Hudson and Berkshire railroad connect at Chatham and State Line.

The Housatonic railroad connects at State Line. The trains of the Connecticut River railroad connect at Springfield, and passengers may proceed without delay to Northampton, and thence by stage to Greenfield, Brattleboro, Bellows Falls, Hanover, Haverhill, etc.

Stages leave West Brookfield for Ware, Endfield, New Baintree and Hardwick; also leave Palmer, for Three Rivers, Belchertown, Amherst, Ware and Monson; Pittsfield for North and South Adams, Williamstown, Lebanon Springs, etc.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES,
Superintendent and Engineer.

Western Railroad Office,
Springfield, April 1, 1846. } 14 ly

MANUFACTURE OF PATENT WIRE

Ropes and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 ly

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.

PETER COOPER, 17 Burling Slip.
New York, January 23d, 1846. 1y 10

C. J. F. BINNEY,
GENERAL COMMISSION MERCHANT
and Agent for Coal, and also Iron Manufactures, etc.

No. 1 CITY WHARF, Boston.
Advances made on Consignments.
Refer to Amos Binney, Boston.
Grant & Stone, } Philadelphia.
Brown, Earl & Erringer, }
Weld & Seaver, } Baltimore.
December 8, 1845. 1m 50

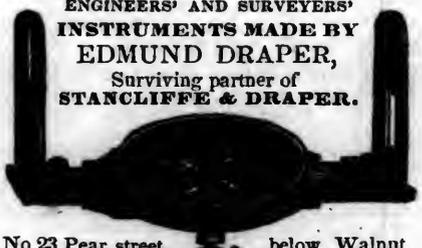
SCRIBNER'S ENGINEERS' AND MECHANICS' COMPANION. For sale at this office. Price \$1.50.

LARD OIL FOR MACHINERY, ETC.

Winter pressed, cleansed from gum, and manufactured expressly for engines and machinery of all kinds, railroads, steamboats, woollen and other manufactures, and for burning in any lamp without clogging the wick. Engineers of railroads and others who have used this oil, and to whom reference can be made, give it preference over the best sperm for its durability, and not requiring to be cleaned off like that, and costing about two-thirds the price. For sale by the barrel, and samples can be sent for trial, by addressing

C. J. F. BINNEY,
Agent for the Manufacturer,
Boston, Mass.
11 eop 1m

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, near Third, below Walnut, Philadelphia.

KITE'S PATENT SAFETY BEAM.

MESSRS. EDITORS.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

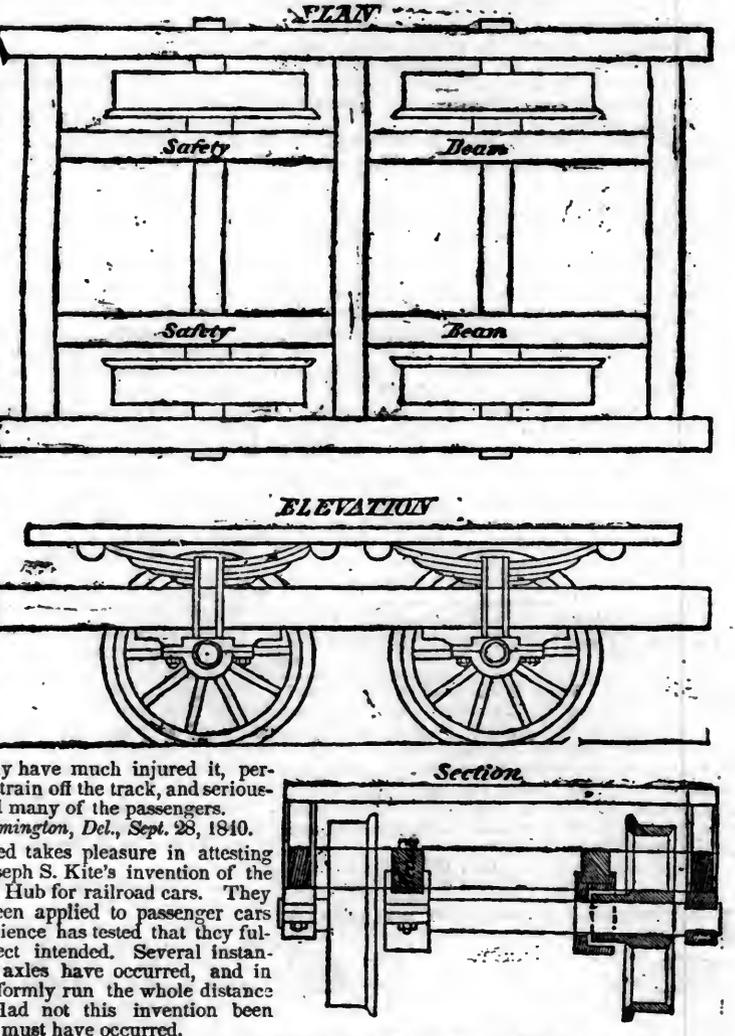
On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheeled passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.

Wilmington, Del., Sept. 28, 1840.

The undersigned takes pleasure in attesting to the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.

In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.

JOHN FRAZER, Agent,
GEORGE CRAIG, Superintendent,
A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 1 Hanover st., N. York. j45



PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. **JOHN F. WINSLOW, Agent.**

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

. Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved **SPARK ARRESTER**, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

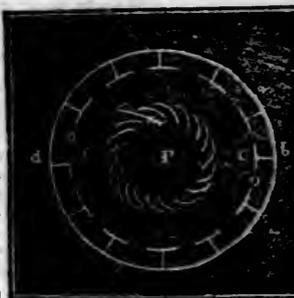
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trar s. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. **FRENCH & BAIRD.**

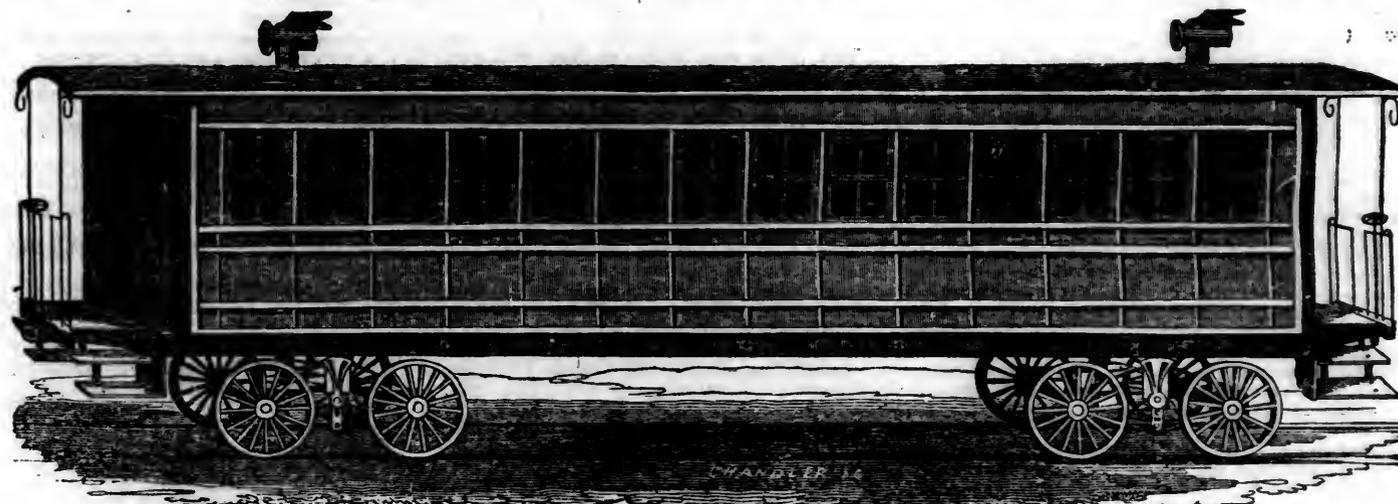
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

. The letters in the figures refer to the article given in the *Journal* of June, 1844. ja45



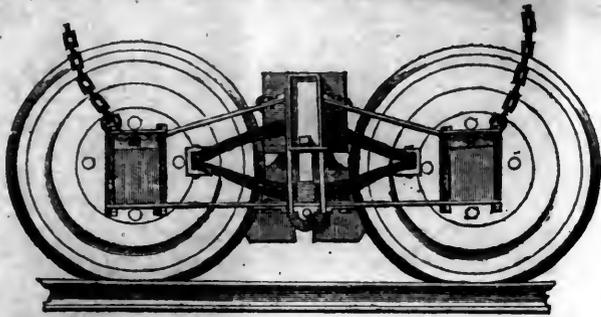
BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

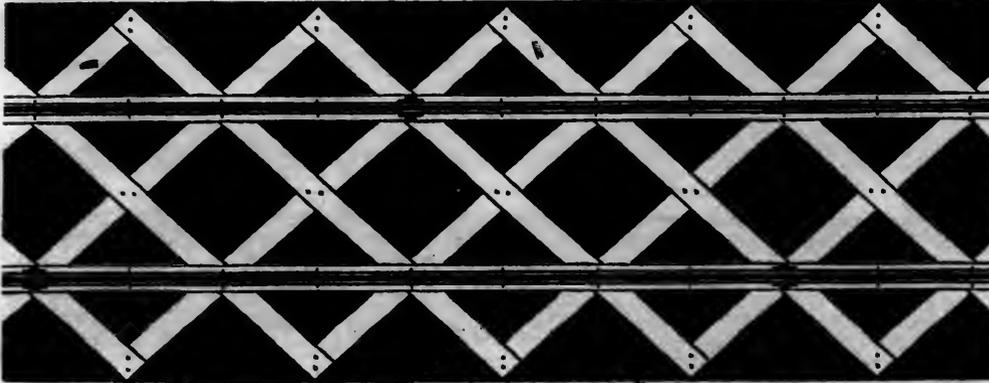
Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

Sup't Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting.

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount with said, being made from the large margin of profits that will result from its use.

JAMES HERRON,
Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum...	5 00

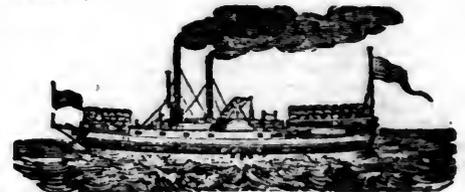
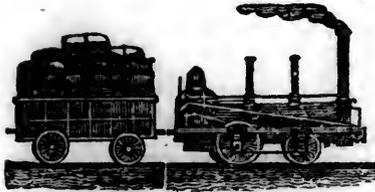
ENGINEERS and MACHINISTS.

- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- H. R. DUNHAM & Co., N. Y.
- WEST POINT FOUNDRY, N. Y.
- PHENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

AMERICAN RAILROAD JOURNAL,

AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 21.]

SATURDAY, MAY 23, 1846.

[WHOLE No. 517, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7-20 a.m. and 3½ p.m.

All baggage at the risk of the owners thereof.
31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD AND STAGES CONNECTING WITH THE BOSTON AND PROVIDENCE RAILROAD.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars.

321y J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.
Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m.
Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m.

Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m.

Portland for Boston at 7½ a.m., and 3 p.m.
Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m.

Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value. CHAS. MINOT, *Super't.*

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture

per foot..... 16 cts.

" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs..... 95 "

" Sugar, coffee, iron, hardware, etc..... 65 "

" Flour, bacon, mill machinery, grindstones, etc..... 33½ "

" Molasses, per hogshead \$9-50; salt per bus. 20 "

" Ploughs and cornshellers, each..... 75 "

Passengers \$10-50; children under 12 years of age half price.

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
Ch. Eng. and Gen. Agent.
Augusta, Oct. 21 1845. *44 ly

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.
" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED to \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M.
" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts.

H. C. SEYMOUR, *Sup't.*
March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 lf

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the

Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13yl

BALTIMORE AND SUSQUEHANNA Railroad. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a.m., and arrives at 6 1/2 p.m. Arrives at York at 12 1/2 p.m., and leaves for Columbia at 1 1/2 p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62 1/2. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3 1/2 p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc.

Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day any passenger train.

D. C. H. BORDLEY, Sup'l.
Ticket Office, 63 North st.

31 1y

CENTRAL RAILROAD-FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

- On weight goods generally... 50 cts. per hundred.
- On measurement goods..... 13 cts. per cubic ft.
- On brls. wet (except molasses and oil).....\$1 50 per barrel.
- On brls. dry (except lime)... 80 cts. per barrel.
- On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
- On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.
- On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, 40 Gen'l. Supt. Transportation.

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3 30, 4 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams' Bridge trains will be regulated according to the state of the weather. 18

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the Heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sts. 43 1y

LITTLE MIAMI RAILROAD.—1846.— Summer Arrangement.

Two passenger trains daily. On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1 1/2 p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m.

On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m. Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.

Tickets may be procured at the depot on East Front street. The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount. W. H. CLEMENT, Superintendent.

CALIGRAPHIC BLACK LEAD PENCIL, Manufactured by E. Wolff and Son, 23 Church Street, Spitalfields, London. The Caligraphic Pencils have been invented by E. Wolff and Son, after the expenditure of much time and labor. They are the result of many experiments; and every effort that ingenuity and experience could suggest, has been made to insure the highest degree of excellence, and the profession may rely upon their being all that can be desired.

They are perfectly free from grit; and for richness of tone, depth of color, delicacy of tint, and evenness of texture, they are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use.

The Caligraphic Pencils will also recommend themselves to all who use the Black Lead Pencils as an instrument of professional importance or recreation, by their being little more than half the price of other pencils. An allowance will be made on every groce purchased by Artists or Teachers. May be had of all Artists, Colourmen, Stationers, Booksellers, etc. A single pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

Caution.—To prevent imposition, a highly finished and embossed protection wrapper, difficult of imitation, is put around each dozen of Pencils. Each Pencil will be stamped on both sides, "Caligraphic Black Lead, E. Wolff and Son, London."

The subscriber has on hand a full supply of Wolff and Sons celebrated Creta Loevis, or Colored Drawing Chalks, also their pure Cumberland Lead and extra prepared Lead Pencils, and Mathematical Lead Pencils.

P. A. MESIER, Stationer and Sole Agent, No. 49 Wall Street.

N. B.—A complete assortment of Steven's Genuine Inks, Fluids, Imitating Wood stains, and Graining Colours at the Manufacturers prices.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any; either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Allaire, } New York.
- Peter Cooper, }
- Murdock, Leavitt & Co. }
- J. Triplett & Son, Richmond, Va. }
- J. R. Anderson, Tredegar Iron Works, Richmond, Va. }
- J. Patton, Jr. } Philadelphia, Pa.
- Colwell & Co. }
- J. M. L. & W. H. Scovill, Waterbury, Con. }
- N. E. Screw Co. } Providence, R. I.
- Eagle Screw Co. }
- William Parker, Supt. Bost. and Worc. R. R. }
- New Jersey Malleable Iron Co., Newark, N. J. }
- Gardiner, Harrison & Co. Newark, N. J. }

25,000 to 30,000 made weekly. 35 1y

FLAT BAR, ENGLISH ROLLED, RAILROAD IRON, 2 1/2 x 1—a large part suitable to relay. For sale by C. J. F. BINNEY, Commission Merchant, 1 City Wharf, Boston, Mass.

11 1m

TROY AND GREENBUSH RAILROAD. Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at 6 1/2 A.M. Leave Albany at 7 A.M.

"	"	7 1/2 "	"	"	8 "
"	"	8 1/2 "	"	"	9 "
"	"	9 1/2 "	"	"	10 "
"	"	10 1/2 "	"	"	11 "
"	"	11 1/2 "	"	"	12 M.
"	"	1 P.M.	"	"	1 1/2 P.M.
"	"	2 "	"	"	2 1/2 "
"	"	3 "	"	"	3 1/2 "
"	"	4 "	"	"	4 1/2 "
"	"	5 "	"	"	5 1/2 "
"	"	5 1/2 "	"	"	6 "
"	"	6 1/2 "	"	"	7 "

The 6 1/2 a.m. and 2 o'clock p.m. runs from Troy, to Boston runs. The 12 m. and 6 o'clock p.m. trains from Boston runs.

Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT, Superintendent.

Troy, April 1st, 1846.

14 1y

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.

THE SUBSCRIBERS, AGENTS FOR the sale of Codorus, Glendon, Spring Mill and Valley, Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L KIMBER, & CO., 59 North Wharves, Philadelphia, Pa.

Jan. 14, 1846. [1y4]

Dublin and Kingston Railway.

An example to the Long Island, Harlem, and other railroads from the city of New York.

We give in this number the report of the Dublin and Kingston railway, as has been our custom for several years past. We consider this road, in its management, an admirable example to the railroads in the vicinity of this city, and for the purpose of inculcating this example we shall enter somewhat into detail.

The Dublin and Kingston railway is but six miles long—its cost up to last year, £349,736, or over one million and a half of dollars; this includes, however, the branch to Dalkey, of one mile and three-fourths, on the atmospheric system. Taking the whole line as eight miles, it will have cost over \$218,000 per mile; and yet this road has paid, as may be seen by the report, 10 per cent. dividend for the last year, having previously added to its contingent fund, one-eighth of the clear profits. It must be remembered, too, that the branch to Dalkey is attended with great expense from its mode of construction.

Let us now apply the example. The Brooklyn and Jamaica railroad was constructed for the purpose of accommodating the large amount of travel on the west end of Long Island—before its completion it was leased to the Long Island railroad company, who have extended their road through the island. There is probably no equal extent of line in the world more favorably situated than this—no large streams to cross—no heavy excavation or embankment, (with, perhaps, a single exception)—no short curves—perfectly straight lines of 10, 20 and 26 miles together—and for nearly the whole distance the kind of gravel best suited for a roadbed is the only subsoil. Here are conditions favorable for a railroad. The whole road (96 miles) and its machinery, has cost about as much as the Dublin, Kingston and Dalkey road, 7½ miles long—and has the Long Island railroad paid any dividend?

Let us now compare the management of the roads, and see if we can discover the cause of the extraordinary success of the one, and of the equally extraordinary want of success of the other.

The Dublin and Kingston runs trains every half hour during the day and evening, for the whole year, from each end of the road, the price is moderate, and to the laboring classes exceedingly cheap. They encourage residences along the line, and at its termination; subscribers—or commuters, as we call them—are also encouraged, and from this source one-seventh of the entire income was derived during the last year.

The Long Island runs through the "garden of N. York," as it has been called, sends but a morning and evening train, up and down per day, for about one-half of its length, and three through trains, up and down per week! In summer, the trains for the western part of the island are doubled, and go through every day. The through train, with the Boston passengers, had recently made stops along the line. The company, three years ago refused, as we are informed, to commute, while they had an advertisement standing in the papers, offering as an inducement for persons to reside upon the island, that they would commute on liberal terms. For the last year or two commutations have been refused entirely, on the ground that all railroad companies were adopting that policy—and at present the only mode of commutation is by the purchase of tickets at reduced prices—but in no case equal, in point of cheapness,

to the commutation upon other roads. More frequent trains have been refused upon the ground that the company was not bound to build up villages on the line of the road. True, they are not bound to "build up villages," but we have been simple enough to suppose that the managers of railroad companies were bound to promote the interest of their stockholders. Can we now doubt the true cause of the vast difference in the success of these roads?—The one accommodates the public, by frequent trains and low rates of fare, while the other seems not to make an effort to accommodate the people, and has, through its officers, as we have been told, repeatedly declared that if the public is not satisfied, it may go elsewhere, but has no right to complain. We insist, however, with all due deference to those gentlemen, that the people have a right to complain, and that it is the duty of the managers of the road to listen to their complaints, and if found just, they are bound to remove the cause—or the legislature should apply the remedy.

But the subject is too wide to enter into all its branches at present, we must now leave our readers with the Dublin and Kingston report, to which we add a very sensible article giving explanations in regard to "morning tickets"—and shall again refer to the subject at an early day, as we deem it of equal importance to the stockholders, and the masses who use railroads.

Dublin and Kingstown Railway Company, General Meeting.

The annual general meeting of proprietors was held on Saturday, in the board room of the company at Dublin, for the purpose of receiving the report and statement of accounts submitted at such meetings; George Roe, Esq., in the chair.

The secretary, T. F. Bergin, Esq., read, by the direction of the chairman, the minutes of the proceedings of the company at the last annual meeting, and the meeting held upon the 10th of March. He then read the following document:

"FOURTEENTH ANNUAL MEETING.—REPORT.
"Dublin, March 28, 1846.

"GENTLEMEN: We have the satisfaction of announcing a continued increase in the traffic of the line, as you will observe from the usual statistical statement, which is as follows:

Number of passengers booked at all the stations.....	£1,747,100
Last year.....	1,710,503
Increase.....	36,597
Estimated trips by subscribers.....	691,513
Last year.....	523,930
Increase.....	77,583
Gross number of passengers, subscribers included.....	2,348,613
Last year.....	2,234,433
Increase.....	114,180
Subscriptions received.....	£7,698 12 10
Last year.....	6,867 4 6
Increase.....	831 8 4
Gross income from all sources, exclusive of Dalkey.....	53,036 19 1
Last year.....	51,187 6 7
Increase.....	£1,849 12 6

Classification of passengers for the last seven years including subscribers.

Years ended last day of Feb.	1st class.	2d class.	3d class.	General total.
1840.....	30,442...	550,414...	700,105...	1,280,761
1841.....	35,585...	724,105...	759,383...	1,519,024
1842.....	37,001...	840,116...	754,968...	1,632,085
1843.....	68,156...	960,937...	729,788...	1,758,878
1844.....	98,076...	1,049,243...	814,732...	1,962,051
1845.....	104,109...	1,219,556...	910,768...	2,234,433
1846.....	141,911...	1,293,524...	913,178...	2,348,613

	1843	1844	1845	1846
Trains despatched.	27,728	29,564	30,745	30,970
Miles travelled....	166,340	177,384	184,470	185,520
Average coaches pr train.....	6-780	7-484	7-511	7-550
Av. passengers per train.....	63-220	66-366	72-676	75-830
Consump'n of coke pr train pr mile.	22-880 lbs.	24-107 lbs.	24-220 lbs.	26-740 lbs.
Av. receipts pr passenger per mile.	1-050 pence.	0-968 pence.	0-893 pence.	0-883 pence.
Gross receipts....	43,400l.	45,255l.	51,187l.	53,036l.

Third-class morning tickets, year ended 28th February, 1842.....	1843.....	1844.....	1845.....	1846.....
30,514	37,310	116,920	174,802	192,154

"The board have thought it desirable to place in your hands the preceding comparative statistical table, now for the first time given, because it so clearly exemplifies the soundness of the policy which, with your sanction, has been followed in the management of this railway—namely, affording to the public the utmost amount of accommodation at very moderate charges.

"From the comparative table of passengers of the several classes, you will see that this increase has not been limited to any one denomination, although the ratio of increase has been very different. In first class passengers there has been very nearly a five-fold increase. The second class have much more than doubled during the last seven years, a manifest proof of the value of the subscription system as a means of creating and encouraging permanent residence along the line of railway.

"In the third class there has also been a large increase, not so regularly progressive as with the other classes, but still considerable. It is now more than five years since the board, anxious to contribute as much as possible to the benefit of the operative and humbler classes—who, in pursuit of their various avocations, constitute a great proportion of the third class passengers—introduced a special description of ticket, the practical effect of which is that, for a larger number of those persons, the third class fare is reduced to one-half of the ordinary rates. The prefixed table of 'morning tickets,' giving the number issued in each year since their first introduction, shows to what an extraordinary extent these tickets have effected their intended object.

"With respect to the statement of accounts now to be submitted, the board have very few observations to make, other than to congratulate you on the results of the past year. In one respect only do these accounts differ in principle from those of the preceding years. Our act of incorporation makes it obligatory that at each annual meeting you should, be-

fore declaring a dividend, set aside one-eighth part of the clear profits as a fund to answer contingencies, which fund is, by the act, placed exclusively at the disposal of the directors; and accordingly from it they have met a variety of extraneous expenses, which have occurred since the commencement of the undertaking. But few and inconsiderable causes of such outlay having arisen during the last two years, there was, on the 1st inst. a balance to credit of that fund amounting to £3,525 7s. 6d., to which you will this day have to add £2,530 7s. 3d., making the whole fund £6,055 14s. 9d. Were the law to continue as it now is, and in the present state of the works, this fund must soon accumulate to a very large and undesirable extent; and so strongly was this felt by the board, that in the bill now before parliament, for extending the line to Bray, a clause has been inserted for the abolition of this fund.

"For several years back, the great increase in your traffic called for a corresponding increase in engines and carriages, and the cost of these, all of which are constructed in your workshops, the board charged year by year to annual expenditure. The continuing increase in the traffic induced the board during the last year, to provide a large additional stock, including engines of greatly increased power, the expenditure on which has amounted to about £6,000. As this is an outlay the advantages of which will extend over several years, the board have thought it unreasonable that the whole should be a charge against the profits now at your disposal; and having the large amount already stated in the contingent fund, without any demands thereon, they have charged to that account an equitable proportion of the cost of the new stock. The amount so charged anticipates a part of the sum you are this day called on to appropriate, but the allocation being, as the board conceive, strictly within the powers conferred on them in respect to this fund, they feel no doubt of your approval of the course they have pursued.

"The only one of the items of charge which seems to require special notice, is that for maintenance of way, in which there is an increase of £1,275 1s. 9d. This consists, partly, of the expense of further protection from the sea, in the neighborhood of Seapoint; but essentially of the cost for timber and labor, including the charge for locomotive power in completing the laying down of new rails; the cost of the rails themselves was chiefly defrayed by the sale of the large stock of old ones which had accumulated since the commencement of the undertaking; and the board have now the satisfaction to report that the entire line and all the works, including engines and coaches, are in the most excellent condition.

"The Dalkey line has fully borne out the anticipations of the board, as to the regularity and efficiency of the atmospheric system of traction, as will be manifest from the fact that there were 71,708 trains despatched during the year, and but 13 trains lost; all of which, save one, were caused by slight derangements in the steam engine, and would

have been entirely avoided had there been two engines instead of one.

"The following are the results of the Dalkey line during the past year:

Trains despatched from both ends.....	21,807
Coaches moved.....	75,924
Passengers conveyed.....	340,742
Average coaches per train.....	3-497
" " passengers ".....	11-090
" " per coach.....	3-160
Total cost of power and maintenance of way per train per mile.....	10-7 pence.

"The amount shows an apparent loss of £397 9s. 1d. from the Dalkey line; but it must be kept in mind that the board did not anticipate any direct profits from it; they looked to the return being obtained by increase of traffic over the original line, and in this their anticipations have been fully borne out. They are able to say with confidence that the construction of this extension to Dalkey immediately caused and has since maintained an addition of about £3,000 per annum to your revenue—thus fully realizing their expectations, when recommending for your adoption this interesting and important experiment.

"The special general meetings of the 2d of August last and of the 10th inst., have put you so fully in possession of everything connected with the late Kingstown and Bray project, the extension project now before parliament, and the agreement with the Waterford, Wicklow and Dublin company, that the board have not anything further to communicate on these subjects, except that under your resolution of the 10th inst., the articles of agreement have been executed; that both your extension bill and the bill of the Waterford, Wexford, Wicklow and Dublin company are now in committee in the house of lords, both having passed through the committee on standing orders, and the board have expectation that both will pass the legislature as speedily as the forms of parliament will admit of.

The profits from the last year's working have amounted to.....	£28,954	1	9
From that deduct—			
Payment to the board of works on account of loans.....	£6,000	0	0
Interest on debentures.....	2,711	3	7
Leaving the net profits of the year...	20,242	18	2
From which this meeting is required to set aside one-eighth part as a fund to meet contingencies.....	2,530	7	3
There remains.....	17,712	10	9
To which add a balance to credit of interest... £196 18 11			
Surplus from last year.. 2,436 9 0			
	2,633	7	11

There remains a present available balance of..... £20,345 18 8

"From this sum the directors recommend that you shall now declare a dividend of 10 per cent, amounting to £20,000, which will leave a balance of £345 18s. 8d. to be carried to the next account."

Statement of Accounts for the year ending 28th February, 1846.

EXPENDITURE.		£	s.	d.
Locomotive power—				
Salaries and wages, materials, engine-men and firemen's wages, fuel, coke and wa-				

ter, station wages and sacks, coal for forge and shop use, lighting workshops [gas], oil, tallow, hemp, waste, and miscellaneous petty expenses.....	6,626	17	8
Carriage department—			
Salaries and wages, materials, coals for forge and shop use, lighting workshops [gas], paints, oils, varnishes, grease & miscellaneous petty expenses.....	3,101	9	6
Railway maintenance.....	3,286	17	1
Police and night watch, wages and clothing.....	1,103	12	3
Passenger traffic disbursement, including salaries of receiving clerks, wages of guards, ticket takers and door keepers, printing tickets and docketts, advertising and miscellaneous petty expenses.....	1,926	2	10
Stations and lodges, including salaries of superintendents and station keepers, lighting and repairs of lamps, wages of tablemen, and repairs and painting at the intermediate stations.....	2,761	10	9
Parcel traffic, including salaries, wages, books and printing.....	231	8	1
Office expenses, salaries of treasurer, clerk of company, resident engineer, bookkeeper, office clerks, stationery, postage and servants.....	1,769	17	8
Directors—allowance for year ending February 28, 1845.....	900	0	0
Rents.....	530	6	2
Taxes.....	860	15	6
Law expenses.....	140	3	5
Baths, for repairs.....	111	14	8
Insurance, charity and miscellaneous charges.....	224	12	8

DALKEY RAILWAY.

Steam engine and vacuum pump—coals £587 11 7; engine-men and stoker's wages, £202 5 6; oil, tallow waste, £70 5 4; mechanics' wages for repairs £281 15 11; materials for repairs, £143 18 8; other expenses, £52 13 10.	1,439	10	10
Working main and piston—materials for repairs, £132 3 5; mechanics' wages, repairing, £16 15 4; valve man. £69 15s.....	208	13	9
Coaches, repairs and maintenance.....	191	3	6
Superintendents and station keepers.....	197	10	6
Ticket takers, guards, porters, police, door keepers and night watch.....	539	17	0
Other expenses, repairs of cuttings which slipped, of station shed damaged by storm, taxes, printing, advertising....	220	12	10
Profit and loss for balance transferred..	28,954	1	9
	£55,537	10	11

RECEIPTS.

Daily passenger traffic, £43,987 6 11: police soldiers and pilots [by contract,] £167 17; subscription traffic, £7,698 12 10.....	51,853	15	11
Parcel traffic.....	447	12	2
Post office contract for conveyance of mails.....	500	0	0
Baths, for rents received.....	132	0	0
Rents.....	93	8	0
Miscellaneous receipts, transfers, fees, etc.....	10	3	0
Dalkey traffic.....	2,500	11	10
	£55,537	10	11

PROFIT AND LOSS—EXPENDITURE.

Reserve fund, by order of a general meeting, March, 1845.....	2,370	8	11
Ninth dividend.....	18,000	0	0
Balance carried to the credit of this year's account.....	2,436	9	0
	£22,806	17	11
Commissioners of public works, viz: interest on loans from them, £3,209 8 2; in discharge of principal, £2,790 11 10.....	6,000	0	0
Interest on debenture loan.....	2,711	3	7
Balance carried to credit of Dublin and Kingstown railway account.....	22,876	6	1
	£31,587	9	8

RECEIPTS.

By balance on 29th February, 1844 per last account £22,806 17 11

Balance brought down 2,436 9 0
Interest general account, balance to credit 196 18 11
Income and expenditure account for balance transferred 28,944 1 9

£31,587 9 3
Dublin and Kingstown railway, general statement from the commencement of the undertaking to 28th February, 1846.

EXPENDITURE.

Total expenditure on works, to 28th February, 1845, including expenses in respect to debenture loan and of land accounts as per last statement. 352,911 7 7
Further expenditure this year, viz:—
Kingstown station, £174; Black Rock station, £58 2 6; Westland row station, £223 0 11 455 3 5
Total cost of railway to 28th February, 1846 353,366 11 0

Deduct re-payments to board of works, viz:—
from profits per last report 28,624 12 5
This year 2,790 11 10

£31,415 4 3
For sale of land 2,636 18 2

£319,314 8 7
Balances on sundry accounts 2,759 14 8
Government stock 3½ per cent. 2,440 0 5
Dalkey line 39,393 1 3
Contingent fund 1,235 16 10
Cash and bankers' balances, including deposit with court of chancery, on extension account 19,658 1 4
Bills and misissued debentures 4,580 0 0

RECEIPTS.

Joint stock capital, viz: calls on shares £200,000; loans from commissioners of public works, £112,200. Deduct repayments, [as per opposite side] £34,052 2 5—£08,147 17 7: debenture loan, £70,000 348,147 17 7
Debenture loan liquidation fund 4,000 0 0
Debenture loan expenses for premiums on debentures sold 29 4 6
Dividends unpaid 234 0 0
Balance on sundry accounts 2,900 5 0
Dublin and Kingstown extension account, as per abstract 9,793 9 11
Profit and loss for balance brought down 22,876 6 1

£387,981 3 1

Dublin and Kingstown Railway—"Morning Tickets" and Railway Villages.—The reports of the directors of the Dublin and Kingstown company, for some years past, have been characterized by the interesting and valuable statistical and comparative information which they have contained. The report for the last year (to which we had the pleasure of calling the attention of our readers in our last number) contains, for the first time, a comparative statement of the number of "morning tickets" issued for the five previous years; but although the tickets so designated are thus introduced to our notice, the report does not give the public any information respecting them. As we were personally made acquainted with these arrangements a few years since, we hasten to lay be-

fore the public the interesting details connected with them.

Most of our readers are aware that the town of Kingston has greatly increased since the formation of the railway, and that a vast number of villa residences have sprung up in its vicinity. A large proportion of the artisans employed in the erection and completion of those buildings were resident in Dublin.—The railway fare, out and home each day, was a serious deduction from their wages, or a serious tax on their employers; and the result was, that most of them were huddled together in wretched and comparatively expensive lodgings at Kingston, and generally separated from their families in Dublin during the entire week, whereby both parties were exposed to peculiar temptations. This state of things being brought under the consideration of the directors of the railway, they authorized the issue of what they have termed "morning tickets" to third-class passengers, by which the parties who pass between Dublin and Kingstown by the first three trains in the morning—namely, at six, half-past six, and seven o'clock—are entitled to return free at any time they may please during the day.

Now, the result of this has been, not only that those artisans have been restored to their families, and their domestic happiness been thereby greatly increased, and temptations removed (whilst the trip out and home is to the men a source of healthful enjoyment and recreation), but another class of persons, who were not even thought of at the time the plan was adopted, have been furnished with the means of daily employment; and many a humble hearth has been made cheerful through the daily profits derived by the itinerant dealer in fruit, eggs, vegetables, fish, etc., who go in large numbers to the early markets in Dublin, and return to various places along the line of the railway with their daily stock in trade. We were glad to find that no inquiry is ever made as to the weight or bulk of those articles; anything which they can jointly or severally carry to the railway truck is cheerfully taken without any charge. All this manifestly tends to facilitate building and other similar operations at Kingston, and to increase the comforts and prosperity of the inhabitants, and particularly of the poorer classes; and a reaction to some small extent may be expected from those causes on the income of the company. But the direct return to the company from these tickets has been so large, and the increase so rapid, that we will reprint the numbers:

Third-class morning tickets, year ended 28th February, 1842.....	30,514
" " " " 1843.....	37,310
" " " " 1844.....	116,920
" " " " 1845.....	174,802
" " " " 1846.....	192,154

Or, in other words, the company have received in round numbers £4,800 from these tickets; and we have little doubt that at least £3,000 of that sum is additional revenue and clear profit to the company from this source.

We are now most happy to have it in our power to inform those liberal and enlightened

gentlemen to whom the public have thus been so largely indebted, that their excellent example is likely to be followed here, and with results of such a character, that we do not hesitate to class them amongst the most important connected with the introduction of the railway system.

Many intelligent and benevolent persons lately turned their attention to the necessity of providing increase of house accommodation for the lower classes in London; and among others, Mr. W. B. Moffatt, the well known architect of Spring gardens, has considered the subject. Having heard of the success which has attended the issue of "morning tickets" on the Dublin and Kingstown railway, it occurred to him that an extension and modification of this plan might be adopted with the utmost advantage; and meeting with a kindred spirit in Mr. W. A. Wilkinson, the chairman of the Croydon railway, a plan has been adopted, and a company formed, for the purpose of taking a considerable extent of ground near one of the stations of the Croydon railway, and building thereon a large village.—But let Mr. Moffatt speak for himself:

"Each village should contain about 5,000 cottage residences, covering 500 acres of land, and taking the probable average of the inhabitants of each cottage at seven in number, it will give to each village 35,000 inhabitants, making a total population, supposing ten villages to be in the course of time erected, of 350,000 removed from the dens of the metropolis.

"It is contemplated to erect only ten cottages to an acre; which, built in pairs, will give to each residence a good garden, will secure perfect ventilation, and incite the occupant to industry, regularity and neatness.

"The method adopted in laying out the new villages would combine everything to render them attractive and desirable for the class for which they are intended—comprising churches and chapels, with cemeteries attached to each, forming picturesque and open spaces, so disposed as to give free circulation to the town.

"Mechanics' institutions, with lectures, library, and reading rooms for instruction and amusement.

"Gymnasium, with grounds for recreation, exercise, by cricket, etc., etc.

"Public baths and washing establishments, to induce habits of cleanliness and promote health.

"Gas and water companies, and other public establishments, requisite to secure a supply to the inhabitants of all the necessaries of life at the cheapest possible rate, and of a genuine quality; thus rendering them, in a great measure, independent of supplies which they now obtain at high market prices.

"As the benefit of the working classes will be the primary feature of this society, every member who has the means of doing so will have the opportunity of becoming a participator, by dividing the necessary capital into shares of £20 each, and the small sum of 1s. per week, after the necessary deposit, will be payable in respect of each share.—This will enable each shareholder of 4, 6 or

8 shares, according to his class, to become (in exchange for his shares) the owner of his cottage in about six or seven years, provided he continues the payments during that period; and thus, the habit of saving once being induced, it is hoped it will continue during the period of his actual labor, till he has realized a small competency to assist him in his declining years.

"The advantages which would necessarily accrue to the working classes from exchanging a loathsome, unhealthy, and highly-rented city lodging, for a well built, cheap, airy, and cheerful country residence, combining every motive to order, sobriety, and industry, are sufficiently apparent; whilst to the capitalist this scheme must recommend itself, as securing an ample return for any funds embarked in it; and to the philanthropist, as the most effectual means of alleviating the immense amount of human misery consequent on the present overcrowded state of the metropolis."

This statement and appeal have been nobly responded to by the Croydon company. Acting on the recommendation of their chairman, they have, with an enlightened liberality which does them infinite credit, agreed to convey, upon certain conditions, the heads of families by their railway to and from London FOR ONE SHILLING PER WEEK EACH! Small as this sum may appear, it is considerably greater than the charge for goods, and is free from the peculiar expenses and liabilities which attend their transmission, and the result, we have no doubt, will be equally profitable as the design is highly creditable to the company.

We commend these facts to the serious attention of the Royal Commission, lately appointed, on the recommendation of parliament, to inquire into the railways which propose having their termini within the metropolis. It is impossible that the lines so proposed can be constructed without destroying an immense amount of house accommodation; and as the parties promoting them will, for their own sakes, select the poorest districts, as being the cheapest to pass through, a vast amount of suffering must inevitably result, unless some means be provided to secure an increase of shelter at least equivalent to that which must be destroyed.

Mr. Moffatt's suggestion appears to us to supply, not merely an admirable, but we believe the only, remedy. There is no room in the metropolis for the increased, or rather the substituted, accommodation required, and which ought, if possible, to be provided before the wretched inmates are turned into the streets; and we are of opinion that it would be only a reasonable stipulation to make with the companies who seek for those powers which will destroy such a mass of building, and disturb such a number of families, that they should offer the only compensation in their power by following the example of the Kingstown and the Croydon companies.

If these suggestions should be generally adopted, are we wrong in classing their effects among the important results of the railway system? Who, under such circum-

stances, will assign geographical limits to the metropolis itself? Who can venture to predict what will be the effect of pure air, perfect drainage, well ventilated apartments, and daily wholesome recreation and exercise, on the health and duration of life of the most useful class of our population? Under such circumstances, the introduction of railways into the very centre of the metropolis will be welcomed by all classes, and what is more, we unhesitatingly believe that the profits of the companies will be greatly increased.

We cannot conclude without congratulating the directors of the Dublin and Kingstown railway, not only on the pecuniary results which have accrued to their own interesting little work, but also on the prospects which we have endeavored to sketch as the fruits of their example. Public attention is now much turned towards them; and all good men unite with us in the wish that their prosperity may increase with the continuance of such exertions, and that their excellent example may be generally followed.

Tubular Sheet Iron Railway Bridge across the Straits of Menai.

Our readers are probably aware of the startling proposition of Mr. Stephenson, to cross the straits of Menai by an iron bridge in the form of a beam, without arch or suspending chains, through which the trains are to pass—thus giving to the famous locality two of the most remarkable monuments of human skill and ingenuity. The idea of a hollow iron beam laid across an opening of 450 feet, and perfectly level from abutment to abutment, is so novel, and, withal, so unpromising, that the announcement seemed to be a quiz upon modern credulity. Nevertheless, the plan is a serious one, and by the following report, our readers will perceive, by no means chimerical. The reputation of Mr. Hodgkinson is alone a guarantee for the accuracy of the experiments which are so remarkable and may prove so valuable to engineering science, that we feel assured the report will be read with pleasure.

Mr. Fairbairn's Report.—Abstract or short Summary of Results from Experiments relative to the proposed Bridge across the Menai Straits, addressed to Robert Stephenson, Esq., by W. Fairbairn.

After a series of experiments, undertaken at your request, for ascertaining the strongest form of a sheet iron tubular bridge across the Menai straits, I have been induced, in order to meet the requirements for such a structure, and to insure safety in the construction, to call in the aid and assistance of my friend Mr. Hodgkinson. The flexible nature of the material, and the difficulties which presented themselves in retaining the lighter description of tubes in shape, gave exceedingly anomalous results; and having no formula on which dependence could be placed for the reduction of the experiments, I deemed it necessary, in a subject of such importance, to secure the co-operation of the first authority, in order to give confidence to the Chester and Holyhead railway company, with whom you are connected, and the public generally.

It will be observed, that the first class of experiments are upon cylindrical tubes; the

second upon those of the elliptical form; and the last upon the rectangular kind. Tubes of each sort have been carefully tested, and the results recorded in the order in which they were made; and moreover, each specimen had direct reference to the intended bridge both as regards the length and thickness as also the depth and width. In the first class of experiments, which are those of the cylindrical form, the results are as follows:

		No. of Experiments.		
9	1	CYLINDRICAL TUBES.	ft. in.	No. of Experiments.
8	2			
7	3			
6	4			
5	5			
4	6			
3	7			
2	8			
1	9			
31	17	Distance between supports.		
31	0	Diameter in inches.		
31	0	Thickness of plate in inches.		
31	0	Ultimate deflection in inches.		
31	0	Breaking weight in lbs.		
31	0	REMARKS.		
31	0			
31	0			
31	0			
31	0			
31	0			
31	0			
31	0			
31	0			
31	0			

With the exception of the first two, nearly the whole of the tubes were ruptured by tearing assunder at the bottom through the line of the rivets.

Finding the cylindrical form comparatively weak, the next experiments were upon tubes of the rectangular shape, which gave much better results. For the present it may, however, be more convenient to take the elliptical kind, as being the nearest approximation, as regards both form and strength, to the cylinders recorded above.

		No. of experiments.		
24	19	ELLIPTICAL TUBES.	ft. in.	No. of Experiments.
17	17			
6	0			
6	0			
6	0			
6	0			
6	0			
6	0			
6	0			
6	0			
6	0	Distance between supports.		
6	0	Diameters transverse & conjugate, in inches.		
6	0	Thickness of plates in inches.		
6	0	Ultimate deflection in inches.		
6	0	Breaking weight in lbs.		
6	0	REMARKS.		
6	0			
6	0			
6	0			
6	0			
6	0			
6	0			
6	0			
6	0			
6	0			

It will be observed that the whole of these experiments indicated weakness on the top side of the tube, which in almost every case was greatly distorted by the force of com-

pression acting in that direction. It is probable that those of the cylindrical form would have yielded in like manner, had the riveting at the joints been equally perfect on the lower side of the tube. This was not, however, the case, and hence arise the causes of rupture at that part.

The next experiments, and probably the more important, were those of the rectangular kind; they indicate a considerably increased strength when compared with the cylindrical and elliptical forms; and, considering the many advantages which they possess over every other yet experimented upon, I am inclined to think them not only the strongest, but the best adapted (as regards either lightness or security) for the proposed bridge.

No.	ft. in.	No. of experiments.	Distance between supports.	Depth in inches.	Width in inches.	Thickness of plate in inches.	Ultimate deflection in inches.	Breaking weight in lbs.	REMARKS.
29	19 0	14	6	9-6	9-6	top. .075 bot. .075	1-10	3,738	Broken by Compression. Extension.
23	18 6	14	6	9-6	9-6	top. .075 bot. .075	1-13	8,273	(Reversed) Extension.
17	18 0	15	6	9-6	9-6	top. .075 bot. .075	0-94	3,788	Compression.
16	17 6	15	6	9-6	9-6	top. .075 bot. .075	1-88	7,148	Extension.
15	17 6	16	6	9-6	9-6	top. .075 bot. .075	0-93	6,812	Compression.
14	17 6	16	6	9-6	9-6	top. .075 bot. .075	1-73	12,188	Ditto.
13	17 6	16	6	9-6	9-6	top. .075 bot. .075	2-66	17,600	Ditto.
12	17 6	16	6	9-6	9-6	top. .075 bot. .075	1-71	13,680	Ditto.
11	17 6	16	6	9-6	9-6	top. .075 bot. .075	1-19	8,812	Compression. Circular bottom, fin at top. Sides distorted. Corrugated top.
10	15-40	17	6	13-25	7-50	top. .066 bot. .066	1-59	22,469	

RECTANGULAR TUBES.

bottom plates of equal thickness, the breaking weight was 3,738 lbs.; rivetting a stronger plate on the top side, the strength was increased to 8,273 lbs.; the difference being 4,535 lbs.—considerably more than double the strength sustained by the tube when the top and bottom sides were equal. The experiments given in No. 15 are of the same character, where the top plate is as near as possible double the thickness of the bottom. In these experiments, the tube was first crippled by doubling up the thin plate on the top side, which was done with a weight of 3,788 lbs.; it was then reversed with the thick side upwards, and by this change the breaking weight was increased to 7,148 lbs.; making a difference of 3,360 lbs., or an increase of nearly double the strength, by the simple operation of reversing the tube, and turning it upside down. The same degree of importance is attached to a similar form, when the depth in the middle is double the width of the tube.—From the experiments in No. 16, we deduce the same results in a tube where the depth is 18½ and the breadth 9½ inches. Loading this tube with 5,812 lbs., (the thin plate being uppermost,) it follows precisely the same law as before, and becomes wrinkled, with a hump rising on the top side, so as to render it no longer safe to sustain the load. Take, however, the same tube, and reverse it with the thick plate upwards, and you not only strengthen the part previously injured, but you increase the resisting powers from 6,812 lbs. to 12,188 lbs. Let us now examine the tube in the 29th experiment, where the top is composed of corrugated iron, forming two tubular cavities extending longitudinally along its upper side. This, it will be observed, presents the best form for resisting the "puckering," or crushing force, which, on almost every occasion, was present in the previous experiments. Having loaded the tube with increasing weights, it ultimately gave way by tearing the sides from the top and bottom plates at nearly one and the same instant after the last weight, 22,469 lbs. was laid on. The greatly increased strength indicated by this form of tube is highly satisfactory; and provided these facts be duly appreciated in the construction of the bridge, they will, I have no doubt, lead to the balance of the two resisting forces of tension and compression. The results here obtained are so essential to this inquiry, and to our knowledge of the strength of materials in general, that I have deemed it essential, in this abridged statement, to direct attention to facts of immense value in the proper and judicious application, as well as distribution, of the material in the proposed structure.—Strength and lightness are desiderata of great importance, and the circumstances above stated are well worthy the attention of the mathematician and engineer. For the present we shall have to consider, not only the due and perfect proportion of the top and bottom sides of the tube, but also the stiffening of the sides with those parts, in order to effect the required rigidity for retaining the whole in shape. These are considerations which require attention; and till further experiments are made,

and probably some of them upon a larger scale, it would be hazardous to pronounce anything definite as to the proportion of the parts, and the equalization of the forces tending to the derangement of the structure. So far as our knowledge extends, and judging from the experiments already completed, I would venture to state that a tubular bridge can be constructed of such powers and dimensions as will meet, with perfect security, the requirements of railway traffic across the straits. The utmost case must, however, be observed in the construction, and probably a much greater quantity of material may be required than was originally contemplated before structure can be considered safe. In this opinion Mr. Hodgkinson and myself seem to agree; and although suspension chains may be useful in the construction in the first instance, they would nevertheless be highly improper to depend upon as the principal support of the bridge. Under every circumstance, I am of opinion that the tubes should be made sufficiently strong to sustain, not only their own weight, but in addition to that load, 2,000 tons equally distributed over the surface of the platform, a load ten times greater than they will ever be called upon to support. In fact, it should be a huge sheet iron hollow girdle, of sufficient strength and stiffness to sustain those weights; and, provided the parts are well proportioned, and the plates properly rivetted, you may strip off the chains and leave it as a useful monument of the enterprise and energy of the age in which it was constructed.

In the pursuit of the experiments on the rectangular as well as other description of tubes, I have been most ably assisted by my excellent friend Mr. Hodgkinson; his scientific and mathematical attainments render him well qualified for such researches; and I feel myself indebted to him for the kind advice and valuable assistance which he has rendered in these and other investigations. I am also deeply indebted to yourself and the directors for the confidence you have placed in my efforts, and for the encouragement I have uniformly received during the progressive developments of this inquiry. But, in fact, the subject is of such importance, and the responsibilities attached to it are so great, as to demand every effort to demonstrate, calculate and advise what in this case is best to be done. Both of us have therefore labored incessantly at the task, and I am indebted to my friend for the reduction of the experiments, which I would not attempt to weaken by a single observation.

WM. FAIRBAIRN.

Railroad Courtesy.

The act of politeness recorded by "A Country Curate" is deserving of notice on this side of the Atlantic. Any well authenticated instances of similar politeness on certain nameless cis-Atlantic railroads, will be recorded with the greatest pleasure.

Courtesy of the Great Western.—The instance which you related of the courtesy of the Great Western railway, leads me to inform you of an incident that happened to myself. I had a valuable book with me when travelling between Bristol and Bath. When

On consulting the above table, it will be found that the results as respects strength are of a higher order than those obtained from the cylindrical and elliptical tubes; and particularly those constructed with stronger plates on the top side, which, in almost every experiment where the thin side was uppermost, gave signs of weakness in that part. Some curious and interesting phenomena presented themselves in these experiments—many of them are anomalous to our preconceived notions of the strength of materials, and totally different to anything yet exhibited in any previous research. It has invariably been observed, that in almost every experiment the tubes gave evidence of weakness in their powers of resistance on the top side to the forces tending to crush them. This was strongly exemplified in experiments 14, 15, 16, etc. With tubes of a rectangular shape, having the top side about double the thickness of the bottom, and the sides only half the thickness of the bottom, or one-fourth the thickness of the top, nearly double the strength was obtained. In experiment 14 (marked in the margin of the above table,) a tube of the rectangular form 9½ inches square, with top and

I left the line at Bath, I missed the book.—At my request inquiries were made at the London station, but no tidings were heard of it. I gave it up for lost, when lo! it came to hand after the lapse of a week. Not finding it at London, the company instituted inquiries for it at Bristol, not merely among their own servants, but of the hackney coachmen, one of whom having found it in his coach, restored it. I think this was a most civil act; and in justice to all other railways, I must say I have always received the most polite attention.

A COUNTRY CURATE.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

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Saturday, May 23, 1846.

Hudson Street Railroad.

Railroads from the City of New York.

We have before us a report from the majority of the committee to whom was referred the application of Messrs. Bloomfield and Bloodgood, for permission to construct a railway through Hudson street, and on one of the western avenues. The substance of this report is briefly as follows:

The committee state that the petitions in favor of the railway embrace the representations of a vast majority of the property interested. The opinion is advanced that a well regulated city railroad, so far from creating an obstruction—actually relieves the travel, and removes impediment—that “a good railway is but an improved form of pavement.”—The experience of the Harlem railroad is given to show that stages and omnibusses, have increased, and not diminished, along the line of that road and the parallel avenues. The advantages of a more prompt and definite control over an incorporated company, than over others, is urged as a benefit.—The wants of that portion of our city are well set forth, and it is suggested that much profit to the finances of the corporation will result from an increased investment of capital on our own island, whose citizens should not be compelled for want of conveniences of transit, to remove to Long Island, New Jersey, etc.

The example of other cities allowing railroads to pass through their streets, is quoted to show that great benefits have resulted from this policy—which, particularly to the laboring classes, affords the means of reaching the heart of the city, from the less costly residences of the vicinity, with both speed and economy.

In the last place, the necessity for a communication with the Erie railroad, is very distinctly laid down as a serious want—which, if not speedily

supplied, may lead to very serious diversions from our island of traffic properly belonging to it. A provision is recommended, granting the privilege of connection to roads from the north.

The document is a plain and fair exposition of this, to New York, all important subject. But, alas, New York has so long prided herself upon her natural advantages, that we begin to think of the fable of the hare and tortoise, as quite to the point. No city in the union, at all connected with the great net work of railways, has felt so little of the benefit in her immediate vicinity. Within the sound of the hum of New York city, we have stood in the undisturbed primæval forest. Tens of thousands of acres of land, within a few miles of the largest city on this continent, lie as unimproved as if in the midst of the wilderness. New York island itself shows an amount of unproductive property scarcely credible to a stranger. Why is this so? New York has, with the exception of the Harlem, no railroad communication with more than one or two places in its vicinity, and no communication at all, which, by its economy, speed, certainty and comfort, can tempt those in moderate circumstances to reside for the whole year within a few miles of New York or Brooklyn. High rents and heavy taxes have not yet driven any large part of the population to risk the disadvantages of a residence in the vicinity.

It is truly wonderful that the force of a few simple propositions has not yet been felt by New York capitalists and railroad directors. Some of these propositions are the following. By far the largest number of the residents of a large city are either poor, or in but moderate circumstances. To accommodate the public, then, is to accommodate those who are not rich. Hence fares must be low. But the number to be benefitted is very great—the profits will then be great.

These remarks will of course apply equally to all the lines of railroad from the city of New York—and to them will the example of the Dublin and Kingstown railway be worthy of application. A reference to our present number will show that a road of but six miles in length, costing \$1,500,000, pays a dividend of 10 per cent., by its sound policy of encouraging residence along the line—frequent trains—commutations, and low fares even for the poorest. We shall not fail to return to this subject.

Long Island Railroad.

“The Long Island railroad company, under the judicious policy of its new board of directors, has already carried out some important measures which will conduce much to the future prosperity of that company. They have made a sale of their steamboats Worcester and Cleopatra for \$130,000, cash, retaining one boat (the New Haven) for the ferry at Greenport—thus entirely separating for the future the road from the expense and contingency of steamboats. The company have also made important changes in the economy of the road, and have further useful changes in progress.”

The above paragraph is copied from the National Intelligencer of the 9th inst. We give it a place in the Journal because we know, full well, that there is abundant room for improvement, and are pleased to learn the fact, that there is a prospect of the introduction of reform—though we do not always find Washington news more accurate than that which reaches us through other sources. We have often urged upon the managers of this road the importance of changing their system of management.—Their true policy is to encourage the business of Long Island—conciliate the good will of the people of the island—accommodate their business—encourage them to use the road—and thus promote the in-

terest of all parties, but most especially that of the stockholders—make the business of the island the main, and the Boston business the incidental business of the road. It is idle to undertake to compete with Boston for, or rather to control the travel to Boston during the summer, though it may always have a fair share of it at paying prices—and accommodate it, too, without interfering with the local business, which, with a little fostering care, or by a proper system of management, may be made to yield in a few years ten per cent. upon the cost of the road, as we will endeavor to show by illustration, by showing what others have done under less favorable circumstances.

We beg pardon for saying so much upon so small a paragraph, even though it relates to a subject of great importance. We only designed when we commenced, to express our gratification at hearing that the company have resolved to introduce a more correct system of management, or—to use the language of the National Intelligencer—a more “judicious policy”; because we are fully convinced that only by such a course can the shareholders, or the people of the island, be benefitted by the railroad, and that, by a proper course, we are quite sure that all may be benefitted, and the property along the line greatly enhanced. Indeed, a right system would make a garden thickly studded with cottages along the entire line of the road, within a few, say twenty, years—when a double track would scarcely suffice to carry the people and business of Long Island.

By recent arrivals our files of English railroad papers are brought down to a late date. We find these papers full of notices of relief, proposed for the sad condition into which thousands have been drawn by the locking up of their advance money—more particularly in the case of those roads which failed to procure the act of parliament. Complaints signed “unfortunate shareholders” are not uncommon.—We judge, however, from numerous indications, that the winding up of all improper or ill-advised lines will be expedited by stockholders and by parliament; while the payment of interest on funds advanced for lines to go into operation, is looked to by many as a measure of relief.

The gauge question has not ceased to be noticed. The Railway Record quotes, with approbation, an article from this journal on the subject of low fares, giving us credit for the course we have pursued.—The Record notices the similarity of the question of canal vs. railway in this country and in France—referring to the restriction upon the lines of railway, parallel to the canal in our state.

Lebanon Springs and Bennington Railroad.

We understand that it is in contemplation to construct a railroad from the Western railroad at, or near, the point where it connects with the Berkshire and Housatonic railroads—and where, it is supposed, the Harlem road will connect when completed—through Lebanon, Stephentown, Berlin, Petersburg, and Hoosick, to Bennington, Vermont; there to connect with the Western Vermont road to Rutland and Burlington. This route would be, if the Harlem road should be continued through to that point, a more direct one between New York and Burlington than by the way of Pittsfield and North Adams.—Should the Housatonic company, however, extend their road up that valley to Pittsfield—as we have supposed they would—and the Harlem company form a junction with the Housatonic at some favorable point, as it is possible they may, then there would be very little difference in the distance; and the lines would be very nearly equal in grades and

curves. Should these latter possibilities become realities, the latter route—by the way of Pittsfield—would have the advantage of the other in the important fact that it has the co-operation of those interested in that important work, the Western railroad, and of the Boston people to some extent, though probably not as much as intimated by the writer of an excellent communication upon the subject of the route, indicated by the heading of this notice, from which we make the annexed extracts.

The subject is one deserving the attention of the citizens of New York, and especially of the Harlem railroad company, and therefore we give it a place in the Journal, and trust it will be read by our citizens.

"That the Northern railroad will be built is now no longer chimerical, and that that road will form a junction with the Boston road is certain. Can there be a man in New York who cannot guess the result? Trade will evidently be diverted to Boston, unless New York wake up to her interest and anticipate the evil by defensive action. But how can this be done, when the Bostonians are congratulating themselves with the idea that they have secured the only avenue which leads through the mountains of Vermont into Canada? But I would say to the Boston people, that there is one avenue with which they were unacquainted,—an avenue which, if taken possession of by New York, would materially alter the result now set down as certain.

"You are, doubtless, aware that the road now built from Bridgeport (Ct.) to West Stockbridge (Mass.) is to be relaid with the T rail, and will shortly become one of the best roads in the country. The Harlem road will doubtless form a junction with this road at Danbury, or push an independent road through the same valley already occupied by the Housatonic company. This is destined to be the great thoroughfare of the northern travel, by which to reach New York during the close of the Hudson river, provided a link which is now deficient in the chain be filled, by extending the Housatonic road through the Lebanon valley, Stephentown, Berlin, Petersburg and Hoosick, and crossing into the state of Vermont at Pownal or Bennington, and there tapping the great Northern railroad from Montreal, and leading the travel to New York by a road of easy grade, through a beautiful and densely populated country.

"If this Northern railroad is carried up the valley of the Hoosick river, via North Adams, and forms a junction with the Boston road at Pittsfield or Dalton, it is in vain for the New Yorkers to suppose that the travel will be diverted from Boston to their place, especially in the winter. It is true, passengers can come down to Pittsfield during the time navigation is open in the Hudson, and can take the cars for Albany if they choose; but "navigation" on the Boston railroad is always open, and the people of Vermont can get their goods in the month of February as easily as any other month in the year. The Boston people are straining every nerve to divert trade to their city. The products of the places I have named can now find a better market at Boston than they can find in New York, or will when this road is finished. And when we consider the inducements held out by the Boston merchants, together with the fact that the Boston capitalists are building the North Adams road, a person must be blind not to see that Boston is working for an object beyond the dividends upon their capital invested in the railroad. It is also true that the Housatonic railroad now forms a junction with the Boston road, by means of the Hudson and Berkshire railroad at the

state line, and you might say that passengers coming down the North Adams road can take the cars for the state line, and thus find their way to New York by this route. If the New Yorkers owned the stock in the Boston and Albany and North Adams railroads, they might possibly so manage matters as to direct the travel as the directors chose. But if you know anything about railroad corporations, you have learned the fact that a great deal depends upon management. The question is not where will people find the best market? but who owns the stock? and for whose benefit was the road built?

The distance from the state line (where the Housatonic can form a junction with the Boston road) by way of Pittsfield, North Adams, Williamstown, to Bennington, Vt., will be forty-eight and one-half miles. By this route, passengers will be subjected to the inconvenience of a shift of baggage, etc., besides a delay, if the Boston train should not think fit to run in connection with the Housatonic. Now, the proposed route (which might be a continuation of the Housatonic, and, therefore, independent) might be built from the state line or Edward's depot in Canaan, N. Y., to Bennington, Vt., in less than thirty-six miles—being a saving of more than twelve miles in the distance, and getting almost a straight road, with a grade of not more than forty feet to the mile. From the state line to New Lebanon, the proposed road has already been surveyed by Mr. Talcott, the engineer who surveyed the Boston road from Albany to the state line. (This will be the worst part of the route from Stockbridge to Bennington,) yet he found no difficulty in getting a survey of a road which would be of a grade of forty feet to the mile, and nearly a direct line. From Lebanon Springs north, about five miles the grade would be less. Here you would find the summit, where the streams make off both ways—the one falling into the Kinderhook creek and finding their way to the Hudson river at Stuyvesant, the others running north until they find the Hoosick river in the north part of Petersburg; here the grade would be almost level, through a rich country, with very little cutting or filling; from thence it would be feasible to take a gap in the mountain, at a place called the "Kitchen," passing into the state of Vermont and intersecting the Northern railroad at the foot of Pownal mountain. Should a junction be formed at this place, it would shorten the distance; but I should judge it feasible to connect with the Northern road at Bennington should this route be decided upon. The advantages gained by this road would be: 1st, an independent road from New York to Bennington; 2d, a route nearly straight, with an easy grade; 3d, a shorter route by at least twelve miles; and, 4th, securing to New York the trade and travel of western Vermont and Canada, together with that of the eastern towns of Washington and Rensselaer counties, and part of the northern and eastern towns of Columbia.

"A shorter route might be made by passing from Stephentown through the Hancock valley, and tapping the Northern road at Williamstown, Mass.—But it is uncertain whether a charter could be obtained from the legislature of Massachusetts for this last proposition; besides this route would not pass through so dense a population. Or the road might be extended through Petersburg, Hoosick, White Creek, Salem, etc., as the valley continues through to Castleton, I understand, and how much farther I know not.

"But these suggestions are thrown out by one totally ignorant of railroad affairs. That they are the words of wisdom, it remains for the people of New

York city to judge; yet I hope that some one will take hold of the subject, competent to do it justice. That the proposed road would be a uniting link between New York and Canada, those who will examine the map will readily discover. That there is no difficulty in the grade, I know beyond a doubt, and I hope a careful investigation may be made into the project by the capitalists and business men of your city, and that, too, immediately, as further procrastination may force trade in another direction and place the remedy forever out of your reach.

"Respectfully, etc.,

"A PERSON INTERESTED."

Preservation of Timber—Report on Boucherie's Process.

We are again indebted to our valuable correspondent, Major Poussin, for a very interesting letter. It will be seen from this, that the plan of Boucherie has proved successful under very severe trials, as, indeed, might have been predicted.

The most important point in the whole history of experiments on the preservation of timber, and the one, too, which has been most generally overlooked, is this—the most porous species of wood and the sap of the hard kinds may, by almost every preservative process which has any pretensions to utility, be rendered more durable than the hardest and best kinds of timber in the natural state. We are pleased to find that this important fact is properly presented in the letter of Major Poussin.

We may remind our readers, that the plan of Boucherie consists in impregnating the tree, either when recently cut or while only partially separated from the stock, by the natural flow of the sap through the wood—the absorptive force being sufficient to carry the preservative liquid to all parts through which the natural juices flow. The liquid preferred for this purpose, is that called pyrolignite iron—being the impure acetic acid obtained by distillation of wood, saturated with oxide of iron.

Nothing could be more easy than a trial of this method on a large scale, particularly on such railroads as pass through a district abounding in timber. The branches, chips, etc., of the wood, heated in suitable iron cylinders, would furnish the acid—fragments of iron, nearly worthless for other purposes, would serve to saturate the liquid. In this way the timber growing on the site of the road might be cut down and seasoned before it would be needed in the construction. The experiment is at least worth trying, and valuable results would follow.

We give the letter of Maj. Poussin below:

PARIS, 32, rue Richer.

18th April, 1846.

D. K. MINOR, Esq.

Dear sir:—I herein transmit you the result of a special examination into the merit of M. Boucherie's plan of preserving wood, which I hope you will think interesting to all your readers, as tending to prove its usefulness in the construction of railroads.

On the 22d of March last, a special commission, composed of scientific and practical gentlemen, all engaged in railroad constructing, and some civil officers of the government, attended, at the request of Doctor Boucherie, the removing of sleepers which had been buried in the forest of Compiagne, and covered with 20 centimetres (8 inches) of earth, on the 23d September, 1843.

The commission has unanimously recognized that all the sleepers prepared according to M. Boucherie's plan have been preserved from the rot which has attacked the sleepers of the same kind laid in a natural state—the water having completely respected the first.

Thus the sleepers prepared agreeably to M. Boucherie's plan have retained their bark, and were perfectly sound at the surface, as well as inside, notwithstanding their having been laying on the ground in the open air during nearly one year previous to their being laid under ground—a condition most unfavorable to the preservation of timber.

As to the oak sleepers, which cannot be penetrated but to a small depth (through the joint called *aubier*—"sap"), the Boucherie preparation gives to this *aubier* a consistence equal to that of the heart, and the means of lasting longer, without doubt, than the heart itself. And, as a piece of oak of the same sleeper of which the *aubier* had been penetrated, had remained on the ground since the laying under ground of the proposed sleeper, it has been proved that the *aubier* of this piece was in the most complete state of decomposition, and that it yielded to the least effort, tumbling into fragments without any resistance, when the *aubier* of the sleeper prepared had become as hard as the heart itself.

In fine, a last observation was made on a sleeper of oak in a natural state, and split in two by a saw cut before being placed in the earth; the heart of this sleeper had suffered a notable alteration—for in scraping it a little with a knife, from three to four millimetres could easily be taken off. This fact when compared with the absolute resistance offered by the surfaces of the sleepers of beach and chesnut, prepared and likewise sawed previous to being laid under ground, demonstrate all the preserving properties of the Boucherie plan. Thus, the species of timber which in the natural state are more quickly deteriorated, remained perfectly sound when treated by this process; whereas the oak, which in the natural state resists for a longer time the variations of the weather, has suffered in the same condition important modifications.

We must conclude from these facts, that, without venturing to state what would be the real duration of timber under the Boucherie plan, it will be greater than that of oak, the heart of which cannot be penetrated by the substance employed.

Railway shares have again suffered a considerable depreciation in our market, as well as in that of England. The fact is, that our French public is literally more stuffed up with railroad shares (most of which are speculative or unproductive for a time to come) than they can well bear, and add to this that the English throw on our market most of the shares that they have subscribed in France when those sell at a good advance price; for it is customary with the Parisian public to purchase shares only when they command a good premium—seldom appreciating shares sold at par.

The great Northern or Belgium road will not be opened before the middle of May coming. A great traffic is expected on this railroad, as it will open a direct line of communication between Paris, London, Brussels, Hungary, Berlin and Vienna—it must necessarily be the most productive road.

Most faithfully yours,

J. T. POUSSIN.

Pittsburg and Connellsville Railroad Charter.

The Pittsburg Gazette of 5th inst., says:

"The following synopsis of the charter of the Pittsburg and Connellsville railroad, has been carefully prepared and collated by our senator, Hon. GEORGE DARSIE, for the purpose of giving information to all who may feel disposed to embark in an enterprize of so much importance to the interests of this city

and western Pennsylvania, with the request that the city papers and other journals friendly to the object will give it an insertion.

"W. ROBINSON, Jr.

"Chairman for Commissioners.

"E. D. GAZZAM, Secretary.

"Synopsis of the Charter of the Pittsburg and Connellsville Railroad Company.

"ACT OF THE THIRD APRIL, 1837.

"The first section appoints commissioners, and authorizes any of them to open books after twenty days notice in two papers printed in the city of Pittsburg, and two in the counties of Westmoreland and Fayette, the books to be kept open for at least six hours in every juridical day, for the space of three days, or until six thousand shares shall have been subscribed. Under the act of 1843 the shares are reduced to fifty dollars, and the amount to be paid in at the time of subscription, to two dollars and fifty cents on each share.—The commissioners are authorized at their discretion, if six thousand shares are not subscribed within the three days, to adjourn from time to time, and transfer the books elsewhere, until the whole number of shares shall be subscribed, such notice of the adjournment or transfer to be given as the occasion may seem to them to require.

"The second section, as amended by the act of 1843, prescribes that when two thousand shares or more shall have been subscribed, and two dollars and fifty cents on each share is paid in, the commissioners, or any ten of them, shall certify the same, under oath or affirmation, to the governor, who is thereupon required to issue letters patent, conferring upon the company the ordinary franchises.

"The third section provides for the election of twelve directors; and as amended by the act of 1846, allows a vote, for every share of stock held, at all general meetings, or elections of the company. Proxy voting is allowed, but all proxies are required to be dated within sixty days of the election.

"The fourth section authorizes the commissioners, or any ten of them, after the letters patent shall have been received, to appoint the time and place, and give at least fifteen days notice of the first election of directors, and appoints the first Monday of December annually thereafter as the period for said election.

"The fifth section defines the duties of the directors, and authorizes them to appoint a secretary, treasurer, engineers and other officers.

"The sixth section authorizes the issuing of certificates of stock and their transfer.

"The seventh section requires the directors to make a report to the stockholders at their annual meeting; special meetings of the stockholders may be called by any three directors, or by stockholders holding one-fourth in amount of the capital stock, but no business can be done at any special meeting unless a majority of the stockholders shall attend, in person or by proxy.

"The eighth section authorizes the company to locate and construct a railroad, of one or more tracks, from the city of Pittsburg,

by the course of the Monongahela and Youghiogheny rivers, to some suitable point at or near Connellsville, and to join or intersect at that point, or any other practicable point, any other improvement, either by canal or railroad, and to make, construct and erect, such warehouses, toll houses, carriages, cars, and all other works and appendages necessary for the convenience of said company, in the use of the said railroad.—The rights and privileges under the section have been extended by the revival at the last session, of the seventh section of the act of 1843, which is in the following words, viz: That said company shall have full power and discretion to select any route from the city of Pittsburg to Turtle creek, which may be deemed most eligible and advantageous, and may extend said railroad beyond Connellsville to Smithfield, or any other point on the waters of Youghiogheny, and within the limits of this commonwealth.

"The ninth and tenth sections authorize the entering upon lands and provides for appraisement of damages.

"The eleventh and twelfth sections guard against the obstruction of highways, and provides for the construction of causeways when the road passes through private property.

"The thirteenth section makes the road a public highway, and prescribes a maximum rate of tolls. The power reserved to the legislature of reducing and regulating the tolls was repealed by the act of last session.

"The fourteenth section authorizes the company to place cars upon the road, and charge tolls and freight not exceeding double the rates of the previous section.

"The fifteenth section authorizes the declaration of dividends.

"The sixteenth section authorizes an increase of the capital to an amount sufficient to accomplish the several objects of the charter. A proviso to this section, limiting the capital to one million of dollars, was repealed by the act of the last session.

"The seventeenth section provides, that if the road shall not be commenced within five years, or if after its completion it shall be suffered to go to decay and become impassable for a period of two years, the charter shall be null and void. The time for commencing was extended for another period of five years, by the act of the 18th of April, 1843; consequently there is yet nearly two years to run—the time for completion is indefinite.

"The nineteenth section requires an annual statement to be made to the legislature, and provides for a tax of 8 per cent. upon all dividends exceeding 6 per cent. per annum.

"The twentieth section reserves to the legislature the right to purchase the road at the end of thirty years, by paying the company a sum of money, which together with the tolls received, shall be equal to the cost and expenses of said railroad, with an interest of 8 per cent. per annum thereon. It also reserves the right of repeal for the misuse or abuse of the corporate privileges.

"The sixth section—of the act of 1843, authorizes the counties of Allegheny, Westmoreland, Fayette and Somerset, and any

city, borough, or incorporated company to subscribe stock in the same manner and subject to the same privileges as individuals."

We may be mistaken, but it appears to us that this is enough "right of way" to answer all purposes for an extension of the Baltimore and Ohio railroad to Pittsburg.

Now let the people of eastern and northern Pennsylvania unite in constructing a railroad up the west branch of the Susquehanna, or to a suitable point, where one branch may reach Erie, and another to Pittsburg, and aid in the construction of a road to Cleveland, thus tapping lake Erie at two important points, and securing a full share of the business of that region to Philadelphia, and then may that city anticipate, as she will surely receive the first visit from many of those who have been accustomed to visit only New York for the purposes of trade.

Railroad Improvements.—On the Eastern railroad between Salem and Boston, a double track is now laid for something like one half the distance. The grading for the remainder is now going on, and it is expected that the double track will be completed to Salem in the course of the present season. This is a great accession to the safety and convenience of transportation over the road, and we hope that the company may have inducements to extend the double track as fast as possible towards the east. Such an improvement, we conceive to be, in fact, far more desirable for the public, than the multiplication of single track roads on parallel and competing routes.

The great things to be desired in railroad travelling, are high speed, safety and low fares. Mere competition of rival routes may tend to cheapen fares, but it never can insure safety, nor permanent high speed. Rapidity with safety can never be absolutely obtained except with double tracks.

The regular daily trains from Boston to Portland, now accomplish the distance in less than five hours, including something like twenty stops.

The branch railroad to Gloucester, on cape Ann, is now going on with despatch. The grading commences at a point a little this side of Beverly.—*Portland Adv.*

Railroad Items.

Land Damages on the Northern Railroad.—The assessment of land damages upon the whole length of the Northern railroad, has been finished. The road is 68 miles in length, extending from Concord, New Hampshire, to Lebanon, 32 miles in Merrimack county, and 36 miles in Grafton county. The whole amount is \$56,027 46, at the rate of \$67 10 per acre, or \$807 21 per mile.—*Boston Courier.*

Canada Railroads.—The Hamilton company, says the Detroit Free Press, have succeeded in obtaining a charter from the Canada parliament, to carry their road to the Detroit river, and from Hamilton to Toronto. The Rochester Democrat supposes this secures the construction of the road from Niagara to Detroit, through Hamilton, London, etc., and that it will greatly benefit Rochester.

The Coal Trade.—The quantity of coal sent to market from the Schuylkill region last week, says the Philadelphia Ledger of 27th April, was 23,223 tons, showing an increase of about 2000 over last week. The company's estimate for the months of January, February, March and April, was 250,000 tons. They have sent 232,223 13 tons, and have one week's work to perform before the close of the month. The Miner's Journal says they will exceed the estimate.

Locomotion.—The whole number of railroad trains leaving Boston daily, is stated at about ninety, for some twenty-five different stations. About one every ten minutes, for sixteen and a half hours each day.

Northern Railroad.—Another bill was yesterday introduced into the senate for the charter of the railroad, and finally passed that body.—*Detroit Adv.*

The Northern railroad makes sad work with the farm of Hon. Daniel Webster, in Franklin. The beautiful tillage lot, containing one hundred acres, lying directly south of the family mansion, is cut in twain by the road, and not only so, but the road runs between the house and the out-buildings. The chief purpose of Mr. Webster, in his journeys to Franklin week before last, was to determine whether to remove the mansion of his father, the late Ebenezer Webster. His determination is to let it remain, and a dwelling for his tenant is to be erected west of the road. The corporation accepted the offer of Mr. Webster, and paid him what he asked—\$1,500; an amount probably as moderate, or more so, than for any other equally valuable soil at any point on the route; even taking into no account the disturbance of the farm buildings.

Sale of the Southern Railroad.

The bill for the sale of the Southern railroad, says the Detroit Free Press, passed the Senate on yesterday by a vote of yeas 14, nays 2. It had previously passed the house, but was amended in the senate. The bill is contingent upon the sale of the Central railroad, and does not go into effect until after that work passes into the hands of the Central railroad company. The price to be paid is half a million. As soon as the house disposes of senate amendments to the bill and it receives the governor's approval, we will lay it before our readers.

Railroad Receipts.

Comparative statement of receipts by the Hartford and New Haven railroad company, for passengers and freight, during the first three months of 1845 and 1846. The road was opened to Springfield Dec. 10, 1845.

	1845.	1846.	Increase.
January	\$17,745 70	\$20,054 01	\$2,308 33
February	15,769 52	19,081 91	3,312 42
March	15,485 19	20,435 58	4,950 39

Increase for three months.....\$10,571 14

This does not include compensation for carrying the mail, which adds about \$650 per month.

The company are about laying a track from their road at Hartford to the Connecticut river—three-fourths of a mile distance—which will render it convenient for taking the freight above, estimated at 40,000 tons per annum, that now goes by the flat boats of the river to and from the numerous thriving towns in Massachusetts, New Hampshire and Vermont, on its banks.

Reading Railroad.—Comparative statement of the business on the Philadelphia and Reading railway during the last week in April, for three years, viz:

	1844.	1845.	1846.
Travel	\$1,762 65	\$1,864 58	\$2,889 90
Freight on goods	1,006 69	1,636 71	3,967 40
Do. do. coal	8,017 63	13,669 89	30,274 97
	\$10,786 97	\$17,171 18	\$37,132 27
Coal trans., tons.	8,277	14,306	24,085

Mohawk and Hudson Railroad.—The receipts of the Mohawk and Hudson road continue to show an increase. The earnings of the first week in May were,

Passengers	\$1,907 81
Freight	149 90
Total	2,057 71
Same week last year	1,804 95

Excess in 1846..... 252 76

Of this road the Albany Atlas thus speaks:

"The Mohawk and Hudson railroad is doing a great and profitable business. It is no unusual thing to see the morning trains tugged through the streets by two steam horses, seven, eight or nine of the large class passenger cars, holding 60 each, besides emigrant, freight and baggage cars. And the down trains are equally large. And the travel over this capital and well conducted road is surely on the increase. Its present location, so admirably adapted for its own purposes and the convenience of the public, enables the company to effect a very great reduction of the expenses incident to the inconveniences of the old locations and the machinery of the inclined planes. Under these circumstances it is not strange that the stock of the road is steadily improving in value. It bids fair to become the best railroad stock in market."

Housatonic Railroad.—The following are the receipts for April, 1846:

For freight	\$9,341 50
For passengers and mail	3,377 44
Total	12,718 94
Same month last year	11,565 03
Increase	1,053 91

Stock Sales.

Railroad Stock Sales in Boston, May 9th, 1846.—

1 share Western railroad	97½
30 " " "	97
6 " Boston and Providence railroad	110
5 " Port, Saco and Portsmouth railroad	98½
3 " Norwich and Wor. railroad	56½
50 " " " " seller, 3 ds.	56½
50 " Long Island railroad	36
50 " Reading railroad, b 10 ds.	34½

May 11.

175 shares Long Island railroad	34½
150 " " " " " " " "	34
50 " " " " s o 3 ds.	34½
475 " Norwich and Worcester railroad	54½
25 " " " " " " " "	54
50 " Reading railroad	33
150 " " " " s o 3 ds no int.	33½
1 " Western railroad	97
8 " Boston and Providence railroad	110

May 12

9 share Boston and Maine railroad	110
1 " " " " " " " "	110
2 " Fitchburg railroad	124½
1 " Portland and Saco railroad	99
10 " Reading railroad	30
25 " Norwich and Worcester railroad	50
150 " " " " " " " "	50½
5 " Boston and Providence railroad	109½
25 " Long Island railroad	30½
75 " " " " " " " "	30½
50 " " " " " " " "	30½

Railroad Stock Sales in Philadelphia, May 11.—

\$4000 Reading railroad bonds 6s b 5.	70
\$1000 " " " " 6s cash	69½

After Sales.

\$1000 Reading railroad bonds 6s cash	69½
100 shares Reading railroad cash	30½
50 " " " " 4 ds.	30½
100 " " " " 5 ds.	30½
20 " Schuylkill navigation s5 wn	31
10 " " " " " " " " rw	30½

May 12.

\$3000 Reading railroad bonds 6s cash	70
\$2100 " " " " " " " "	70
200 shares Reading railroad s5 wn	30½
25 " Wilmington railroad b5	30
50 " " " " " " " "	30
50 " " " " " " " "	30
25 " " " " " " " "	30
3 " " " " " " " "	30
100 " Reading railroad	41½

Iron Trade, Boston.—The market is quiet for all descriptions. Small sales of American pig at \$34 and \$37 per ton, 6 months, as to quality; and Scotch pig in the range of quoted rates.

WILLIAM R. CASEY, Civil Engineer, New York. Address Box 1078, Post-office, New York. 21

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 17

RAILROAD IRON—500 TONST RAILS
R—60 lbs. to the yard. Depth of rail, 3 1/4 inches; width of base 4 inches; width of top, 2 1/2 inches; length of bars 15 and 17 1/2 feet. Apply to,

A Steam Pile Driver—built by "Dunham & Co."—in complete order; has never been used, and for sale a bargain. Cost originally \$5,000. Also 12 Railway Passenger Cars, that have never been used which will be sold a bargain. 8

DAVIS BROOKS & CO.,
34 Wall street.

April 11.

TO LOCOMOTIVE AND MARINE EN-
gine Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warthouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

LAWRENCE'S ROSENDALE HYDRA-
lic Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1/2

A. & G. RALSTON & CO., NO. 4

South Front St., Philadelphia, Pa.
Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/4 x 1/4 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/4 x 1/4 " Flange Iron Rails. 75 " 1 x 1/4 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES,
Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/4 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,
Albany Iron and Nail Works,

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.
Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 35 1/2

STEPHENS' RULING AND MECHANICAL
Drawing Ink, for Engineers, Artists and Designers. This article will be found superior to the best Indian Ink for the above purposes. It does not smear with India rubber or wash off with water. It flows freely from the drawing pen, and never corrodes or encrusts it. It may be used on a plate or slab, with a camel's hair brush, diluting it with water, or thickening it by drying, as required. It has the advantage of being ready for immediate use.

Sold in conical-shaped bottles, convenient for using from, without any stand, at 15 cents each.

ALSO,

STEPHENS' WRITING FLUIDS.

These compositions, which have so remarkably extended the use of the STEEL PEN, are brought to great perfection, being more easy to write with, more durable, and in every respect preferable to the ordinary ink. In warm climates they have become essential.

They consist of a Blue Fluid, changing into an intense Black color.

A Patent Unchangeable Blue Fluid, remaining a deep Blue color.

A Superior Blue Ink of the common character, but more fluid,

A brilliant Carmine Red, for Contrast Writing.

A Carbonaceous Record Ink, which writes instantly black, and being proof against Chemical Agents, is most valuable in the prevention of frauds.

Also, a new kind of MARKING INK for Linen and Inkstands adapted for, preserving Ink from evaporation and dust.

Sold in Bottles of various sizes, by all Stationers and Booksellers.

Be sure to ask for Stephens' Writing Fluid.

N. B.—These unchangeable Blue Fluids are Patent Articles; the public are therefore cautioned against imitations, which are infringements, to sell or use which is illegal.

Stephens' Select Steel Pens.

The utmost possible care having been bestowed upon the manufacture of these articles, so as to procure the highest finish, they can be confidently recommended, both for flexibility and durability.

All the above articles are prepared by Henry Stephens, the inventor, No. 54 Stamford-street, Blackfriars road, London, and sold by Booksellers and Stationers in bottles of various sizes, and may be had wholesale from the agents in Boston, New York, Philadelphia, Baltimore, Washington, Charleston, New Orleans, and St. Louis.

Wm. W. Rose, Wall-street, New York, is my general agent in the United States.

VALUABLE PROPERTY ON THE MILL

Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 fe, with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 1/2 feet two stories high, with a shed part 45 1/2 x 20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.—Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburg, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited. S. C. FIELD.

Vicksburg, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open. JOHN BATTAILE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat. (Signed.)

RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards. (Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138 1/2 Water st., N. Y.

Also by Isaac Bridge, 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street, Charleston, S. C. 16 1/2

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846. Spring Arrangement. 1846. Commencing April 1st.

Passenger trains leave daily, Sundays excepted—
 Boston 7½ p. m. and 4 p. m. for Albany.
 Albany 6½ " and 2½ " for Boston.
 Springfield 7 " and 1 " for Albany.
 Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
 Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Boston and New York, via Springfield: Passengers leaving Boston at 4 p. m., arrive in Springfield at 8 p. m., proceed directly to Hartford and New Haven, and thence by steamers to New York, arriving at 5 o'clock a. m.

For Buffalo: the trains for Buffalo leave Albany at 7½ a. m. and 7 p. m., arriving at Buffalo at 8 a. m. and 8 p. m. next day. Returning, arrive at Albany at 4 a. m. and 4 p. m.

New York and Boston, via Albany: the trains from Boston arrive at Albany in season for the 7 o'clock boats to New York. Returning, the boats, leaving New York at 5 and 7 p. m., reach Albany at 5 a. m., in ample season for the morning trains to Boston.—Steamboats also leave Albany at 7 a. m. and 5 p. m. and stop at the usual landing places upon the river.

The trains of the Springfield, Hartford and New Haven railroad, connect at Springfield, and passengers from Albany or Boston proceed directly on to Hartford and New Haven.

Montreal: through tickets to Montreal may be obtained in Boston, by which passengers may proceed to Troy, and thence by stage via Chester, Elizabeth, etc., and in the season of navigation by canal to Whitehall, and thence by the splendid steamers of Lake Champlain to St. John, via Burlington, and thence by railroad and steamers to Montreal.

The trains of the Hudson and Berkshire railroad connect at Chatham and State Line.

The Housatonic railroad connects at State Line. The trains of the Connecticut River railroad connect at Springfield, and passengers may proceed without delay to Northampton, and thence by stage to Greenfield, Brattleboro, Bellows Falls, Hanover, Haverhill, etc.

Stages leave West Brookfield for Ware, Endfield, New Baintree and Hardwick; also leave Palmer for Three Rivers, Belchertown, Amherst, Ware and Monson; Pittsfield for North and South Adams, Williamstown, Lebanon Springs, etc.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES, Superintendent and Engineer.

Western Railroad Office, Springfield, April 1, 1846. } 14 1y

MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.

PETER COOPER, 17 Burling Slip. New York, January 23d, 1846. 1y 10

C. J. F. BINNEY, GENERAL COMMISSION MERCHANT and Agent for Coal, and also Iron Manufactures, etc.

No. 1 CITY WHARF, Boston. Advances made on Consignments. Refer to Amos Binney, Boston.

Grant & Stone, Brown, Earl & Erringer, } Philadelphia. Weld & Seaver, Baltimore. December 8, 1845. 1m 50

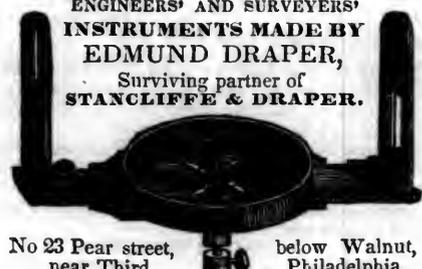
SCRIBNER'S ENGINEERS' AND MECHANICS' COMPANION. For sale at this office. Price \$1.50.

LARD OIL FOR MACHINERY, ETC.

Winter pressed, cleansed from gum, and manufactured expressly for engines and machinery of all kinds, railroads, steamboats, woollen and other manufactures, and for burning in any lamp without clogging the wick. Engineers of railroads and others who have used this oil, and to whom reference can be made, give it preference over the best sperm for its durability, and not requiring to be cleaned off like that, and costing about two-thirds the price. For sale by the barrel, and samples can be sent for trial, by addressing C. J. F. BINNEY, Agent for the Manufacturer, Boston, Mass.

11 cop 1m

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, near Third, below Walnut, Philadelphia.

KITE'S PATENT SAFETY BEAM.

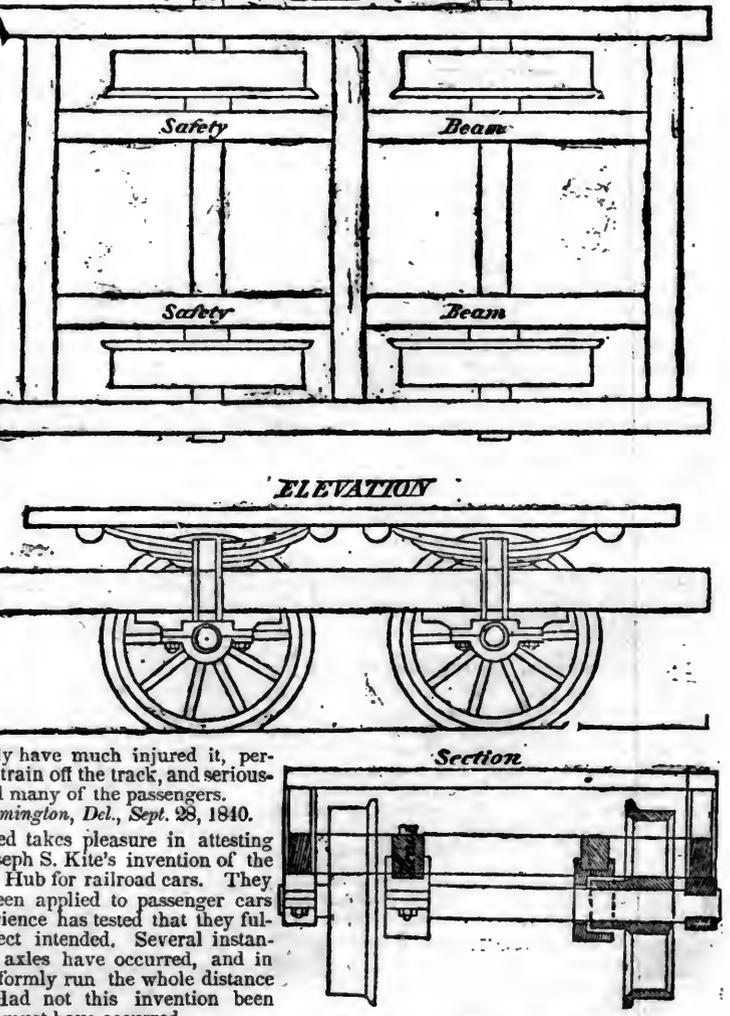
MESSRS. EDITORS.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheeled passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers. Wilmington, Del., Sept. 28, 1840.

The undersigned takes pleasure in attesting to the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.

In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.

JOHN FRAZER, Agent, GEORGE CRAIG, Superintendent, JAMES ELLIOTT, Sup. Motive Power, W. L. ASHMEAD, Agent. A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 1 Hanover st., N. York. ja45



PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, *Agent*.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, *Agent*.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

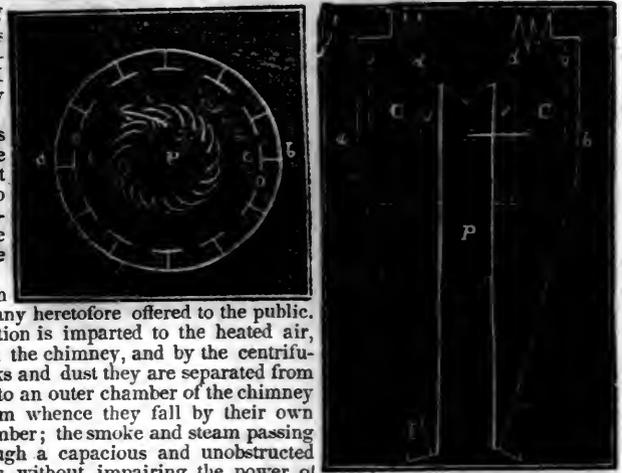
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

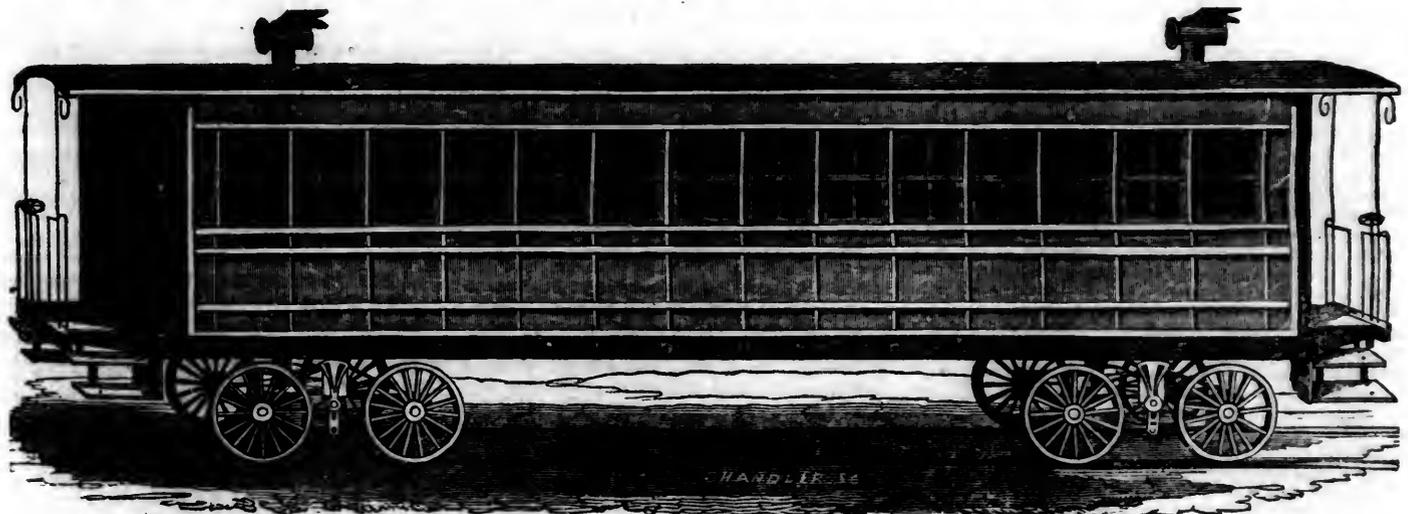
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the *Journal* of June, 1844. ja45



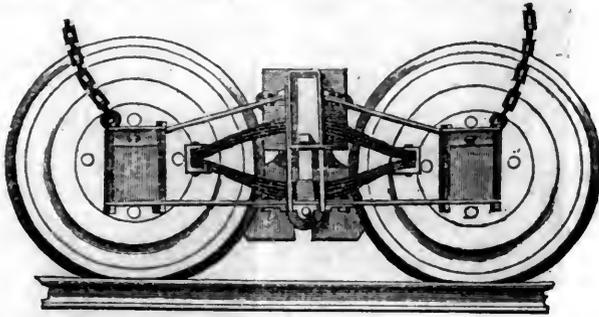
BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1815.

[Signed,] G. A. NICOLI,

Supt Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

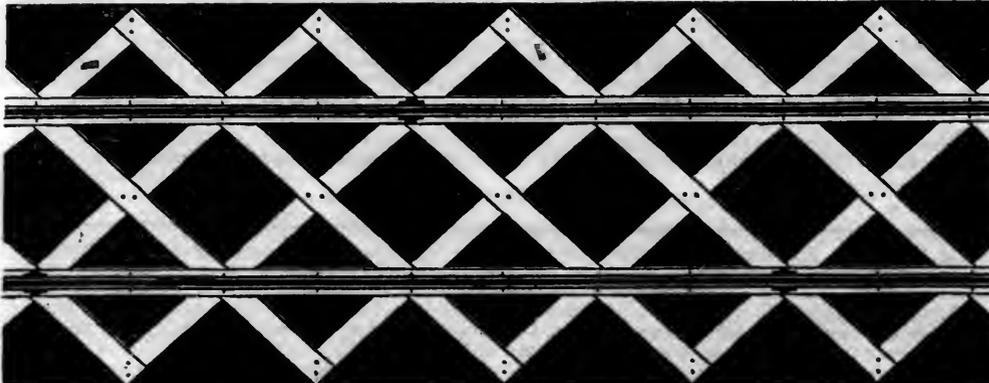
This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, Jamaica November 12, 1845.

[Signed,] JOHN LEACH, Supt Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY Superstructure effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort for the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$25 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum...	5 00

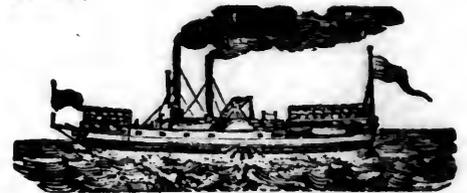
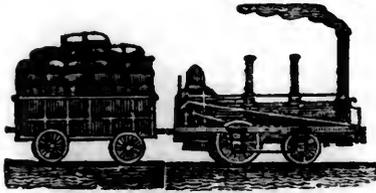
ENGINEERS and MACHINISTS.

- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM and GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- H. R. DUNHAM & Co., N. Y.
- WEST POINT FOUNDRY, N. Y.
- PHOENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

AMERICAN RAILROAD JOURNAL,

AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 22;

SATURDAY, MAY 30, 1846.

[WHOLE No. 518, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3½ p.m. All baggage at the risk of the owners thereof.

31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD AND STAGES CONNECTING with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 32 ly J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m. Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m. Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m.

Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m. Portland for Boston at 7½ a.m., and 3 p.m. Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m. Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, *Super't.*

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture - per foot..... 16 cts.

" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs..... 95 "

" Sugar, coffee, iron, hardware, etc..... 65 "

" Flour, bacon, mill machinery, grindstones, etc..... 33½ "

" Molasses, per hogshead \$9.50; salt per bus. 20 "

" Ploughs and cornshellers, each..... 75 "

Passengers \$10.50; children under 12 years of age half price. Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga. J. EDGAR THOMSON, Ch. Eng. and Gen. Agent. 44 ly

Augusta, Oct. 21 1845.

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M. " Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED TO \$1.25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M. " Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, *Sup't.*

March 25th, 1846. Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 lf

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and

Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay house. Fare \$1.60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 13 ly

BALTIMORE AND SUSQUEHANNA
Railroad. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a. m., and arrives at 6 1/2 p. m. Arrives at York at 12 1/2 p. m., and leaves for Columbia at 1 1/2 p. m. Leaves Columbia at 2 p. m., and leaves York for Baltimore at 3 p. m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62 1/2. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3 1/2 p. m. for Cockeyville, Parkton, Green Springs, Owings' Mills, etc.

Returning, leaves Parkton at 6 and Cockeyville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a. m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day any passenger train.

D. C. H. BORDLEY, Supt.
Ticket Office, 63 North st.

31 ly

CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$3 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods... 13 cts. per cubic ft. On brls. wet (except molasses and oil)... \$1 50 per barrel. On brls. dry (except lime)... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery... 40 cts. per hundred. On hhd. and pipes of liquor, not over 120 gallons... \$5 00 per hhd. On molasses and oil... \$6 00 per hhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, 40 Gen'l. Supt. Transportation.

NEW YORK & HARLEM RAILROAD
CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows: Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4, 30, 5, 6, and 6 30 p. m. Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m. Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m. Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m. Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m. Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams' Bridge trains will be regulated according to the state of the weather. 18

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sts. 43 ly

LITTLE MIAMI RAILROAD.—1846.—
Summer Arrangement.

Two passenger trains daily. On and after Tuesday, May 6th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1 1/2 p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m.

On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m.

Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.

Tickets may be procured at the depot on East Front street.

The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount. W. H. CLEMENT, Superintendent.

19

CALIGRAPHIC BLACK LEAD PENCIL, Manufactured by E. Wolf and Son, 23 Church Street, Spitalfields, London.

The Caligraphic Pencils have been invented by E. Wolf and Son, after the expenditure of much time and labor. They are the result of many experiments; and every effort that ingenuity and experience could suggest, has been made to insure the highest degree of excellence, and the profession may rely upon their being all that can be desired.

They are perfectly free from grit; and for richness of tone, depth of color, delicacy of tint, and evenness of texture, they are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use.

The Caligraphic Pencils will also recommend themselves to all who use the Black Lead Pencils as an instrument of professional importance or recreation, by their being little more than half the price of other pencils.

An allowance will be made on every groce purchased by Artists or Teachers.

May be had of all Artists, Colourmen, Stationers, Booksellers, etc.

A single pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

Caution.—To prevent imposition, a highly finished and embossed protection wrapper, difficult of imitation, is put around each dozen of Pencils. Each Pencil will be stamped on both sides, "Caligraphic Black Lead, E. Wolf and Son, London."

The subscriber has on hand a full supply of Wolf and Sons celebrated Creta Loevis, or Colored Drawing Chalks, also their pure Cumberland Lead and extra prepared Lead Pencils, and Mathematical Lead Pencils.

P. A. MESIER,
Stationer and Sole Agent,
No. 49 Wall Street.

N. B.—A complete assortment of Steven's Genuine Inks, Fluids, Imitating Wood stains, and Graining Colours at the Manufacturers' prices.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Allaire, } New York.
- Peter Cooper, }
- Murdoch, Leavitt & Co. }
- J. Triplett & Son, Richmond, Va.
- J. R. Anderson, Tredegar Iron Works, Richmond, Va.
- J. Patton, Jr. } Philadelphia, Pa.
- Colwell & Co. }
- J. M. L. & W. H. Scovill, Waterbury, Con.
- N. E. Screw Co. } Providence, R. I.
- Eagle Screw Co. }
- William Parker, Supt. Bost. and Worc. R. R.
- New Jersey Malleable Iron Co., Newark, N. J.
- Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly. 35 ly

FLAT BAR, ENGLISH ROLLED, RAIL road Iron, 2 1/2 x 1—a large part suitable to relay. For sale by C. J. F. BINNEY, Commission Merchant, 1 City Wharf, Boston, Mass.

11 lm

TROY AND GREENBUSH RAILROAD.
Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at 6 1/2 A.M.	Leave Albany at 7 A.M.
" " 7 1/2 " " " " 8 " "	" " 8 " " " " 9 " "
" " 9 1/2 " " " " 10 " "	" " 10 " " " " 11 " "
" " 10 1/2 " " " " 11 " "	" " 11 " " " " 12 M.
" " 1 1 P.M.	" " 1 1/2 P.M.
" " 2 " " " " 2 1/2 " "	" " 3 " " " " 3 1/2 " "
" " 3 " " " " 4 " "	" " 4 1/2 " " " " 5 1/2 " "
" " 4 " " " " 5 " "	" " 5 1/2 " " " " 6 " "
" " 5 1/2 " " " " 6 " "	" " 6 " " " " 7 " "

The 6 1/2 a. m. and 2 o'clock p. m. runs from Troy, to Boston runs.

The 12 m. and 6 o'clock p. m. trains from Boston runs.

Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT,
Superintendent.

Troy, April 1st, 1846.

14 ly

MACHINE WORKS OF ROGERS,

Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns; and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery

of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
445 Paterson, N. J., or 60 Wall street, N. York.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,
No. E. cor. 12th and Market sts., Philad., Pa.

THE SUBSCRIBERS, AGENTS FOR the sale of Codorus, Glendon, Spring Mt. and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAML. KIMBER, & CO.,
59 North Wharves,

Jan. 14, 1846. [174] Philadelphia, Pa.

RAILROAD IRON AND LOCOMOTIVE
 Tyres imported to order and constantly on hand
 by **A. & G. RALSTON**
 Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
 Company continue to furnish at the Works,
 situated in the town of Newcastle, Del., Locomotive
 and other steam engines, Jack screws, Wrought iron
 work and Brass and Iron castings, of all kinds con-
 nected with Steamboats, Railroads, etc.; Mill Gear-
 ing of every description; Cast wheels (chilled) of
 any pattern and size, with Axles fitted, also with
 wrought tires, Springs, Boxes and bolts for Cars;
 Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders
 will be executed with promptness and despatch.
 Communications addressed to Mr. William H.
 Dobbs, Superintendent, will meet with immediate
 attention. **ANDREW C. GRAY,**
 a45 President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS-
 etc. The Subscriber having made important
 improvements in the construction of rails, mode of
 guarding against accidents from insecure joints, etc.
 —respectfully offers to dispose of Company, State
 Rights, etc., under the privileges of *letters patent* to
 Railroad Companies, Iron Founders, and others inter-
 ested in the works to which the same relate. Com-
 panies reconstructing their tracks now have an op-
 portunity of *improving* their roads on terms very ad-
 vantageous to the varied interests connected with
 their construction and operation; roads having in
 use flat bar rails are particularly interested, as such
 are permanently available by the plan.

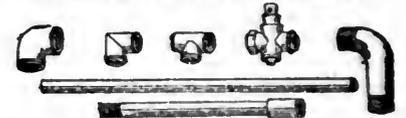
W. Mc. CUSHMAN, Civil Engineer,
 Albany, N. Y.
 Mr. C. also announces that Railroads, and other
 works pertaining to the profession, may be construct-
 ed under his advice or personal supervision. Ap-
 plications must be post paid.

**TO RAILROAD COMPANIES AND BUILD-
 ERS OF MARINE AND LOCOMOTIVE
 ENGINES AND BOILERS.**

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

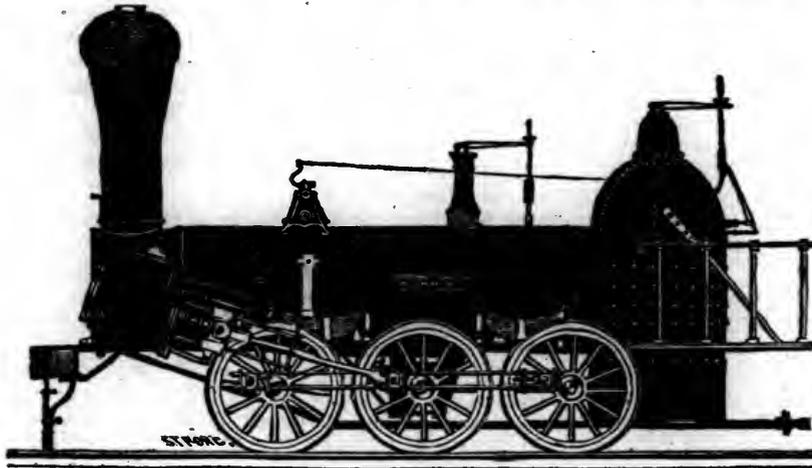
From 4 inches to 1/2 in calibre and 2 to 12 feet long.
 capable of sustaining pressure from 400 to 2500 lbs.
 per square inch, with Stop Cocks, T. L. and
 other fixtures to suit, fitting together with screw
 joints, suitable for STEAM, WATER, GAS, and for
 LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
 Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descrip-
 tions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14 " " "	× 24 " "
"	3,	14 1/2 " " "	× 20 " "
"	4,	12 1/2 " " "	× 20 " "
"	5,	11 1/2 " " "	× 20 " "
"	6,	10 1/2 " " "	× 18 " "

With Wheels of any dimensions; with their Patent Arrangement for Variable Expansion.
 Castings of all kinds made to order: and they call attention to their Chilled Wheels
 or the Tracks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

GREAT SOUTHERN MAIL LINE! VIA
 Washington city, Richmond, Petersburg, Wel-
 don and Charleston, S. C., direct to New Orleans.
 The only Line which carries the Great Southern
 Mail, and Twenty-four Hours in advance of Bay
 Line, leaving Baltimore same day.

Passengers leaving New York at 4 1/2 P.M., Phila-
 delphia at 10 P.M., and Baltimore at 6 1/2 A.M., pro-
 ceed without delay at any point, by this line, reach-
 ing Richmond in eleven, Petersburg in thirteen and
 a half hour, and Charleston, S. C., in two days from
 Baltimore.

Fare from Baltimore to Charleston.....\$21 00
 " " " " Richmond..... 6 60

For Tickets, or further information, apply at the
Southern Ticket Office, adjoining the Washington
 Railroad Office, Pratt street, Baltimore, to
STOCTON & FALLS, Agents.

GEORGE VAIL & CO., SPEEDWELL IRON

Works, Morristown, Morris Co., N. J.—Man-
 ufacturers of Railroad Machinery; Wrought Iron
 Tires, made from the best iron, either hammered or
 rolled, from 1 1/2 in. to 2 1/2 in. thick.—bored and turned
 outside if required. Railroad Companies wishing
 to order, will please give the exact inside diameter,
 or circumference, to which they wish the Tires
 made, and they may rely upon being served accord-
 ing to order, and also punctually, as a large quantity
 of the straight bar is kept constantly on hand.—
 Crank Axles, made from the best refined iron;
 Straight Axles, for Outside Connection Engines;
 Wro't. Iron Engine and Truck Frames; Railroad
 Jack Screws; Railroad Pumping and Sawing Ma-
 chines, to be driven by the Locomotive; Stationary
 Steam Engines; Wro't. Iron work for Steamboats,
 and Shafting of any size; Grist Mill, Saw Mill and
 Paper Mill Machinery; Mill Gearing and Mill
 Wright work of all kinds; Steam Saw Mills of sim-
 ple and economical construction, and very effective
 iron and Brass Castings of all descriptions.
 ja45ly

NICOLLS' PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for
 some time in successful operation on one of the prin-
 cipal railroads in the country, effectually prevents
 engines and their trains from running off the track
 at a switch, left wrong by accident or design.

It acts independently of the main track rails, being
 laid down, or removed, without cutting or displacing
 them.

It is never touched by passing trains, except when
 in use, preventing their running off the track. It is
 simple in its construction and operation, requiring
 only two Castings and two Rails; the latter, even if
 much worn or used, not objectionable.

Working Models of the Safety Switch may be
 seen at Messrs. Davenport and Bridges, Cambridge-
 port, Mass., and at the office of the Railroad Journal,
 New York.

Plans, Specifications, and all information obtained
 on application to the Subscriber, Inventor, and Pat-
 entee. **G. A. NICOLLS,**
 ja45 Reading, Pa.

RAILROAD IRON WANTED. WAN-
 ted, 50 tons of Light Flat Bar Railroad Iron.
 The advertisers would prefer second-hand iron, if
 not too much worn. Address Box 384 Philadelphia
 P. O.—Post paid. 8 4

Railway Amalgamation.

The term amalgamation, in modern times has been extended in meaning, first to the union of the black and white race, and now to the consolidation of interest of two or more railroads or canals. In this latter sense we believe the word was first used in England—and as at present much is said upon the subject, the use has become so general that we shall adopt it.

The subject of railway amalgamation has often occurred to us as one of great moment and presenting serious questions for the consideration of the legislator as well as the political economist.

Certain lines of road without doubt, can be managed to the greater profit of stockholders and to the greater accommodation of the public, by a union of interests—but in certain other cases, whatever may be the benefit to the former, there is certainly none to the latter.

Where then is the line of distinction to be drawn, and how far can laws prevent oppression and abuse of the public, for the benefit of a few, without interfering with arrangements productive of advantage to all parties?

The question is a nice one—the answer to it by a select committee of parliament and of the board of trade, seems so just, and at the same time throws so much light upon railway movements in England, that we copy the papers as we find them in the *Railway Chronicle*.

“First Report from the Select Committee on the House of Commons on Railways and Canals Amalgamation.”

“Your committee, in discharging the duty imposed upon them, have in the first instance applied themselves to the task of ascertaining how many of the railway and canal bills now before parliament contain clauses involving the principle of amalgamation.

“Owing to the circumstance that several of them are still awaiting the preliminary investigation of the committee on standing orders, and have not yet been formally introduced into the house, and that the Irish railway bills have been commenced in the house of lords, it has been found difficult, if not impossible, to form a correct estimate of their number; but, making allowance for error, and exclusive of the Irish bills it may be stated that they amount to about 161 for England, and about 56 for Scotland. Of this number, 37 are bills for the amalgamation, by purchase, lease, or otherwise, of existing railway companies with each other, 32 of railways with canals; 155 for the formation of new lines, and their amalgamation with existing companies or with each other.—Among the last will be found bills containing clauses which give a general power of leasing the tolls, or leasing or selling the works or lines, with the view of effecting an amalgamation at some future time with any company or companies which may be disposed to take advantage of the power so given. Also bills which, containing clauses with a somewhat similar object, are however restricted to the option of two or more companies therein specified. In addition to and not included in the above list, there are several bills in which powers are taken by existing companies to contribute to the funds for the execution of the works of new lines; thereby securing, in proportion to the sum subscribed

a permanent influence in the future management of the company. Looking to the number of these bills, and to the fact that a great proportion of them have been already grouped, and submitted by the house to select committees for the consideration of their merits, and that some of them are advanced even to another stage, your committee have felt bound to come to an early decision as to the course which it would recommend the house to pursue in respect to them.

“After the best deliberation which the time permitted, it has been thought on the whole most advisable, with a view to avoiding inconvenient obstruction to the business before committees, not to interfere more than is absolutely necessary with their present progress—and that your committee, taking advantage of such information as could be the most easily and readily obtained, should at once suggest such regulations for the guidance of select committees as they believe may be safely and beneficially adopted, and which would tend in a great measure, though not altogether, to the attainment of the object of the house in referring this matter to them. In coming to this determination, they have borne in mind that a clause may be inserted in every railway bill, subjecting the promoters to such additional enactments as parliament may on further consideration deem expedient.

“On taking a general view of the various projects of amalgamation, your committee were at once struck with the general tendency on the part of all the principal railway companies to extend their operations, and to unite as large a proportion as possible of the carrying trade of their respective districts under their own control and management.—Your committee have taken evidence on several schemes of amalgamation, in order to illustrate this tendency; and without invidiously selecting one out of a great number, it may be sufficient to state that some of them are so extensive in their combination, that they may be said to secure, if not a monopoly, at least an almost overwhelming influence in those districts of the country embraced within their limits.

“Under such circumstances it appears to your committee to be the imperative duty of parliament to consider well and carefully the probable result of these great combinations, and, (if they should be consented to,) the nature and extent of the privileges which should be entrusted to the directing body of each.

“Your committee are by no means disposed to regard with undue jealousy the principle of amalgamation. The benefits arising from it, if conducted within proper limits and under judicious regulations, are indisputable. It enables companies to conduct their operations with less expense to themselves, and consequently with diminished charges to the public; it conduces to better arrangements and more efficient control, and thereby to greater speed, and at the same time to increased safety to life and to property. It enables companies conjointly to provide that increase of accommodation for the public at their terminal stations, and in their general

establishment, which many of them could not separately afford. It also enables small companies, whose lines are worked at great expense, to obtain the benefits of cheapness and general arrangement which are enjoyed by lines of greater extent. The above are advantages of no small importance, especially in the more populous districts of the country where the junction of numerous lines under different management, tends to expense, obstruction and confusion, and danger to life and property. On the other hand, it is equally manifest that if carried beyond certain limits and especially if not subjected to proper regulation and control, amalgamation must necessarily have a directly opposite tendency in each and every respect. It might greatly diminish the inducements to a low rate of fares, or to the adoption of new improvements; it might tend to a laxity of discipline and decreased attention to public accommodation; and in various other ways injuriously affect the public interests. Indeed, past experience affords sufficient and convincing proof that while in some instances amalgamation of railways has been followed by diminished rates of carriage and increased accommodation, in others the result has been directly the reverse:

“It would not have been possible for your committee, without causing much delay and public inconvenience, to examine into the merits of these various schemes of amalgamation; they have therefore directed their chief attention to the question, whether any general rule could be laid down, applicable to the system, which, without fettering the judgment of select committees, might conduce to a greater uniformity of decision to a stricter examination into the bills brought under consideration, and at the same time to prevent undue advantage being taken of any increased powers and privileges which it might be thought proper to grant. With this object, your committee have given an early and attentive perusal to the report upon this subject, which was made by the railway department of the board of trade, on the 7th of May, 1845. To the suggestions and to the opinions expressed in that report, your committee are disposed to give their general concurrence; and in pressing it earnestly on the consideration of members, they deem it necessary to make only a few additional remarks, most of which have been suggested by experience derived subsequently to its publication.

“In the first place, then, they beg to call the attention of the house to the general principles therein propounded for regulating its decisions on amalgamation bills; and with a view to carry out in detail some of those principles they recommend—

“That ‘general powers of granting or accepting a lease or sale of a railway or canal, or of otherwise merging the independence of one company in another not named, should not be allowed to be inserted in any bill.’

“Secondly, that the same rule be applied to all bills which contain clauses enabling the companies to lease or sell their tolls or

works to any one of a number of railway companies therein specified.

"Thirdly, that a clause be inserted in each bill subjecting all the parties involved in it to all general railway acts.

"Fourthly, that in all instances in which railway companies propose to take powers of amalgamation, the rates and tolls of the amalgamated companies should be subjected to revision.

"At the present time, owing in some instances to a system of low fares being found most profitable, in others to actual or threatened competition, the maximum rates or tolls hitherto imposed by parliament has not been generally required as a limitation. It is manifest, however, that if a system of amalgamation is to be extensively adopted, the latter inducement to low charges will be materially diminished, if not altogether done away with.

"It would be impossible to lay down any precise rule for the guidance of the house in this respect, which would not be subject to numerous exceptions; the decision, therefore, as to the exact limitation of fares must at present be left to the discretion of each committee, to be applied according to the merits of each separate case. It ought, however, always to be borne in mind that the effect of amalgamation is to diminish the expense of working and managing railways, and thereby to enable the proprietors to secure a greater profit on their existing traffic; and in this view of the case it might be taken as a general rule, subject to special exceptions, that the maximum of rates and tolls combined ought not to exceed the lowest rates which had been previously demanded and received by the respective companies. It will doubtless be found impossible to adhere rigidly to this rule in all cases. Circumstances peculiar to a particular railway may render it desirable that rather a wider limit should be allowed; but your committee are confident that in a far greater number of instances, especially in those of extensive combinations and of large companies, the limitation which they have suggested will be found to fall short of, rather than to exceed, that which might be justly imposed with a due regard to the interests of the shareholders on the one hand, and of the public on the other. Your committee, therefore, recommend that select committees appointed for the consideration of these bills should impose a new limitation of tolls and fares, and specially report any circumstance which may lead them to allow any increase in the rates previously received.

"There are several instances now before parliament of two or more companies applying for powers of amalgamation, whose respective rates and charges vary in amount.

"Your committee submit that it should be the duty of select committees, in these cases, to exercise much care in the adjustment and substitution of a maximum rate.

"Your committee would strongly urge upon the attention of the house the charges made for the conveyance of coals; their cheapness being of paramount importance to the manufacturing and commercial interests of this country. A glance at the proposed

amalgamations in the neighborhood of the great coal and manufacturing districts, will at once suggest that if the present competition is to be diminished, on which alone the public have to rely as a security against high charges, it is absolutely necessary that a new limitation of rates should be imposed, at once equal to all parties, and as low as is consistent with justice.

"With a view to affording the house the fullest information as to the grounds on which committees have founded their decisions, it would be desirable that a schedule be appended to each report, giving under the various heads of traffic, the lowest amount of charges made by each company during the two preceding years, and the maximum of those which are allowed in the bill to the amalgamated companies.

"Having thus referred to the case of legislative amalgamations, your committee ought not to omit to notice that such important lines of railway originally formed by independent companies, and with respect to which no legislative amalgamation has yet been proposed, are at present practically under the same control and management; and so long as these parties feel it to be their interest to combine, all the evils to be apprehended from amalgamation may be produced by private arrangements between them. It is true that such arrangements cannot acquire a permanent character without the sanction of parliament; but on the other hand they enable the parties, by avoiding an application to parliament, temporarily to escape the necessity of submitting to those provisions which parliament may see fit to impose for the benefit of the public as the condition of amalgamation. Your committee have felt it their duty to advert to this point as one requiring serious consideration; although they are not yet prepared to make any definite suggestion for the purpose of averting any evils which might arise from an abuse of the powers derived from these private arrangements.

"Your committee trust that the rules which they have suggested may assist the select committee on railway groups in their deliberations, and may contribute to the uniformity of their decisions.

"As regards the amalgamation of railways with canals, your committee have not been able as yet to obtain sufficient information to justify them in offering any definite suggestions; but they propose immediately after the recess to enter more fully into that important branch of the subject.

"April 8, 1846.

APPENDIX.

"Extract from the Report of the Railway Department of the Board of Trade on Proposed Amalgamations of Railways; dated Railway Department, Board of Trade, Whitehall, May 7, 1845.

"The present unsettled state of the railway system, when almost every day brings forward some proposals for a new railway, or some new combination among existing interests, renders it peculiarly undesirable that permanent amalgamations should be precipitate

ly allowed, unless in cases where the advantage to the public is perfectly manifest. These observations apply principally to the case of amalgamations between railways which have been originally projected and sanctioned as independent undertakings. There is another class of cases where new lines are brought forward by the aid of, and in alliance with, existing companies, who subscribe a portion of the capital, and guarantee a certain return upon it, and take powers to lease or purchase the line when made. In such cases it is evident that greater latitude must be allowed, as otherwise the inducement to the existing company to support the new line would be in a great measure withdrawn, and in many cases the undertaking could not otherwise be supported. In such cases it would appear to be fair to allow an existing company promoting a line sanctioned as an useful undertaking, in exchange for a guarantee on their part to complete what they undertake, to purchase or amalgamate with themselves such small lines as may be considered natural branches of the parent line, and to lease for a long period such larger schemes as they have promoted. Where such new schemes, however, are of sufficient magnitude to support themselves independently, and are not so intimately connected with the parent line as to be necessarily worked along with it, it may in some cases be advisable to make some provision for the existence of a degree of independence and local management in the new concern; and also for limiting the period during which the union of interest is to exist without the necessity of a fresh application to parliament. We refrain, however, from entering more particularly upon the details of such cases, since they are necessarily brought fully under the cognizance of the committee on each bill, in the course of the general investigation of the merits of the projected lines which it is proposed to amalgamate with existing companies; and we shall confine our observations more especially to those in which the amalgamation of existing independent companies is proposed, and in which the bearings of the case upon public interests are not necessarily brought under consideration by opposing parties. With regard to these, we incline, under present circumstances and on the whole, to the opinion that such amalgamations should only be allowed where there is a natural and manifest identity of interest for public purposes among the different portions of railway which seek to unite into one whole. For instance, when two or more lines form continuous portions of what is evidently, for permanent public purposes, one great line of communication, or whenever in fact there can be any reasonable doubt that, if the whole system were now proposed for the first time, an integral scheme would obtain a preference over separate and unconnected portions, we think that the benefits which we have already pointed out as likely to ensue from unity of management may be considered as sufficient to justify the sanction of amalgamation under proper guarantees and conditions. But where there is any appearance of any conflict of interest

between the companies proposing to amalgamate and the public, and if there be any reason to suspect that the amalgamation is sought as a defensive measure to ward off legitimate competition, or to prevent new and useful projects from being brought forward, it appears to us very undesirable that amalgamation should be permitted. And even in cases where there is no very evident interest adverse to the public at the present moment, but where there is no such natural identity of interest as properly to unite the lines proposing to amalgamate into one whole, we think, that having regard to the present fluctuating state of railway affairs, it would, generally speaking, be more prudent, at any rate for the present, to pause before sanctioning such proposals, and uniting irrevocably, or for long periods, companies whose relations to one another might in a few months have been entirely changed, or which might be discovered to have some unforeseen interests adverse to those of the public. We are the more inclined to recommend this course, as no great evil could result from the postponement of such amalgamations for a year or two, by which time further experience will have been gained, both of the true interests and relations of the company and of the public, as well as of the efficacy of any legislative provisions against undue monopoly. In the present state of experience, it would hardly be wise to trust much to such provisions, unless in cases where they shall be seconded by an obvious coincidence of interest between the company and the public. There is also reason to believe, that many of the benefits sought for by amalgamation may be obtained without unions of this permanent character, by mileage arrangements, arrangements for the supply of locomotive power, and others of a similar description, which would not be open to the same objections; and this, in our opinion, forms another reason why, in cases which are at all doubtful, the more prudent course would be to postpone, for the present, the concession of powers to carry into effect lasting amalgamations."

Mathematics as a Branch of Professional Study.

There is so much plain good sense in an article on professional education which we have found in the *Mechanics' Magazine*, that we give it without curtailment, and shall continue our extract, if other parts should be as much to the purpose.

"It cannot be denied that the kindred professions of architecture and engineering require to be based upon principles in pure mathematics; still less can it be denied that the professors themselves are *in general* but little versed in that essential branch of their respective professions. In fact, we can hardly take up a professional book, in which there is the slightest approach to mathematics, without feeling convinced that the author is handling unfamiliar, and often lacerating his professional character by his clumsy use of them. Often have we felt a suffusion of shame when consulting works of the most eminent men in these professions, and stumbling on their ludicrous attempts to talk mathematically; and we have felt pleased in thinking that such jejune productions do not fall under the eyes of mathematicians. They know too well that

our professional works contain nothing calculated to repay the trouble of perusal, much less the expense of purchase.

"Yet problems of great, very great mathematical difficulty, are daily occurring in both professions. What is the consequence? That our architects and engineers are compelled to trust to unsatisfactory and illusive experiments with models, or to risk at once the consequences of their conjectural designs. They sometimes succeed—often when they keep pretty close to older and tried plans—but occasionally the most lamentable failures take place, and sometimes attended with fearful loss of life as well as property. A moderate portion of mathematical skill would have prevented these and other evils.

"Again, the unnecessary strength given to parts of a structure, and unnecessary demand of generative power in machines, are so common, that there are perhaps few buildings or machines at present in existence which form entire exceptions to the charge. Now the strength of a structure is, in reality, the strength of its weakest part, and even the weakest part may be weakened still more by its connection with the other parts; and the power of a machine is only that part of the initial force which is effectively conveyed to the 'working points.' All else is wasted, whether of strength or power; and, in fact, so much capital might as well be thrown into the ocean at once, as employed in these unprofitable parts of a structure or an engine.

"A competent knowledge of mathematical science would enable the professional man, *in a very great degree*, to avoid this profusion of expenditure, and in nearly every case to prevent those frightful catastrophes that are periodically occurring from falling buildings and exploding machinery. Even on the inquests to which these terrible fatalities give rise, the conflicting and often very absurd testimonies and opinions of professional men are most remarkable; and they are gradually convincing the public that the professors themselves are destitute of all accurate knowledge of the *principles* of their own art, and are guided by mere empirical rules, the slightest departure from which becomes professional temerity, and a most wanton sporting with property and life! Is this as it should be?

"Were architecture and engineering empirical arts—were it not possible to determine *a priori* the results of all strains and pressures in a building, and the loss of power attendant upon any given train of machinery—were it not possible to compute, by unerring rules, the actual force and its direction at any given point, either of a structure or a machine—then indeed, this reproach could not lie at the door of either profession or of its institute. Since, however, *they need not be* empirical professions, and as a comparatively moderate acquaintance with mathematical science would redress the greater part of the wrongs which professional ignorance inflicts on the public, it behooves us to make such corrections ourselves, lest they be forced upon us in a more galling form by the decision of the legislature. In fact as any person no matter his ignorance of all that relates to the subject, may at his pleasure dubb himself "C. E." or "Architect," and as in the recent railway mania, so many of the most unprincipled and unpractised persons have thrown themselves into the engineering profession, we need not wonder, nor, indeed, should we be sorry to see it, if the legislature should find it necessary to exercise a control such as it does in *law* and *medicine*. It certainly does seem necessary to put some re-

striction upon the power of incompetent persons to enter these professions; and no mode seems so practicable as a charter of incorporation and a board of examiners to decide upon the qualifications of candidates in each of the professions. We are sure it would be a boon to the public, and not less a boon to the professions themselves. It would secure to the public qualified artists; it would remove from the professions that load of discredit which the present open system inevitably entails upon them, and with increasing accumulation each successive year.

"We scarcely, however, hope to see this desired consummation yet; but we do know, from many letters which we have received, that a great number of the younger members of both professions are anxiously desiring to *qualify themselves* for an efficient and honorable execution of their duties. We have often been requested to point out a suitable course of study and reading in mathematics, which shall mainly, if not wholly, have a direct professional bearing—including all the great features of what is essential, and precluding those inquiries which, however interesting to professional mathematicians, are superfluous to professional architects and engineers. Yielding to none in our wishes to be 'useful in our day and generation,' we shall attempt to point out not only the subjects, but the manner of study which appears to us to be best adapted to the end in view; and we trust that should the day come—which we yet hope to see—when some test of capability for professional duties shall be rendered legally imperative, the suggestions which we may offer will have proved a beneficial aid to many a one qualifying himself, who would otherwise have been unable to do so, in that most important branch of his acquirements, the *mathematical*.

"Although large premiums are paid with articulated pupils both to architects and engineers, we believe there is not a single case producible, in which the slightest attention to mathematical studies is included in the course of professional instruction. How, indeed, should there be? The youth may be advised, or he may not be, 'to get a few lessons in mathematics from some private teacher;' but in most cases the advice will be looked upon as a bore and perhaps given with a half sneer; and even if adopted, he is left, like his tutor, in the dark as to the nature and character of the mathematics that he wants. He blunders through a few lessons, gets disgusted, and his mathematical course is finished with the payment of his first guinea!

"A few years ago an attempt was made to procure for young men a preliminary scientific education, prior to their going into articles, and a 'college for civil engineers' was formed on the *joint stock* principle, which after a while settled down at Putney. It was, however, a mere commercial speculation, and fared as a great number of that class of schools have fared, in becoming all but insolvent. A *military governor* was selected, and a system of *military regulations* and practices was adopted for training boys for *civil and scientific employments*! A good deal of curious matter is connected with the history of this institution; but the military system not only failed to produce good scholars, but it succeeded in creating a spirit of reckless dissipation that rendered it a scandal and a nuisance to the district in which it was 'located.' In fact it was all but bankrupt in means, as it actually was in character. We are, however, much gratified to learn that *now* its character is totally changed; that social decorum and gentleman-

like conduct as much distinguish the present race of students as the former race were oppositely distinguished. But it is now under the direction of a civilian and a clergyman, with absolute power over all the arrangements and details of the institution. We hear on all hands that its proceedings are judicious and effective; and with the belief that such is the case, we wish it all prosperity!

"This college, however, can only educate a small number in comparison with the annual influx of youths into professional offices. It is for the use of those who have no other director that we write. Throughout our series of articles we shall keep the one grand end in view—that of mathematics required by the practical architect and engineer.

"It might seem to some of our readers that while we reflect upon the present imperfect state of mathematical knowledge in the civilian professions, we ought also to notice the condition of the military, or royal engineers. Seizing, as they do, upon the 'good things' which government has to bestow, and looked up to by the public as men immensely superior in abilities and learning to the civil engineer, it is natural for us to scrutinize their system of training, and the degree in which their exalted pretensions are borne out by facts. Educated in a school set apart for the one object of preparing the ordnance officers for their onerous duties, we should be led to think that their training was in every way a model of theoretical and practical education. Alas!

(From the Journal of the Franklin Institute.)

Obituary of the late GEORGE CRANE, Esq., the founder of the Anthracite Iron Manufacture. By SOLOMAN W. ROBERTS, Civil Engineer.

George Crane, Esq., the founder of the anthracite manufacture, died at his residence, near Swansea, South Wales, on the 10th of January, 1846, in the 62nd year of his age. Mr. Crane was a native of Broomsgrove, Worcestershire, and for fifteen years was engaged in the hardware business in Birmingham, from which he retired about the year 1820, with no intention of again engaging in business; but, becoming tired of an idle life, he visited Wales in 1823, and commenced making iron at the Yniscedwin works, which then consisted of one small blast furnace.—Those works are situated in Braconshire, in the picturesque valley of the Tawy, a small river which flows into the Bristol channel at Swansea, and they are thirteen miles from that port. When Mr. Crane took charge of them, and for a long time after, the smelting iron ore found in the vicinity was carried on with coke made from bituminous coal; but, as an extensive field of anthracite coal existed in the neighborhood, was early turned to the importance of bringing that fuel into use; and at different periods, during fourteen years, he had, at a large outlay, tried a variety of plans to effect the object.

Though repeatedly baffled he still persevered, and his efforts at length were crowned with complete success. Finding that the use of this hard and refractory fuel caused his furnace to chill, he resolved to try the effect of heating the blast to a temperature sufficient to melt lead, upon the plan so successfully introduced by Mr. Nielson, for increas-

ing the yield of furnaces worked with bituminous coal. Having made the necessary preparations, he began the experiment with the hot blast on the 7th of February, 1837, in a furnace forty-one feet high and eleven feet in diameter at the boshes. From that date until the 12th of March the furnace was worked with roasted anthracite as the only fuel, and thenceforward exclusively with raw anthracite as it came from the mine without any preliminary preparation. In all respects Mr. Crane's success was complete; his furnace worked well, the yield was better than with coke, and the iron was of superior quality. He felt that the problem to which so many experimenters had turned their attention, both in Europe and America, and to which he had devoted so much of his time, was triumphantly solved. He had accomplished the object on an extensive working scale, with continued and increasing success; and from this period dates the establishment of a new and important manufacture, from which the iron trade, both of Great Britain and the United States, is now deriving great advantages. The writer of this notice, who was at that time sojourning among the iron works in Wales, visited Mr. Crane's establishment in May, 1837, for the purpose of seeing the process and of satisfying himself that the materials used were similar to those which exist so abundantly in Pennsylvania. Finding that the great object was accomplished, and that the results were highly gratifying, he communicated the fact to his friends in Philadelphia, by whom it was shortly after made public through the newspaper. At that time there was no blast furnace in Pennsylvania working with anthracite coal; their number in the state is now 27, and there are several in New Jersey.

At the meeting of the British association for the Advancement of Science, held in Liverpool, in September, 1837, Mr. Crane attended and presented a paper descriptive of his process, which is printed in the sixth volume of the proceedings of that association. He had secured a patent in Great Britain and had applied for one in the United States, the issue of which was for some time delayed, owing to obstacles which grew out of the premature publication of his process. When great difficulties have been overcome by simple means men are prone to depreciate the inventor, and in proportion to the number of the individuals and to the importance of the interests benefitted, is the pertinacity with which his claims are contested. After he has made plain a path before untrodden, his merits are questioned as those of Columbus were by the Spanish courtier, whom the great Genoese so keenly rebuked by placing an egg on its end. Mr. Crane's case formed no exception to this general rule. His patent was infringed, and he became involved in a tedious and expensive litigation which some of his friends feared might end in his ruin. At length, however, the question as to the validity of his British patent was decided in his favor, and thenceforward it became a source of much profit to him. He extended his works at Yniscedwin by the erection of

several additional furnaces, and his concerns became highly prosperous. The validity of his patent in the United States has not been tested, although his process is extensively used. He consulted the writer of this notice as to the expediency of entering into litigation on the subject in this country; who in reply compared the case of Mr. Crane to that of Eli Whitney, the inventor of the cotton gin, the value of whose invention to the public made it the source of such vexation to the patentee. Mr. Crane is undoubtedly entitled to the honor of being the first to establish the smelting of iron with coal. At the time he succeeded, the business did not exist, and ever since it has gone on increasing. In testimony of this, the important works of the Lehigh Crane iron company have been named after him, which were erected and are carried on under the able superintendence of Mr. David Thomas, who was sent out from Wales by Mr. Crane for that purpose.

Having lived long enough to see the object on which his heart was set completely accomplished, Mr. Crane died suddenly from the effects of a painful accident. Being somewhat indisposed, he had received two small bottles containing medical prescriptions, one intended to be used internally and the other as a liniment; and by mistake, on the night of the 8th of January last, he accidentally took the contents of the wrong bottle, which produced inflammation of the stomach and carried him off in two days, notwithstanding the best medical aid. He was a man of great excellence and purity of character, warmly attached to the Episcopal church, but liberal to those of different opinions. He was a friend to the poor and active in visiting and relieving the sick. He always provided for the widows and orphans of his workmen, and saw that their orphan children were educated. His active exertions to promote the general welfare and the moral and religious improvement of those in his service, furnish a bright example for the imitation of other iron masters. He died unmarried, but hundreds who were employed by him lament his loss as that of a father. He felt a lively interest in the preservation of peaceful relations between Great Britain and the United States, and took great pleasure in hearing of American prosperity. We have reason to trust that his spirit has passed from works unto rewards in a better and more enduring country.

Philadelphia, March 4th, 1846.

File Cutting by Hand and by Machinery.

Many use files, but few know the amount of labor bestowed upon them, or the nicely of touch required in the workman. It would seem that machinery here cannot operate, that it cannot think.—The best information on this subject is in the French Dictionary of Arts, etc.—meanwhile something may be learned from the extract we give below:

"Files are indispensable for the working of all metallic and many other hard substances, and without their aid few articles of machinery could be produced. Holland observes that the use of the file must have preceded every step in the progress of finishing articles composed of iron and steel in all cases where any intricacy of shape precluded the

operation of grinding. He considers that, great as is the antiquity of the revolving grindstone, the file must have preceded it, and refers, in confirmation of this opinion, to the first book of Samuel (chap. xiii. v. 21.) in which the file is mentioned as the means of sharpening the mattocks, coulter, and other edged instruments of the Israelites.—He also refers to a passage in the *Odyssey*, in which Vulcan is represented as using the hammer and file in fabricating the net in which he entangled Mars and Venus, as a proof of the great antiquity of this tool.

Files always are, or should be, made of steel of superior quality, as there are few instruments in which a defect in the metal is so completely destructive of utility. An axe, saw, or almost any other cutting instrument, though of inferior metal, may be made to do its duty by repeated whetting; but for a bad file, as Holland observes, there is no remedy—no process of restoration. 'Let it,' he says, 'be too soft, and immediately on application, the whole toothed surface of the file is crushed down, and ceases to be of any use for its intended purpose; if too hard, on the other hand, the teeth, as soon as they come into contact with the body to be acted upon, fly off with every stroke; the file thenceforward becoming, if not quite useless, certainly a coarse irregular rubber.' The importance, therefore, of a guarantee of excellent quality gives a high value to files bearing the marks of manufacturers of established reputation, and leads unprincipled tradesmen to imitate them. 'One of the most famous of these marks,' Holland observes, 'was that granted many years ago by the corporation of Sheffield to Daniel Brammall; and as an illustration of its value may be mentioned the fact, that in 1825 the rightful user obtained a verdict of £2000 damages against a Birmingham file maker for having struck it fraudulently on articles made by himself.'

"Several highly ingenious machines have been contrived for superseding the tedious operation of file-cutting by hand, but we believe no file-cutting engine has been brought successfully into operation. One very serious difficulty arises from the circumstance, that if one part of the file be either a little softer than the adjacent parts, or narrower, so as to present less resistance to the blow of the hammer, a machine would, owing to the perfect uniformity of its stroke, make a deeper cut there than elsewhere; 'whereas,' as Dodd observes, 'a workman who has been employed in the trade from a boy (and none others, it is said, can acquire the requisite skill), can feel instantly when he arrives at any variation in the quality or condition of steel, and once adapts the weight of his blow to it.'—Holland, after describing one of the machines contrived for this purpose, observes, that the applicability of such an apparatus to the toothed of extremely fine faced files seems conceivable, because 'in such the set or direction of the teeth is a matter of much less importance than perfect equality of surface;' thus intimating that a great difficulty arises in this apparently attainable point. 'The double dead-cut files of the French,' he adds, 'ex-

hibit such a beautiful uniformity of delineation when examined with a magnifier, that no doubt seems to be entertained, by many persons conversant with the art, of their being cut by machinery of some sort. But although the French are so successful in the production of this exquisitely delicate cutting, they are not equally so in the execution of the rougher sorts; and, consequently, English files are in high reputation in Paris, whither large quantities are regularly transmitted.' The writer mentions a French manufacturer of watchmakers' files, some of which, cut in the common manner, but with exquisite neatness, by his daughters, were regarded with suspicion by many, simply from the opinion that they must be machine cut.

"During the war of the French revolution, the supply of English files being impeded, the French file makers were excited to great efforts to supply the deficiency, and according to an article published in the *Repository of Arts for 1801*, translated from the register of the French Lyceum, it would appear that a man named Raoul succeeded in producing files so hard that they would cut or abrade the best English files which, in a series of public experiments, were brought into competition with them."—*Penny Encyclopædia Supplement*.

Khorassan, or Turkish Mortar.—Khorassan is used for the construction of mosques, reservoirs, and other buildings requiring extraordinary solidity. It is composed of one-third bricks and tiles, pounded to the consistency of road-scrappings, and two-thirds of finely-sifted lime, with the necessary quantity of rain water. When employed the mortar is laid on in layers of from five to six inches in thickness between each range of bricks or stones, the latter being dipped or sprinkled with water, to augment to adhesion. Khorassan, still in common use, was employed by the early Byzantines, as is proved by the remnants of their churches and cisterns. It was borrowed from the Arabs, who took it from the Persians, and called it Dakik ul Karf (Potter's Dust).—*Idem*, vol. i., page 312.

The Scourge Sicam Bomb-Vessel has been fitted with an electro-galvanic apparatus for transmitting communications from her paddle boxes, or bridge connecting them, into the engine room, whereby, in any kind of weather, day or night, the proper directions may be given to the engineers for their guidance, instead of the mode at present adopted of shouting down below, "go on," "ease her," "back her," "stop her," etc., etc. The apparatus being portable, may be moved to any part of the vessel, and is therefore not confined to the use of the officer or the bridge or paddle boxes; so that the steersman may have it, or the "look-out" forward.

Lukium, or Turkish Plaster.—The impervious and adhesive qualities of this composition, which is remarkably simple and durable, are so efficacious, that although some Taksim (tanks) are entirely beneath the earth, and thus perpetually exposed to outward infiltrations as well as inward pressure, and undoubtedly coeval with the earliest Byzantine monarchs, yet there is no record of their requiring repair, or of their having ever leaked. Water pipes of burned clay or metal joined and coated with lukium, which, when dry, becomes as hard as stone, resists the effects of humidity for ages. The following is the receipt, as now used by the Lou Yolgee (Waterway-men): Take 100 lbs of fresh kilned lime, finest quality, reduced to powder; ten quarts of pure linseed oil; and one or two ounces of cotton. Manipulate the lime, gradually mixing the oil and cotton in a wooden trough, until the mixture assumes the consistence of loaf-dough. Let it dry, and then break it into cakes for store or use. When

required for the latter, take a sufficient quantity, moisten it with linseed oil, and with this paste give two or more coatings to the wall or pipes, allowing each coat to dry. Pipes of metal or clay can be hermetically joined by twisting well-carded hemp, saturated with lukium, round the interstices, and making it fast with cord also dipped in the mixture.—*Three Years in Constantinople*, by C. White, vol. ii. page 31.

Scientific Coincidence.—In 1815, Captain Smith ascertained trigonometrically that the height of Mount *Ætna* is 10,874 feet. The Catanians, disappointed that their mountain had lost nearly 2,000 of its reputed height, refused to acquiesce in the decision. Afterwards, in 1834, Sir John Herschel, who was unaware of what Captain Smyth had done, determined by careful barometrical measurement that the height was 10,872½ feet—showing a difference of 1½ foot. Herschel called this coincidence a happy accident; but Dr. Wollaston well remarked that "it was one of those accidents which would not have happened to two fools."

New Light.—M. Gaudin, of the French navy, has invented a new light which he proposes to have on board ships, so as to prevent accidents at sea. The apparatus consists of a reservoir of oxygen, from which the gas flows under a pressure of mercury, and enters a flame produced by ether or spirits of wine through a small aperture at the axis of the wick, and the light thus oxygenated is thrown upon a piece of magnesia fastened to a thread of platina. The lamp in which these are placed has a reflector, and the whole is enclosed, with aperture for air, in such a way as to be safe from external injury. M. Gaudin is of opinion that this light may be applied with great advantage to railroad locomotives, as well as vessels at sea, and the expense does not appear to be at all in proportion to the important service that it would render.

Rust.—All the common metals, except tin, rust; they become duller and duller up to a certain degree, lose gradually their lustre, and then the process goes no further. Instead of this rusting being a destroyer of the metal, it is a preserver; for, even in the case of iron, which rusts quickly as compared with other metals, if it be dipped into tin, it comes out coated with it, and it is preserved beautifully. If iron be exposed for a couple of hours to the action of water, the iron becomes quite corroded; but when tinned, the iron is protected, and the tin itself appears unaffected. How is it that this metal can protect itself, and the iron that is under it? It is simply owing to the substance formed on the surface by the attraction of oxygen, which is so adherent to the metal beneath. It gives a protection which no varnish, or any other kind of application can afford. Take a copper or tin plate, they are both protected in their metallic state by a thin coat formed in the first instance of oxide. It is only because this coat is so exceedingly compact, close, and adherent, that it passes for nothing—a mere film or tarnish.—You think you see, or touch, a piece of tin; you cannot detect the film, except by close examination. We know it is there, but it is only by optical phenomena that we can measure its thickness. It seems clean and beautiful, but if you rub it off, you give the metal beneath a new character; the beautiful lustre, however, passes off the first moment up to a certain point. The body formed by the combination of oxygen with iron is different. The oxide does not adhere to the metal beneath; it forms upon it little spots, or porous tumuli. It is not an investing varnish, but the process goes on through the pores of the rust, especially if the metal be placed in a damp atmosphere. This is the reason why we find a difference between copper, iron, tin, and lead, when used for roofs or other external purposes. The iron alone is eaten into and destroyed, by this want of adhesion in its rust to the surface of the metal. "It is curious to observe, in some cases, how tin, a metal having a slight attraction for oxygen, protects other metals from oxidation. In Canada, tin plate is used for the roofs of houses; I am told that you are dazzled by the lustre of the setting sun upon the roofs; and there, although it is exposed to the atmosphere year after year, it does not decay, because the superficial coat of oxide protects the tin and iron beneath."—*Faraday*.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.

Saturday, May 30, 1846.

Reading Railroad.

We have been courteously favored by Mr. Augustus Edwards with the following comparative statement of the business upon this road during the month of April, in the years 1844, 1845 and 1846— from which it will be seen that the increase is truly astonishing. We are gratified to be able to say that we shall hereafter receive and publish regular weekly statements, by which our readers will be able to observe its progress.

A comparative statement of the business on the Philadelphia and Reading railroad for the month ending April 30th,

	1844.	1845.	1846.
Travel.....	\$8,008 48	\$9,919 13	\$13,340 42
Freight on goods. 4,531 85	7,248 39	15,764 90	
Do. do. coal. 29,532 05	51,225 32	125,417 05	
Miscell's receipts. 13 55	—	3 00	
Transp. U.S. mail. 500 00	783 33	783 34	
	\$42,535 93	\$68,176 17	\$155,308 71
Coal trans., tons. 30,099	52,734	100,018	

ATLANTIC AND ST. LAWRENCE RAILROAD.—Notice to Contractors.—Proposals will

be received at the office of the Atlantic and St. Lawrence railroad company in this city, from the 17th to the 27th day of June next, for the grading, masonry and bridging of a division of the road, extending from a point at or near Portland to Royall's river in North Yarmouth—a distance of about eleven miles.

Plans, profiles and specifications will be exhibited, and the requisite information given at the engineer's office in Portland on and after the 17th day of June.

Persons offering to contract for the work, or any part of it, who are unknown to the undersigned or the directors of the company, will be required to accompany their proposals with references as to character and ability.

A further extension of the road, embracing a distance of some fifteen or more additional miles, will be prepared for and put under contract about the first of August next.

By order of the Board of Directors.

WM. P. PREBLE, President.

A. C. MORTON, Chief Engineer.

Portland, Me., May 18, 1846. Im22

Camden and Amboy Railroad Company, and Raritan Canal, and the Napoleon Transportation Companies.

The question has been often asked, "Why is it that the Camden and Amboy company does not pay over 10 or 12 per cent. to the stockholders?"

Never, until recently, have we been able to answer this question.

We were credibly informed a few days since, that the Transportation company between this city and Philadelphia, via Camden and Amboy railroad company, was not in any way connected with the railroad company. It is, in fact, entirely separate. The name of this company is, we understand, the Napoleon Concern. The principal portion of this

stock is said to be owned by the directors of the Camden and Amboy railroad, and Delaware and Raritan canal company (which is, in fact, one and the same thing) and the directors have the power of raising or reducing the tolls as they choose.

The original cost of the "Napoleon" shares was \$500 each. None have ever been, within our knowledge, offered at the board of brokers, either here or in Philadelphia. We have heard of two shares that were some time since offered as a particular favor for \$1500 each!

We leave the public, for the present, to form their own conclusions, but shall have more anon to say on the subject.

The Oswego and Syracuse Railroad Company, we learn, was organized the 14th instant, by the selection of seven of the business men of Oswego as directors to represent that place, three from Syracuse, two from Utica and one for the city of New York. The Hon. Alvin Bronson was chosen president, Luther Wright, treasurer, and Messrs. Bennett, Doolittle and Osborne, the executive committee.

It is of the first importance, now that the western trade is let down into lake Ontario by the Welland canal, that this important link of 36 miles should be completed without delay. This is the more required, as we learn the Ogdensburg and Champlain railway stock has been subscribed, and the company organized, under influences, to say the least, not favorable to the city of New York. We have, in a former number, pointed out the importance, aye, absolute necessity of the Harlem railroad being extended so as to form an intersection with this line of northern railways, either by Chatham four corners, or by the valley of the Housatonic.

The distance from this city, on the extension of the Harlem railway, to Albany, 147 miles, and a like distance from that place to Oswego, two hundred and ninety-four miles, can be accomplished with ease in ten hours, at the rate of thirty miles an hour; but say twelve, to take the evening boat to Lewiston, then the railway, and breakfast either at the falls or Buffalo. The route via Oswego must have its full share of travel and traffic, and is of the first importance to our packet system, as forming the shortest line from the seaboard with Canada.

Responsibility of Directors.

The large number of important lines of railroad now in process of construction or about to be commenced, has led us to reflect upon the great responsibility of directors, and the influence, for good or evil, which they must exercise over the interests of companies. We think that already the various influences, in different districts dependent upon the character of the directors, are producing results of vast magnitude, partly beneficial and partly injurious to the general interests of railways.

Trusting that this subject, so seldom brought before the notice of those whom it most concerns, may soon receive its proper amount of attention, we propose to note a few of the more important duties of railway directors.

The first, and most urgent duty, is attention to the affairs of the company. One would suppose that in common honesty no man would suffer himself to be elected to an office of trust, the duties of which he did not intend to fulfil; but no fault is more frequent than this. Men in active business are most generally elected to fill such situations, and their excuse for non-fulfilment of duty is, they have no time. Then, most assuredly, they have no business to retain their office. If a capital of one, two, three or more millions, is confided to the management of

twelve or twenty men, it is done, most certainly, with the understanding that the interests of stockholders shall not be neglected; and such neglect on the part of a director is a virtual, and should be made an actual, resignation. We throw out a suggestion derived from the experience of the incorporation of a literary institution, which, in common with all others of its kind, had suffered from the evil of which we are speaking. On the absence of a member for two successive meetings of the board, he receives a notice of warning, and if absent at the next meeting, unless from sickness or some satisfactory reason, he is requested to resign, in order that his place may be filled by some one able and willing to discharge the duty. It would be an easy matter to provide in the charter, or otherwise, for the legal vacation of office on account of prolonged absence.

Possibly this evil, as well as all others of the kind, may have been increased by the election of shrewmen—respectable gentlemen who care not a fig for the concern, but are elected directors for their names only. In this case, the sin is about as much on one side as on the other, and the result pretty much the same as in all other measures of mere expediency—the very thing intended to be accomplished is defeated by the means employed to bring it about.

In its broadest sense, the fault of which we have been speaking includes all others, although we have rather referred to punctual attendance and the intention to perform what is required.

But with the most honest intentions and most faithful personal presence, a director may yet neglect the interest confided to his charge. He may, in short, be ignorant of railroad affairs. The second great duty then is a knowledge of what has been done and is doing upon other works—general information upon railway construction and management. It is true, the company should have a competent engineer, but the responsibility of the adoption of his plans rests with the directors, who are often called upon to decide questions which a professional man may consider not to belong to him, although he may have, and even express, an opinion. We are certain that no skilful engineer would be displeased at a thorough investigation of his projects—setting aside all impertinent interference—and we are equally certain that he would feel greater satisfaction in finding his plans adopted because they were excellent, than in seeing them swallowed because they could not be understood.

Railroad directors then should, by actual examination, carefully and faithfully made, become acquainted with the construction, the management and the condition of other roads than their own. The excuses which may be made for not doing so, are not to be heard. The dilemma is, such persons must either be ignorant, or else know more than every body else without any means of acquiring such knowledge.

The details of management can scarcely be properly understood without personal examination—a regulation may look well but work ill. "All sorts and conditions of men" must be encountered, and, as a general rule, satisfied. This is no easy task, and its skilful performance demands an intimate knowledge of human nature; and in such a case surely, if in none other, it would be wise to benefit by the experience of others.

We could, were we disposed to particularize, mention several instances in which this ignorance of the experience of others, even in apparently very trifling matters, has led to unfortunate or even disastrous results.

The directors of the most successful railroads in

the country are emphatically *railroad men*—men who without being smatterers in professional matters, are yet informed of everything that belongs to railroads, and who lose no opportunity of adding to their information. Such men only are fit to be directors, and under such men only will railroads prove successful—that is, do not only well, but do all things they are capable doing.

There are many excellent men in such situations, good in business and possessing general information, who are yet, according to our standard, unfit for their places; but such men can, with little or no difficulty, become qualified, and upon such persons advice is not thrown away. In acquiring the information needed, they would be agreeably employed, and certainly the feeling that they were more faithfully attending to their duties would not be disagreeable.

Of course, the practice of making up directors of men who look upon railway stock merely as *stock*, is quite improper; and to such a cause might we trace the ruin of many a concern, which, under other hands, would have prospered. We do not mean to say that brokers and bankers are not fit for directors—there are many such who are, in our sense of the term, *railroad men*. Their fitness or unfitness turns not upon their being brokers or bankers, but upon their being, or being willing to become, *railroad men*.

In making these remarks, we have scrupulously avoided all direct or indirect application. This it will be easy to make in any particular case, but we have desired rather to leave the application to others. Doubtless opportunities will occur for the special inculcation of what we have here laid down in general terms, and from such opportunities we shall not shrink.

Separate Carriages or Divisions of Cars for Ladies, are finding great favor in England. The plan has been introduced on many of our railroads. The elegant cars, furnished with state rooms [as they are called], in use upon the Long Island, Norwich and Worcester, Stonington, and other roads, have been found very agreeable; the only suggestion we could make is, that if agreeable to ladies, for one part of the line, why not for all parts? A few fine cars are not enough to render the journey pleasant to those who travel in many common ones.

We never could see the particular advantage in thrusting 50 or 60 people, of all sorts and kinds, together into one large apartment, particularly when there is a red hot stove, and when some persons will toast their India rubber shoes until they smell, and others will throw their quids and spit tobacco juice upon the red hot iron.

The advantages of long cars are beyond a doubt; but there is no reason why the interior should be without division. Indeed the partitions might be so arranged as to add materially to the strength of the car.

The "Great Britain."

The information contained in the following extract had escaped our notice—but is what might have been, and was predicted, when this singular instance of misjudgment was first announced.

"What has become of the *Gt. Britain*?" is a question which we hear frequently put, and we have had frequently addressed to us. We now devote a corner to state what we know about her. The vessel is undergoing at Liverpool a thorough renovation of her machinery, previous to encountering the serious perils of another Atlantic voyage. If all we have heard be true, this renovation might more properly be described as an *entire re-construction*. The company of proprietors are now acting under the

able advice of Mr. Field, of the firm of Messrs. Maudslay & Field, the constructors of the *Great Western*, whose performances, as a steamer, have never, as our readers are aware, been to this day surpassed. Well would it have been for the *Great Western* company had they only contented themselves with building *just such another*, instead of aiming at a leviathanism, which was wholly uncalled for, and which, as the event has proved, was quite beyond the reach of any engineering skill possessed by those who planned and built her. We have reason to believe that when the machinery of the *Great Britain*, as it is now in the course of being altered, comes to be compared with what it was originally, such a series of blunders as to dimensions, proportions, etc., will be brought to light, as the engineering public have rarely, if ever witnessed. How she should have been able, mis-engined and inefficient as she was, to make even the three halting voyages she did, is a marvel. Verily, it must have been of God's mercy that she did not share the fate of the unfortunate President.—*Mechanics' Magazine*.

We understand that the directors of the Atlantic and St. Lawrence railroad decided on Friday evening last, the question of the route of the road from this vicinity. The route adopted leads through the towns of Westbrook, Falmouth, Cumberland, and North Yarmouth, passing between the two villages, and so up the valley of Royal's river. This route is according to actual surveys about a mile and a half longer than the western route, so called; but it passes through a fine, well cultivated, and well settled country. It is $2\frac{1}{2}$ miles longer than the western route, according to Dearborn's survey—but that survey began near the foot of Preble street; the other embraces the whole distance to the wharves on Fore river.

Our friends at North Yarmouth, who are manifesting a very laudible interest in the enterprise, had quite a *jollification* last evening, on learning the decision of the directors in regard to the route for a location.

The chief engineer, it is said, will be in the city this week, and probably the location of the road as far as the valley of Royal's river will be completed very shortly, so that we may expect to see the directors in all this month advertising for grading the road as far as North Yarmouth.—*Portland Adv.*

(From the Journal of the Franklin Institute, for April.)
Civil Engineering—Steam Navigation.

Through the courtesy of the Hon. George Bancroft, secretary of the navy, we are enabled to lay before our readers, part of a large mass of very valuable information upon the subject of steam navigation, in the possession of the navy department. It is contained in replies to a circular of the board of navy commissioners, which was addressed to many practical men, as well as to other persons, and men of science supposed to be conversant with the subject.

The great importance of the subject would make these letters interesting at any time; but at the present moment, when public attention is directed to ocean navigation, and our citizens are about to contend with the English for a share at least of a trade which has heretofore been exclusively their own, the value of such information will be more fully appreciated. The projected mail steamers to Cowes and Bremen, and other ports; the Liverpool packets with auxiliary power, and the proposed increase of the steam navy

of the United States, lend force to this remark, and give to the subject an unusual importance at the present time.

These letters were written in 1841, nearly five years ago, and great and radical changes have since been made in the arrangements of steam vessels. The English marine engine, with side levers and paddle-wheels, then in almost universal use, first gave place to various kinds of direct action engines, and now the old time-honored paddle-wheel itself seems about to be superceded, for marine purposes, by various kinds of oblique propellers. To the genius of Ericsson in this country, and the perseverance of Mr. B. F. Smith in England, this change is due; and the new systems introduced by them seem destined to effect a complete and speedy revolution in ocean navigation.

It is therefore highly desirable, that more recent information than that contained in these letters, should be obtained, and it is hoped that they may arrest the attention, and enlist the pen, of some one who may have the leisure and inclination, as well as the ability, to do the subject justice. Perhaps the writers of these letters may themselves be disposed to furnish such additional information as subsequent experience may have taught.

COM. PUB.

Circular to the Board of Navy Commissioners relative to Steam Navigation, and Replies thereto.

NAVY COMMISSIONER'S OFFICE,
3d September, 1841.

GENTLEMEN:—The commissioners of the navy, being engaged in providing an additional steam force for the navy, which has been authorized by a late act of congress, are desirous of availing themselves of the most approved and efficient plans of engines, boilers, and their fixtures. With a view to gain full information upon these subjects, they have taken the liberty of addressing this letter to some of the scientific and practically informed gentlemen of our country, requesting their aid on the occasion—persuading themselves that the information desired will be willingly afforded.

They beg to be favored with your opinion upon the following points particularly: 1st. As to the horse-power of the engine. 2d. The kind of engine. 3d. Should this be single or double? 4th. Should it be high or low pressure?

It is believed that high pressure engines may be used on board ships to advantage, by saving room, diminishing cost, and decreasing the labor. It is proposed to have them calculated for vessels of three sizes.—As their burthen is not yet determined, the commissioners would observe, that 500 tons will be the least, and 700 the highest limit, to which it is proposed to go in their construction; and they would be pleased to have an estimate for a vessel of 600 tons also.

Information as to the best form of the boiler, and as to the working of the different descriptions of engines; the horizontal, vertical, and angular, will be very acceptable. Indeed, any information upon any branch of

the subject, which you may be disposed to communicate, will be thankfully received.—You can best judge as to the information necessary to enable the board to come to a satisfactory decision upon a subject so deeply interesting to the whole community; and the commissioners beg the favor of you to afford it—not considering yourself in any degree restricted to the points indicated. I am, gentlemen, very respectfully, your obedient servant,

L. WARRINGTON,

For the Board of Navy Commissioners.

To the Navy Commissioners of the United States.

GENTLEMEN:—Your circular of the 3d inst. was duly received, asking our opinions upon the several questions propounded in relation to steam power in ships for the navy. We cheerfully submit the following reply, though we do so under disadvantages, from a want of a more specific description of the length, breadth and draft of water of the vessels to be employed.

Assuming a vessel to be of 600 tons, we propose double engines, with an aggregate power of 120 horses. The question of preference as to high or low pressure engines for marine purposes, we are unable to decide with our present experience. We would, however, recommend high pressure, vertical engines, as an experiment of the form and arrangement of the model engines recently designed and made by us for commodore Stewart, of the navy, which are now at the navy yard in this city.

The advantages resulting from engines of that arrangement, particularly that with the vibrating piston rod, is a great saving of room and weight, great simplicity of machinery, and diminution of cost and labor in getting it up. Some of these advantages, particularly the simplicity of machinery, is less evident in a small model than in a full sized engine, arising from the necessarily distorted proportions of a small machine. Should the commissioners examine these models, it will afford us much pleasure to attend and give such explanations in relation to them as may be required. The same arrangement is equally applicable to low pressure engines, requiring in addition only the necessary condensing apparatus, which is readily arranged without a sacrifice of room. In recommending this engine in a vertical position, it is presumed that the power is to be applied to an ordinary paddle wheel. We will remark, however, that the same arrangement of the piston can be placed in a horizontal or an angular engine, producing the same proportionate advantages of lightness, simplicity, and economy of room, which it does in a vertical engine.

Should it be desirable to adopt the submerged paddle wheel of Lieut. Hunter, of the navy, which in our opinion possesses many important advantages for a ship-of-war, or the spiral propeller, our vibrating rod can be readily applied to them.

No specified plan of boiler appears yet to have been decided upon for steam vessels, as preferable to all others. That which we

prefer for high or low pressure, is cylinder boilers, with fire-places passing under them, and thence through a large number of return tubes of two to three inches diameter. This arrangement gives great efficiency, compared with the weight and size of the ordinary boilers, is not subject to injury in the tube, from excessive heat, and is readily repaired by ordinary workmen, when repairs are required.

We do not hesitate to express the opinion that engines of this arrangement, either high or low pressure, can be made with a saving of 33 $\frac{1}{4}$ per cent. of room, cost, and weight, with equal efficiency when compared with engines of ordinary arrangement.

As to the angular engines, they are only adopted when the arrangement of the machine requires more space in the line of power, than can be attained in a vertical position between the keelson of a ship and the cranks, or shaft. No other advantage, it must be observed, results from this position, it is evident that more space is occupied by it in a ship than by a vertical engine.

A single engine could be made of 120 horse power, which would occupy less space, and be made for less cost, than double engines of the same aggregate power; but it is believed that the uniformity of motion produced by double engines geared together at right angles, particularly in a rough sea; and safety, in case of accident, by working one engine, while the other is being repaired, overbalance all disadvantages which can be urged against the double engine.

It will always afford us much pleasure to reply to any communications from the government departments, upon any subject upon which it is presumed we can give information. Respectfully submitted.

(Signed,) BALDWIN & VAIL.

Philadelphia, September 28, 1841.

DAVID CONNOR, Esq., Navy Commissioners' Office. Washington City.

SIR:—Your communication of the 3rd September came duly to hand;—being absent from home is the cause of not answering in due time. I am now making a drawing for a steam engine suitable for a vessel about 600 tons, calculating the hold to be 16 feet, and the draft of water, say, from the bottom of the plank, 12 feet; weight of engine, boilers, water, etc., 112 tons. The cylinder is upright or vertical, and is directly under the water wheel shaft; the piston-rod working through the bottom of the cylinder, connecting there to a cross head with a connecting rod on each side of the cylinder, to the cranks on the top of the same. This form of engine is the plainest that can be constructed of a low pressure kind; of which you will be best able to judge yourselves. One of this plan can be put up on board of a vessel of the same power, as is now putting up on board the Mississippi, for about one half the expense, and will be one-third lighter. The cylinder is 54 inches diameter, with a stroke of 6 feet 2 inches and is 211 horse power.

It is the same plan I had intended to make a working model on, at the time you were

about making proposals for the two large steamers now building. I shall take great pleasure in giving you all the information I am able, according to your letter above referred to, of which I will be able to forward in all next week, together with the drawing of the same. Your obedient servant,

(Signed)

THOS. HOLLOWAY.

Philadelphia, Oct. 1, 1841.

To the Navy Commissioners.

GENTLEMEN:—In your letter of the 3rd September, you ask for information on several points; I shall take great pleasure in communicating freely all the information I am able.

1st. Your inquiry as to horse power, etc. The horse power is so variously stated and differently calculated, it is a matter in question what a horse is equal to in power per day, hour, or minute. Suppose a horse to be able to draw 200 pounds at the rate of 2 $\frac{1}{2}$ miles in the hour, or 220 feet per minute, with a continuance, drawing the weight over a pulley. Now $200 \times 520 = 44,000$, at one foot per minute, or one pound at 44,000 feet per minute. This will show that 44,000 is the divisor for a horse power.

To calculate the power, find the area of the cylinder, multiply that by the effective pressure of the steam say 10, 15, or 20. I say 15 pounds, the product is the weight the engine can raise, or press in, or resist in the water. Multiply this weight by the number of feet in length the piston travels in a minute, which will give the momentum or weight the engine can lift, press, or resist in the water, one foot per minute. Divide this by 44,000, and the quotient will be the horse power the engine is equal to.

On this sheet of paper I have calculated the power of the engine of which I have made the drawing, 54 inches diameter, and 6 feet 2 inches stroke.

2nd. My opinion is decidedly in favor of a low pressure engine. It has proved to give more power than the high pressure, when carried to great extremes, and is much more safe, more pleasant to work, and a greater saving of fuel, and has several advantages over the high pressure. This has been fully tested on the lakes, when on a large scale.

3rd. One engine placed in the centre of the ship will be a saving, on the first cost, of about one-third, and less hands will keep it in order, takes less room, much less in weight—more particularly a large engine on the plan on which I have suggested, is much the best. This engine has this advantage—the power is called a direct power within itself.

The English engine, say the *Great Western*, the power is conveyed in an indirect form by side lever beams, in which case the power passes through the ship, or through a great, massy, iron framing; is a very complicated engine, and has much friction to overcome.

Respecting Boilers.—The plainest boiler is the only safe one that can be used in salt or sea water, a boiler that can be got at on all the water side or surface, as that requires to be got at to be often cleaned. The fire sur-

face also requires to be got at to keep it clean from soot and ashes; and it is necessary that a boiler should be so constructed that the workmen can with ease repair it, when repairs are wanted.

The boiler I have given the outlines of, is what I call a zigzag entry boiler. It gives a large fire surface, and exposes much water to the heat. This boiler has a water bottom on which the middle legs are rivetted; this bottom is where the settlings are taken out. The boiler, although large, (say 16 feet 11 inches wide,) is just as strong as though it was 8 feet, for you will perceive it has two complete arches. By so forming, it can be put between decks, which is another advantage. With one boiler there will be less fuel consumed than with two.

I am in favor of an iron boiler. It is a boiler on which you can depend, and if tight, will last nearly as long as a copper boiler.—I have built several boilers on the plan mentioned, several years back, without water bottoms, which is an improvement both to getting at or discharging the sediment, and the manner it strengthens the upright legs; the boiler consumes but a small proportion of fuel compared to some others. There is a boiler now running on the Delaware which has been in use 11 years, and is considered by the owner to be as good as any one on the river at this time.

My method of proportioning the boiler to the cylinder in fire surface is as follows:—When a boiler is made of good proportion as respects the draft, and the fire surface being so that the fire can act on it; when there is 6½ feet surface allowed for every horse power, taking the within calculation, it will be sufficient even with indifferent fuel. This boiler will consume per hour 7 to 10 pounds, according to the strength of the coal.

An upright perpendicular cylinder is much the best. The friction is less, and the engine less liable to work itself out of order. An horizontal engine is the next best; but it has much friction to overcome, and is liable when put up on a large scale to work itself out of order; besides it takes more room in the vessel.

An angular engine is one of the worst; it cannot be balanced even; it is difficult to place the valves to it, without a loss of steam; and on the whole has many very bad qualities.

On this engine of mine perhaps you will inquire how it is to be packed, as the engine connecting shaft is directly on the cylinder top. There may be two large man doors on the top that can be taken up with half the trouble of lifting the whole top, and the men can pack the cylinder inside, when on the bottom centre. I am, etc.,

(Signed) THOS. HOLLOWAY.

Philadelphia, Oct. 11, 1841.

A steam engine the cylinder of which is 54 inches in diameter with a stroke of 6 ft 2 in., making 23 double strokes per minute.

Area of the cylinder, - - - 2290

Carrying 15 lbs. of steam in boiler, 15

34350

12 ft. 4 in. × 23 (the number of double strokes,) - - - = 283½

44,000) 9738225 (221½

To COM. L. WARRINGTON, Navy Commissioner, Washington City.

SIR:—On my return from the survey of the boundary between the United States and the British provinces, I had the honor to receive your letter of 3rd September, requesting my opinion on certain points relating to the plans of steam vessels. While I fully appreciate the compliment which is paid me by considering that any hints from me would be of value to the board of navy commissioners

I am only in return expressing my regret that my time is so fully occupied for the present in the service of a co-ordinate department of the government as to preclude my replying in so full and ample a manner as I could have wished. To give a reply which would be properly satisfactory, would include a draft of a vessel and engine. So far, however, as my leisure and existing circumstances will permit, I beg leave to state my views on the points you have submitted to me.

1st. In relation to the horse power of the engine, that term is so extremely vague, and the application of the usual mode of estimating the tonnage of vessels to steamers, so loose that I cannot reply in express terms to this question.

2nd. I consider that for a ship of war, an engine composed of two inclined cylinders, working at right angles to each other upon the same shaft, would be the best, in consequence of its occupying the least room, and having all its most important parts below the water line. One of the cylinders would be most conveniently placed before, the other abaft the shaft. In bringing this subject before the engineers, and naval constructors to whom the plan of the vessels will finally be committed, I would venture to suggest an idea I have long dwelt upon, and which I believe is capable of advantageous practical application. It is a fact ascertained from universal experience, that, in absolute contradiction of all theory, every foot which can be added to the velocity of the circumference of the paddle wheel gives an additional foot to the speed of the vessel. Our engineers have hitherto sought to attain this object by increasing the speed of the piston, and augmenting the diameter of the water wheel. So far as mere speed has been the object, this method has been successful, but the success has been attended with two obvious defects. (1.) The piston is driven at such a rate that the efficient pressure of the steam is much diminished, and hence the resistance which is overcome is very far beneath the estimate of the force of the engines in horse power by the usual formula. (2.) The wheel has been increased to such a diameter as to render the vessels crank, and would in a vessel of war expose an enormous surface to an enemies' fire.

I conceive that by recurring to the original form of Watts' engine, in which the sun and planet wheel was employed instead of the crank, these objections might be obviated. The property of this apparatus is to give to the shaft of a given engine twice as many revolutions as are given by a crank. A wheel of half the diameter, therefore, if thus driven,

would have the same velocity at its circumference, as one of the ordinary dimension if driven by a crank; or, a piston moving with half the speed would give an equal velocity to a given wheel. It will be obvious that in planning a new engine both of these might be partially accomplished. The piston might be made to move slower, and the diameter of the wheel lessened, each to a limit less than half of what would be adapted to the use of the crank.

3rd. In my reply to the second question, I have proposed an engine consisting of two cylinders. This has, in ordinary cases, the advantage of much greater regularity of motion, causing less strain upon the vessel, and less wear in the engine itself. In a war steamer it would be further useful, as it would be possible to construct the engine so that either cylinder might be used independently, and thus, in case of an accident happening to one, the vessel would not be wholly crippled.

4th. The high pressure engine has the advantage of simplicity, and of being of less size and weight than the low pressure engine. It has also the advantage of giving a greater power with a given expenditure of fuel. The first of these advantages is counterbalanced by the increased risk with which its action is attended, and the second ceases altogether when the condensing engine is driven by steam of medium pressure, acting expansively. It is a matter of strict mathematical calculation, confirmed by the experience of the pumping engines of Cornwall, that steam working at a pressure of 56 pounds and cut off at one-eighth of the stroke, will do twice as much work in the same engine, at the same expense of fuel, as when it is used at a pressure of 2½ pounds, and not cut off. On the other hand, in order that a high pressure engine shall have double the force of a low pressure engine of equal dimensions, it must be worked with steam of a pressure of 300 pounds. I should, however, consider that steam of 56 pounds is rather beyond the limit of safety, as the inattention of a few minutes might raise it to an explosive height, and should advise that the boilers be calculated to bear about 30 pounds per inch, and the steam cut off at one-fourth of the stroke. In respect to the form of boilers, I should consider that borrowed from the locomotive engine as superior to any other, and that it ought to be furnished with a blower to adapt it for the burning of anthracite coal. I would also recommend that each boiler have a small separate engine for supplying it with water while the main engine is, from any cause, thrown out of action.

Such, sir, are the points on which I am at present prepared to give an opinion, and it would give me pleasure at some future period to reply at greater length to the important questions you have proposed. I am, etc.

(Signed.)

J. RENWICK.

Columbia College, N. York, Oct. 4, 1841.

[To be Continued.]

WILLIAM R. CASEY, Civil Engineer, New York. Address Box 1078, Post-office, New York. 21

STEPHENS' RULING AND MECHANICAL
Drawing Ink, for Engineers, Artists and Designers. This article will be found superior to the best Indian Ink for the above purposes. It does not smear with India rubber or wash off with water. It flows freely from the drawing pen, and never corrodes or encrusts it. It may be used on a plate or slab, with a camel's hair brush, diluting it with water, or thickening it by drying, as required. It has the advantage of being ready for immediate use.

Sold in conical-shaped bottles, convenient for using from, without any stand, at 15 cents each.

ALSO,

STEPHEN'S WRITING FLUIDS.

These compositions, which have so remarkably extended the use of the STEEL PEN, are brought to great perfection, being more easy to write with, more durable, and in every respect preferable to the ordinary ink. In warm climates they have become essential.

They consist of a Blue Fluid, changing into an intense Black color.

A Patent Unchangeable Blue Fluid, remaining a deep Blue color.

A Superior Blue Ink of the common character, but more fluid.

A brilliant Carmine Red, for Contrast Writing.

A Carbonaceous Record Ink, which writes instantly black, and being proof against Chemical Agents, is most valuable in the prevention of frauds.

Also, a new kind of MARKING INK for Linen and Inkstands adapted for, preserving Ink from evaporation and dust.

Sold in Bottles of various sizes, by all Stationers and Booksellers.

Be sure to ask for Stephens' Writing Fluid.

N. B.—These unchangeable Blue Fluids are Patent Articles; the public are therefore cautioned against imitations, which are infringements, to sell or use which is illegal.

Stephens' Select Steel Pens.

The utmost possible care having been bestowed upon the manufacture of these articles, so as to procure the highest finish, they can be confidently recommended, both for flexibility and durability.

All the above articles are prepared by Henry Stephens, the inventor, No. 54 Stamford-street, Blackfriars road, London, and sold by Booksellers and Stationers in bottles of various sizes, and may be had wholesale from the agents in Boston, New York, Philadelphia, Baltimore, Washington, Charleston, New Orleans, and St. Louis.

Wm. W. Rose, Wall-street, New York, is my general agent in the United States.

VALUABLE PROPERTY ON THE MILL

Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 feet two stories high, with a shed part 45x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia.

RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.—Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATAILLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

(Signed,) RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed,) WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,

138 1/2 Water st., N. Y.

Also by Isaac Bridge, 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street,

Charleston, S. C. 16 1/2

THE WESTERN AND ATLANTIC
Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculmbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,

Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 17

RAILROAD IRON—500 TONST RAILS

—60 lbs. to the yard. Depth of rail, 3 1/4 inches; width of base 4 inches; width of top, 2 1/4 inches; length of bars 15 and 17 1/2 feet. Apply to,

A Steam Pile Driver—built by "Dunham & Co."—in complete order; has never been used, and for sale a bargain. Cost originally \$5,000. Also 12 Railway Passenger Cars, that have never been used, which will be sold a bargain.

DAVE BROOKS & CO.,

37 Wall street

April 11.

NO LOCOMOTIVE AND MARINE EN-

gine Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warer ouse S. E. corner 3d and Walnut Sts., Philadelphia 11

LAWRENCE'S ROSENDALE HYDRA-

ulic Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-ea barrels, by JOHN W. LAWRENCE,

142 Front street, NEW YORK.

Orders for the above will be received and promptly attended to at this office. 32 1/2

A. & G. RALSTON & CO., NO. 4

A. South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/2 x 1/4 inch Flat Punched Rails, 20 ft. long.

25 " 2 1/2 x 1/4 " Flange Iron Rails.

75 " 1 x 1/4 " Flat Punched Bars for Drafts

in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES,

Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/4 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,

Albany Iron and Nail Works,

L EXINGTON AND OHIO RAILROAD.

L Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846. Spring Arrangement. 1846
Commencing April 1st.

Passenger trains leave daily, Sundays excepted—
Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6½ " and 2½ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Boston and New York, via Springfield: Passengers leaving Boston at 4 p. m., arrive in Springfield at 8 p. m., proceed directly to Hartford and New Haven, and thence by steamers to New York, arriving at 5 o'clock a. m.

For Buffalo: the trains for Buffalo leave Albany at 7½ a. m. and 7 p. m., arriving at Buffalo at 8 a. m. and 8 p. m. next day. Returning, arrive at Albany at 4 a. m. and 4 p. m.

New York and Boston, via Albany: the trains from Boston arrive at Albany in season for the 7 o'clock boats to New York. Returning, the boats, leaving New York at 5 and 7 p. m., reach Albany at 5 a. m., in ample season for the morning trains to Boston.—Steamboats also leave Albany at 7 a. m. and 5 p. m. and stop at the usual landing places upon the river.

The trains of the Springfield, Hartford and New Haven railroad, connect at Springfield, and passengers from Albany or Boston proceed directly on to Hartford and New Haven.

Montreal: through tickets to Montreal may be obtained in Boston, by which passengers may proceed to Troy, and thence by stage via Chester, Elizabeth, etc., and in the season of navigation by canal to Whitehall, and thence by the splendid steamers of Lake Champlain to St. John, via Burlington, and thence by railroad and steamers to Montreal.

The trains of the Hudson and Berkshire railroad connect at Chatham and State Line.

The Housatonic railroad connects at State Line.

The trains of the Connecticut River railroad connect at Springfield, and passengers may proceed without delay to Northampton, and thence by stage to Greenfield, Brattleboro, Bellows Falls, Hanover, Haverhill, etc.

Stages leave West Brookfield for Ware, Endfield, New Baintree and Hardwick; also leave Palmer, for Three Rivers, Belchertown, Amherst, Ware and Monson; Pittsfield for North and South Adams, Williamstown, Lebanon Springs, etc.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES,
Superintendent and Engineer.

Western Railroad Office,
Springfield, April 1, 1846. } 14 1y

MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tilters etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.

PETER COOPER, 17 Burling Slip.
New York, January 23d, 1846. 1y 10

C. J. F. BINNEY,
GENERAL COMMISSION MERCHANT
and Agent for Coal, and also Iron Manufacturers, etc.

No. 1 CITY WHARF, Boston.
Advances made on Consignments.
Refer to Amos Binney, Boston.
Grant & Stone, } Philadelphia.
Brown, Earl & Erringer, }
Weld & Seaver, } Baltimore.
December 8, 1845. 1m 50

SCRIBNER'S ENGINEERS' AND MECHANICS' Companion. For sale at this office. Price \$1.50!

LARD OIL FOR MACHINERY, ETC.—Winter pressed, cleansed from gum, and manufactured expressly for engines and machinery of all kinds, railroads, steamboats, woollen and other manufactures, and for burning in any lamp without clogging the wick. Engineers of railroads and others who have used this oil, and to whom reference can be made, give it preference over the best sperm for its durability, and not requiring to be cleaned off like that, and costing about two-thirds the price. For sale by the barrel, and samples can be sent for trial, by addressing

C. J. F. BINNEY,
Agent for the Manufacturer,
Boston, Mass.

11 cop 1m

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER,
Surviving partner of **STANCLIFFE & DRAPER.**



No 23 Pear street, near Third, below Walnut, Philadelphia.

KITE'S PATENT SAFETY BEAM.

MESSRS. EDITORS.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

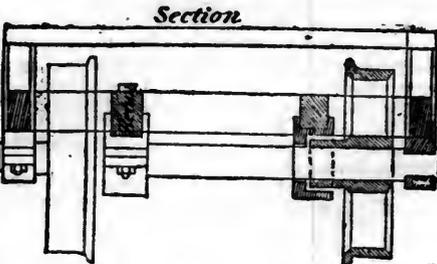
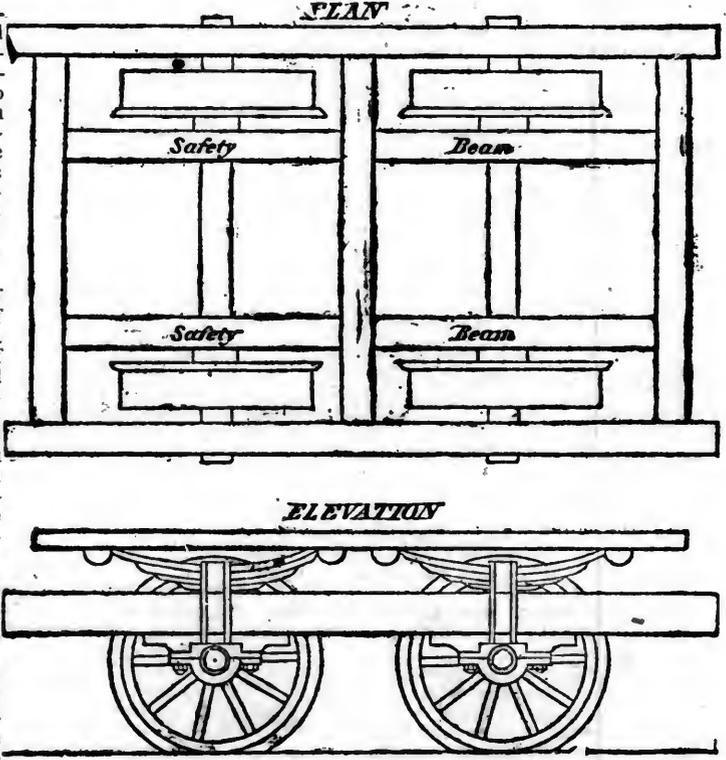
On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheeled passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.

Wilmington, Del., Sept. 28, 1840.

The undersigned takes pleasure in attesting to the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.

In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.

JOHN FRAZER, Agent,
GEORGE CRAIG, Superintendent,
A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 1 Hanover st., N. York.



PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. **JOHN F. WINSLOW, Agent.**

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 223 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

. Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved **SPARK ARRESTER**, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

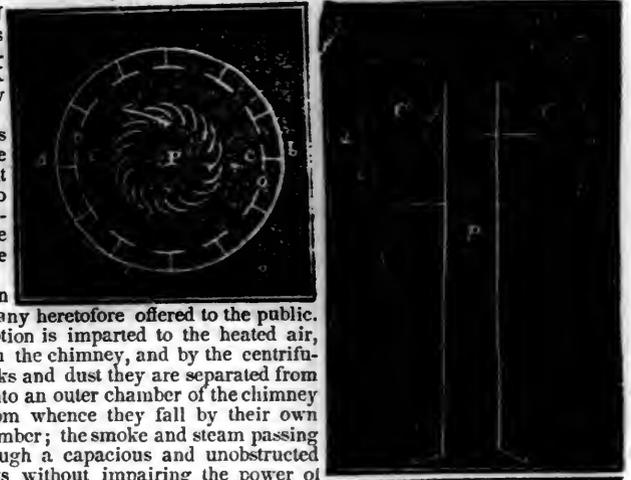
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. **FRENCH & BAIRD.**

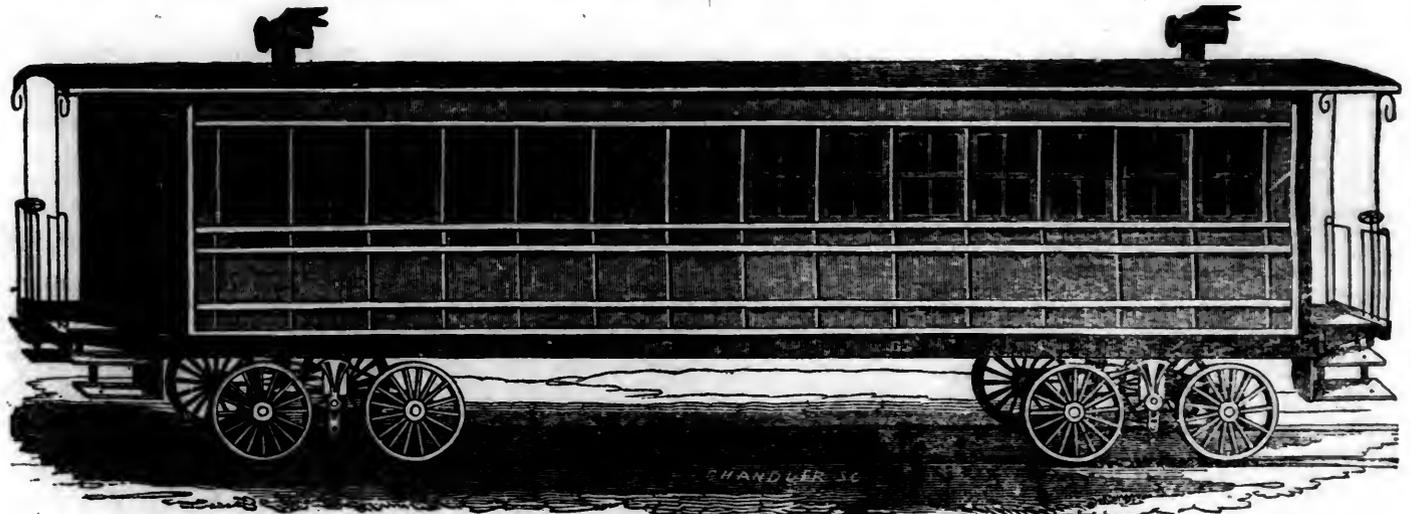
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

. The letters in the figures refer to the article given in the Journal of June, 1844. ja45



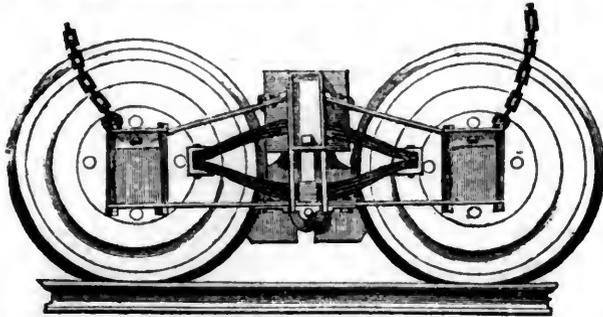
BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco Pressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

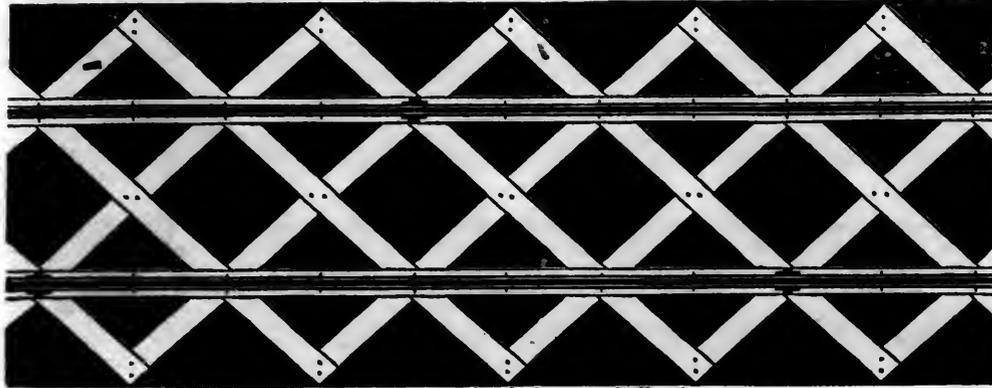
Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

Sup't Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

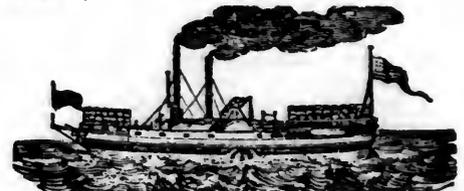
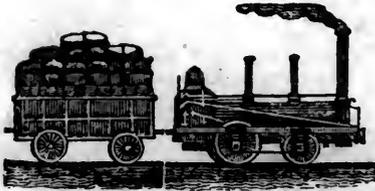
One page per annum.....	\$125 00
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ENGINEERS and MACHINISTS.

- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- H. R. DUNHAM & Co., N. Y.
- WEST POINT FOUNDRY, N. Y.
- PHENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 23.]

SATURDAY, JUNE 6, 1846.

[WHOLE No. 519, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stoughton. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m. Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m. Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3½ p.m. All baggage at the risk of the owners thereof.

31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD AND STAGES Connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4 p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad:

Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 321y J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted), as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.

Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m.

Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m.

Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that *personal* Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, *Super't.*

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot 16 cts.

" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs. 95 "

" Sugar, coffee, iron, hardware, etc. 65 "

" Flour, bacon, mill machinery, grindstones, etc. 33½ "

" Molasses, per hogshead \$9.50; salt per bus. 20 "

" Ploughs and cornshellers, each 75 "

Passengers \$10.50; children under 12 years of age half price.

Passengers to Atlanta, head of Ga. Railroad, \$7.

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON, *Ch. Eng. and Gen. Agent.*

Augusta, Oct. 21 1845. *44 ly

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.

" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED to \$1.25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts.

H. C. SEYMOUR, *Sup't.*

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 ff

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 6 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay house. Fare \$1.60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. \$13yl

BALTIMORE AND SUSQUEHANNA
Railroad. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a. m., and arrives at 6 1/2 p. m. Arrives at York at 12 1/2 p. m., and leaves for Columbia at 1 1/2 p. m. Leaves Columbia at 2 p. m., and leaves York for Baltimore at 3 p. m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62 1/2. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3 1/2 p. m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc. Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a. m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day any passenger train.

D. C. H. BORDLEY, *Sup't.*
Ticket Office, 63 North st.

CENTRAL RAILROAD-FROM SAVANNAH
to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods... 13 cts. per cubic ft. On brls. wet (except molasses and oil)... \$1 50 per barrel. On brls. dry (except lime)... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery... 40 cts. per hundred. On hds. and pipes of liquor, not over 120 gallons... \$5 00 per hhd. On molasses and oil... \$6 00 per hhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, 40 Gen'l. Sup't. Transportation.

NEW YORK & HARLEM RAILROAD
CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows: Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3 30, 4 30, 5, 6, and 6 30 p. m. Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3 30, 5, and 6 30 p. m. Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m. Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m. Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m. Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning. On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m. On Sundays, the Harlem and Williams' Bridge trains will be regulated according to the state of the weather.

RAILROAD IRON.—THE "MONTOUR
Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sts. 43 1y

LITTLE MIAMI RAILROAD.—1846.—
Summer Arrangement.

Two passenger trains daily. On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1 1/2 p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m.

On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m. Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.

Tickets may be procured at the depot on East Front street.

The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount.

W. H. CLEMENT,
Superintendent.

CALIGRAPHIC BLACK LEAD PENCIL
Manufactured by E. Wolff and Son, 23 Church Street, Spitalfields, London.

The Caligraphic Pencils have been invented by E. Wolff and Son, after the expenditure of much time and labor. They are the result of many experiments; and every effort that ingenuity and experience could suggest, has been made to insure the highest degree of excellence, and the profession may rely upon their being all that can be desired.

They are perfectly free from grit; and for richness of tone, depth of color, delicacy of tint, and evenness of texture, they are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use.

The Caligraphic Pencils will also recommend themselves to all who use the Black Lead Pencils as an instrument of professional importance or recreation, by their being little more than half the price of other pencils.

An allowance will be made on every groce purchased by Artists or Teachers.

May be had of all Artists, Colourmen, Stationers, Booksellers, etc.

A single pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

Caution.—To prevent imposition, a highly finished and embossed protection wrapper, difficult of imitation, is put around each dozen of Pencils. Each Pencil will be stamped on both sides, "Caligraphic Black Lead, E. Wolff and Son, London."

The subscriber has on hand a full supply of Wolff and Sons celebrated Creta Loevis, or Colored Drawing Chalks, also their pure Cumberland Lead and extra prepared Lead Pencils, and Mathematical Lead Pencils.

P. A. MESIER,
Stationer and Sole Agent,
No. 49 Wall Street.

N. B.—A complete assortment of Steven's *Genuine* Inks, Fluids, Imitating Wood stains, and Graining Colours at the Manufacturers prices.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Allaire, Peter Cooper, } New York.
- Murdoch, Leavitt & Co. } New York.
- J. Triplett & Son, Richmond, Va.
- J. R. Anderson, Tredegar Iron Works, Richmond, Va.
- J. Patton, Jr. } Philadelphia, Pa.
- Colwell & Co. } Philadelphia, Pa.
- J. M. L. & W. H. Scovill, Waterbury, Con.
- N. E. Screw Co. } Providence, R. I.
- Eagle Screw Co. } Providence, R. I.
- William Parker, Supt. Bost. and Worc. R. R.
- New Jersey Malleable Iron Co., Newark, N. J.
- Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly. 35 1y
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Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at 6 1/2 A.M.	Leave Albany at 7 A.M.
" " 7 1/2 " " " " 8 " "	" " 8 " " " " 9 " "
" " 8 1/2 " " " " 9 " "	" " 9 1/2 " " " " 10 " "
" " 9 1/2 " " " " 10 " "	" " 10 1/2 " " " " 11 " "
" " 10 1/2 " " " " 11 " "	" " 11 1/2 " " " " 12 M.
" " 1 P.M.	" " 1 1/2 P.M.
" " 2 " " " " 2 1/2 " "	" " 3 " " " " 3 1/2 " "
" " 3 " " " " 4 " "	" " 4 " " " " 4 1/2 " "
" " 4 " " " " 5 " "	" " 5 " " " " 5 1/2 " "
" " 5 1/2 " " " " 6 " "	" " 6 1/2 " " " " 7 " "

The 6 1/2 a.m. and 2 o'clock p.m. runs from Troy, to Boston runs.

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Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT,
Superintendent.
Troy, April 1st, 1846. 14 1y

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Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

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Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

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Jan. 14, 1846. [1y4] Philadelphia, Pa.

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THE NEWCASTLE MANUFACTURING
 Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
 a45 President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS.
 etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of *letters patent* to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of *improving* their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

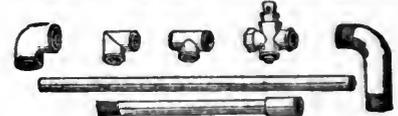
W. Mc. C. CUSHMAN, Civil Engineer,
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 Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

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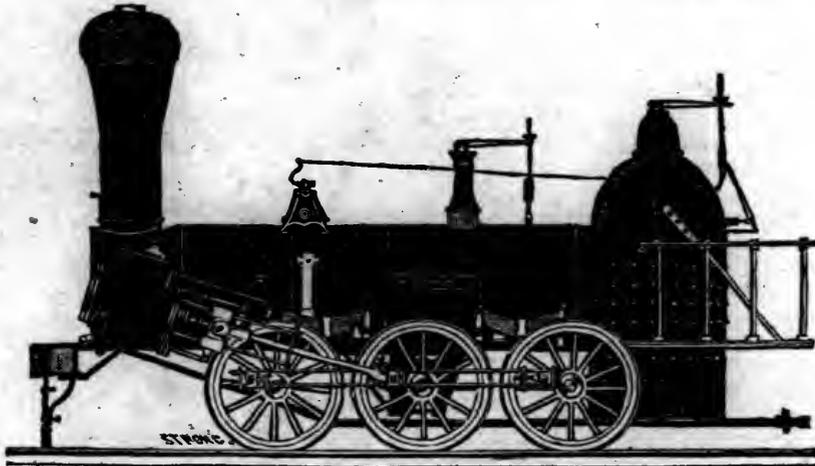
From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



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 Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4 1/2 P.M., Philadelphia at 10 P.M., and Baltimore at 6 1/2 A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00
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Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions.
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NICOLLS' PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee.
G. A. NICOLLS,
 ja45 Reading, Pa.

RAILROAD IRON WANTED. WANTED, 50 tons of Light Flat Bar Railroad Iron. The advertisers would prefer second-hand iron, if not too much worn. Address Box 384 Philadelphia P. O.—Post paid. 6 4t

MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following description, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14 " " "	× 24 " "
"	3,	14 1/2 " " "	× 20 " "
"	4,	12 1/2 " " "	× 20 " "
"	5,	11 1/2 " " "	× 20 " "
"	6,	10 1/2 " " "	× 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels or the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

(From the Journal of the Franklin Institute, for April.)
Civil Engineering--Steam Navigation.
 (Continued from page 348.)

To COM. LEWIS WARRINGTON, *Board of Navy Commissioners, Washington.*

SIR:—Your letter of 3rd September last was received. The reply has been delayed by an attack of fever and ague, which I must beg you to receive as an apology for the apparent neglect.

1st. The first point on which information is desired, relates to the horse power of the engine.

This query is not altogether definite—whether referring to the estimate of horse power, as used in this country, compared with that used in England, or the comparative horse power in regard to the tonnage of the steamers. I shall therefore first endeavor to give you a simple explanation of the horse power of steam engines, and the basis of the calculation.

In order to form an accurate estimate of the power necessary to drive machinery of various kinds, saw mills, grist mills, cotton factories and subsequently steamboats, it occurred to Mr. Watt, who brought the steam engine into practical use, to fix upon an unit of power, and as horses were much used for driving machinery, the power of a horse was chosen as the unit. After various experiments he decided the average working power of a horse to be equal to raising 33,000 lbs. avoirdupoise, over a pulley one foot high in one minute of time.

This force has subsequently been adopted as the unit, or horse power, in most of the books on mechanics, and is used, whether the propelling force be wind, water, or steam; and the principle of the calculation is to reduce the whole force exerted into pounds weight, moving at the rate of one foot space in one minute of time, which divided by 33,000 pounds, the unit, or horse power, gives the number of horses power exerted; and this compared with the number of horses power required to perform the duty desired, enables the engineer to regulate the power of his machinery, to produce the result required.—In estimating the power of the steam engine, it evidently rests upon two points; first, the effective pressure, or actual force in pounds exerted on the piston, after deducting the waste of friction and loss of power of the steam by the radiation of heat from surfaces exposed to the atmosphere, together with the resistance of the atmosphere against a vacuum.

Secondly, The speed at which the force of steam on the piston is capable of moving the piston—these two requisites, viz: effective pressure on the surface of the piston, taken in pounds on the number of square inches contained in the piston, combined with the velocity in feet per minute at which the piston moves, form the total power of the engine, which divided by the unit of power of one horse, or 33,000 pounds, gives the number of horses power; from which results the simple formula.

To ascertain the number of horses power of a steam engine, multiply the area of the piston in square inches by the effective pres-

sure on each square inch of the piston, and the product by the velocity or number of feet per minute the piston moves.

The result is, the full force exerted, taken at the velocity of one foot per minute, and divided by 33,000, gives the number of horses power; in other words—D, diameter of cylinder in inches; F, effective force in pounds or square inch of cylinder; V, velocity in feet per minute at which the piston moves; the theorem then follows, $D^2 \times .7854$ area of cylinder or piston in square inches.

V, velocity, length of stroke in feet multiplied by the number of strokes per minute, multiplied by $\frac{1}{2}$, for the up stroke and the down stroke, equal the number of feet passed through in one minute of time.

A, area of cylinder in square inches, multiplied by F, the product multiplied by V, and the whole divided by 33,000 number of horses power, $\frac{A \times F \times V}{33,000} = \text{No. of horses power.}$

In England it has been the custom to use steam for condensing engines at a very low pressure, about 2 pounds to 3 pounds on the square inch of the safety valve, resting the chief dependence for power on the force of the vacuum, which in well constructed steam engines exerts a force of 13 to 14 lbs. on the square inch of the piston, without allowance for waste or friction. This plan of working was found to be most economical in regard to consumption of fuel, and also in the duration of the engine, as the joints were less liable to be put out of order, than with a higher pressure; and working at this low pressure, the effective force of steam was the same in all cases.

The effective force of steam exerted on the piston has been variously estimated, from 7 to 9 pounds on the square inch of piston, but I am inclined to think that a medium between the two, or 8 pounds pressure effective, will not be found too great in engines at 5 pounds pressure on the square inch of boiler, as shown by the safety valve, or steam mercurial gauge, and shall adopt 8 pounds as the effective pressure in the calculation of the English condensing steam engines working with the government regulation of safety valve, one of which is under lock and key and opens at a pressure of 5 pounds on the square inch.—The speed of the piston is generally taken as the same where the length of crank or stroke is the same, and with 7 feet stroke, the longest used in the British marine engines, 15 revolutions are allowed, making the velocity in feet per minute at which the piston moves, 15 double strokes, or 30 single strokes of 7 feet = 210 feet per minute, which is the speed of the pistons of the Great Western steam packet which has now run for three years with most extraordinary regularity between this city and Bristol, Eng.

The ingenuity of American engineers (who choose to think and judge for themselves without regard to the laws established by Messrs. Bolton & Watt, which English engineers do not venture to question or swerve from) discovered that steam of a high pressure used expansively, (that is the full force of the steam

in the boiler suffered to act upon the piston for a certain portion of the stroke, then shut off and suffered to expand for the remainder of the stroke, after the communication with the boiler had been shut off, by a very simple contrivance called the half stroke or cut off valve, was peculiarly adapted for the propelling of boats) adopted the plan of working with an additional pressure of steam in the boiler.

This in the first instance, was suffered to act with full force on the piston for half the length of stroke, when the communication with the boiler or source of supply of steam was shut off, and the steam in the cylinder sufficient to continue the power for the remainder of the stroke by its known quality of expansion, which was found to be in the direct ratio of the increase of bulk, that is, one cubic foot of steam at a pressure of ten pounds, suffered to expand to two cubic feet, would exert a pressure of very nearly five pounds.

Steam used in this manner would, for one half the time, exert a power, which, if continued the whole stroke, would require double the evaporating power of boiler, while the effect in propelling a vessel, like the action of oars, would be in far greater proportion than one half; since the vessel once put in rapid motion, will by its own momentum continue its velocity through the water, very little diminished before the next stroke commences with full force of steam of the boiler.

In practice it was soon found that the engine acted with greater force by varying the position of the stroke at which it was cut off from the half stroke to the $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, and in the De Witt Clinton steamer, running on the Hudson river, I have known the steam cut off at 16 inches of the stroke while the full stroke was ten feet, equal to $\frac{1}{3}$ ths of the full stroke.

In addition to variations in the position of the stroke at which the steam was cut off, the pressure of steam on the square inch of boiler was gradually varied from 3 to 10, 20, 30, and latterly I have known the boats running on the Hudson river, with condensing engines, using steam at a pressure of 40 and 50 pounds on the square inch of boiler.

It is obvious that with so great variation in the source of power, the pressure of steam, that there could be no comparison of horse power derived from the mere diameter of cylinder and length of stroke, and the consequence has been that the use of the term of *horses power* has been abandoned with us in connection with the boat or marine engines.

Twenty years observation and experience of the changes which have been made in the same engines and boats, by substituting cylinders of larger diameter (by which the pressure of steam used has been reduced, and this with advantage to the speed of the vessel, with the same consumption of fuel,) satisfied me that there is a limit of pressure of steam, which combines the advantage of speed with an additional security, both against the leakage of joints and against accident by the straining of boilers, which at a pressure of 50 pounds on the square inch will require

more frequent repair and be more liable to leak at a less pressure.

I would venture therefore to suggest to the board the propriety of adhering to the English plan of designating the power of the steam engine, by the established comparison of horse power as used in all other cases of machinery, and to enable you to hold the comparison just, in all cases, recommend that 10 pounds pressure on the square inch of the boiler be adopted as the standard or limit of pressure for the marine condensing engines of the navy, working expansively, and cut off at $\frac{1}{2}$ the length of the stroke.

This will give a constant effective pressure on the square inch of piston of about 9.9 lbs.

To render the comparison between the engines of different length of stroke uniform, it will be necessary to establish the velocity in feet for the different lengths of stroke; for which object, as water wheels of large diameter are found more effective, I would propose to adopt 15 revolutions of the water wheel, as the speed for water wheels of about 30 feet diameter = 94 feet circumference at the extreme diameter \times 15 revolutions per minute \times 84870 feet velocity of exterior of wheel per hour, from which deduct $\frac{1}{3}$,

$$23290, \text{ or } \frac{56580}{5280} = 10.7\text{-}10 \text{ miles}$$

per hour through the water, the allowance of one-third loss of speed is greater than will be found in practice with vessels of good model; but it is a safe allowance, and I do not think will differ much in the vessels "Missouri" and "Mississippi," now nearly ready. Taking 15 revolutions as the speed of these two steamers, the velocity of the piston will be as follows:

Mississippi 7 feet stroke \times 2 = 14 feet \times 15 = 210 feet per minute.

Missouri 10 feet stroke \times 2 = 20 feet \times 15 = 300 feet per minute.

And the calculation of horses power as compared with the Great Western steamer will be as follows:

"Mississippi," engine working at a pressure of 10 pounds on the square inch of boiler expansively, cutting off at $\frac{1}{2}$ the length of stroke, effective pressure on the piston 9.9 lbs. on the square inch.

Diameter of piston 75 in., area 4418 sq. in. \times by velocity of piston, 210

927780

\times by effective pressure 9.9 lbs.

+ by unit of h. p. 33000 lbs.) 91850-220

Horse p'r of engine, 278 33

" " 278 33

" combined eng's, 556.66

Steamer "Missouri," cylinder 62.72 in. diameter, 10 feet stroke, 30 strokes, working at the same effective pressure.

Diameter of cylind's, 62.75, area = 3092 \times velocity of piston in feet, 300

927600

\times by effective pressure,	9 lbs. 6
33000)	9183240
Horses power of each eng.,	278-27
" " "	278-27
" combined "	556-54

Steamer Great Western.

Length from fore part of figure head to after part of taffarel.....	236 ft.
Length between perpendiculars.....	212 "
Length of keel.....	205 "
Breadth in the clear, of paddle boxes..	35 " 4 in.
Breadth over paddle boxes.....	59 " 8 "
Depth of hold.....	23 " 2 "
Tonnage measurement.....	1340 tons.
Length of engine room.....	72 ft.
Diameter of cylinder.....	73 $\frac{1}{2}$ "
Length of stroke.....	7 ft.
Diameter of water wheel.....	28 " 9 in.
Number of floats.....	4
Depth of floats.....	7 $\frac{1}{2}$ in.
Length of floats.....	10 ft.

The ordinary pressure of steam used by the Great Western is 3 $\frac{1}{2}$ lbs. on the square inch of boiler, and although the arrangement; for working expansively is annexed to the engine, I believe the effective pressure of steam will not exceed 8 pounds on the square inch of piston.

The steam power, therefore, at 15 revolutions of the water wheel will be as follows:

Cylinders 73 $\frac{1}{2}$ in. diameter—area 4242 \times by velocity 7 \times 2 \times 15

891038

\times by effective pressure 8

+ by unit of horse power 33000) 7182-240

Horses power of each engine, 216

" " 216

" of combined engines, 432

In the logs of the Great Western's first voyage, published in Bristol on 4th July, 1838, the combined powers of the engines is rated by Peter Maze, chairman at a meeting of stockholders held 2d June, 1838, at 450 horses power; but the revolutions per minute in the log fall short of 15, and should rate her power beyond that now stated, 432 horses.

The Great Western's tonnage is rated at 1340 tons, but I have not at the moment access to the British calculation of tonnage for steamers, in which I believe there is an allowance made for steamers, different from that of sailing vessels. By our custom house measurement, as an ordinary sailing vessel, she would register—

Length of deck less , breadth of beam \times by beam \times half breadth of beam + 95 feet
 $212 - 21 \cdot 19 = 190 \cdot 81 \times 35$ feet 4 inches
 $\frac{121356}{95} = 1273 \cdot 7$ tons burthen

The proportion of horses power to the tonnage of the vessel will therefore be 1340 tons + by horses power 450 = 2.98 tons to the horse power: or 1273.7 ton + by horses power 450 = 2.93 to the horse power.

The total weight of steamer "Great Western," ready for sea, is stated at 2372 tons, and

her draft of water at 2305 tons, 4, 0, 25, equal to 16 feet 8 inches; which after running for 12 months, will not be far short of 17 feet.

As this vessel appears to have been one of the fastest, and most serviceable that England has produced, I should be inclined to recommend her proportions of horse power and tonnage until the experience of the performance of our own steamers should furnish other data for estimating the relation between the horse power and tonnage, and would propose for large steamers, necessarily of much draft, one horse power to three tons of vessel; for smaller vessels the proportion of horse power to the tonnage must vary according to the model and draft of water, which may be predicated on the performance of our own steamers.

The next query—the kind of engine.

The performance of the Lightall engine, as it is called, on board the steamer "Kamschatka," lately built for the Russian government, would go to show that the objections the board appointed in 1839 (consisting, I believe, of Capt. M. C. Perry, chief engineer, Charles H. Haswell and myself) found to this plan of engine, were well founded; and I have been strengthened in this position by the opinion of all the practical steam engineers in this place.

The comparison of the kinds of engines to be used is reduced—

1. To the British form of marine engines on board the "Mississippi."
2. To the inclined form of marine engines on board the "Missouri."
3. And a very simple plan of engine, placing one cylinder forward and the other aft of the line of the water wheel and shafts—the cylinders lying at the same angle, and connected from the cross head directly with the crank pin of the crank.

The first plan has the disadvantage of a limited length of stroke, regulated by the depth of hold, which in vessels of ordinary draft and depth of hold, say 23 to 24 feet, cannot exceed 7 feet stroke to 23 feet hold. This reduces the stroke so much for vessels of light draft of water that I should prefer either of the two latter plans of engine.

The British marine engine has an additional weight of cast iron framing which increases the weight necessary for engines of the same horse power, without any equivalent, as far as I have been able to discover, as I cannot conceive the advantage of a cast iron framing, perfectly rigid and unyielding, erected upon a wood foundation, such as that of a ship, which from its nature must yield in pitching and rolling in a heavy sea.

The truth of this position has been shown by the fact of the cast iron framing of the steamer "Great Western," and I believe every other British steamer that has entered this port, having broken in certain parts, although made of a strength which it was supposed would insure it against accident.

I am therefore of opinion that either of the two last forms of engine will be found more effective with the same quantity of fuel.

The inclined form of engine as used on board the "Missouri," possesses the following advantages over the British marine engine:

1st. The engine is lighter by the difference between the cast iron framing used in the British vertical reversed beam engine, and the wood framing used in the inclined engine.

2d. The framing of the inclined engine where the cylinder is at one end of the framing, and the crank plunger block at the other end of the same pieces of framing, binds the parts more perfectly together than can be done in the British engine, inasmuch as in the

inclined there are but two points to be secured against the strain of the engine, and in the British engine there are three points. In the inclined engine the two points are the cylinder and the crank plummer block. In the British engine the cylinder, the plummer blocks for the centres on which the cast iron beams work, and the crank plummer blocks.

3d. The effective power of the engine in the inclined being directly transmitted from the cylinder to the crank without the intervention of the cast iron beams, should be greater by the difference of friction of the beams of the British engine; and having fewer journals and fewer parts, the risk of getting out of order is less than that with the British engine.

4th. The length of stroke in the inclined engine can be varied to the proportion judged most advantageous for the use of steam expansively.

5th. The wood framing of the inclined engine becomes a powerful bracing and support for the part of the vessel which has first to receive the strain of the power of the engines, and is by this means rendered the strongest part of the vessel, and least liable to change its form; while in the British engine the framing is disconnected from the sides or deck timbers of the vessel, and leaves the centre, or that part of the vessel taken up by the engine as the weakest.

6th. The cost of the inclined engine will be less than that of the British engine.

Against these several advantages I know of but two in favor of the British engine, which is, that the piston works vertically, by which it is claimed that the cylinder will wear equally in a true circle, where the packing of the piston is readily kept tight; while in the inclined position of the cylinder, the under side of the cylinder, from the weight of the piston resting upon it, is inclined to wear in that part only, and form an elliptical surface on the lower or under side.

In practice, however, the wear of the cylinder is found to be very trifling, and not sufficient to cause a leak of steam in the packing; and even should the cylinder become worn on the under side, the ingenuity of the engineer will readily compensate the deviation from the circle by additional packing on the under side.

The weight of the piston, however, is greatly reduced in its pressure on the under side of the cylinder by the support of the piston rod, which is bound at two points; at the cross head and at the gland in the cylinder cover, and the immense pressure on the surface of the piston will in a great measure prevent the weight of the piston from producing the effect which at first sight would be expected.

The remaining advantage of the British engine is, that it takes up less length than the inclined. The cubic feet of space occupied by the two descriptions of engines will be rather in favor of the inclined engine, as the British engine takes up the whole space of the vessel from the upper deck to the keel, for its full length, while in the inclined engine the greater part of the gun deck is available.

The third kind of engine is in reality the inclined engine, altering the position of the cylinders from side to side, and one forward and one aft the crank plummer block, in line in the centre of the vessel. The length of the vessel taken up by the third plan of engine will therefore be nearly double that of the second plan of engine, and reduce the space in width nearly in the same proportion and the engineers in attendance on the two engines must necessarily be thrown a much greater distance

apart than when the engines are placed side by side.

The third plan will however take up less length of vessel in cases where the boilers can be placed in the wings outside of the engines. But in this case the boilers, from not having the intervention of the coal bunkers, will be more exposed to action of shot from the enemy.

The third form of engine dispenses with two cranks and two plummer blocks, which will reduce the weight and expense somewhat, but not to an extent to make it an object of consideration. In other respects it possesses all the advantages towards bracing the vessel which belongs to the second plan of engine.

I would therefore recommend the second and third form of engine as described, in preference to any other plan which has come within my observation; the one or the other to be adopted as the beam of the vessel may render advisable.

The third query is, whether there be single or double engines? For large steamers intended to be sent abroad I should recommend two engines; for small coasting vessels, and for the revenue service and on the lakes, I should recommend single engines.

Fourth query. Should it be high or low pressure? The high pressure engine possesses no advantage over the condensing, beyond the small difference in weight of the condensing apparatus, and the expense of these parts, which are not material in comparison with the additional power gained by the vacuum in condensing the steam. The additional simplicity of the parts of the high pressure engine is counterbalanced by the additional risk of leakage from the extreme pressure, the additional risk of accident from explosion, and as mason work is generally used in setting the boilers, the danger of fire from the furnace is greater with the high pressure engine.

The loss of power from the use of the air pump is far short of the gain from the vacuum produced; and, on the whole, for vessels, I should give the decided preference to the condensing engine over the high pressure, or non-condensing engine—in which opinion I am supported by a very large majority of the engineers of this section of the union, where the steam engine has been carried to higher perfection than in any part of the United States.

Form of boilers. The form of boilers in use for boat engines for wood or bituminous coal, most approved, is in the main similar to those in the "Fulton," with water bottom and flues connected with the furnace under the boiler; thence returning in small circular flues towards the front end of the boiler, where the several flues are brought into one chamber and thence carried into the chimney.

In the "Missouri" and "Mississippi" a second set of return flues above the first have been adopted, for the purpose of bringing the draft of the four boilers into one chimney.

The flue is surrounded where it leaves the boilers by a steam chimney, and the steam is brought into contact with the plates forming the bottom of the chimney, on the outside of which the flame acts after passing through the flues of the boiler; although there may be some trifling saving in fuel by heating the steam immediately before its entrance to the cylinder, the disadvantages in the steam chimney are such that I should hesitate to recommend its use for sea steamers. In the first place, the steam chimney is found to get out of order and require repair much sooner than any other part of the boiler, as the metal at the line of surface of the water, after a short

time, corrodes, and requires replacing with new plates, which cannot well be done at sea.

The steam chimney is further objectionable in a war steamer, from its rising above the level of the boiler several feet, by which it is more exposed to the enemy's shot, and if penetrated by shot, the steam escaping from the orifice would endanger the lives of all on the gun deck; since the inhaling of the steam, by scalding the interior of the lungs, is sure to cause death.

The copper steam chimney used on board the "Fulton," I am informed, shows no symptoms of wear; still I am satisfied that this will be the first part of the boiler requiring repairs.

To obviate the frequent derangement of the steam chimney, what is called a steam chamber, raised above the boiler, has been substituted, and I think it preferable. Another plan however, has occurred to me, and in conversation with Mr. Merrick, of Philadelphia, I learn that he has made a draft on the same principle, which is to carry the draft direct from the furnace into the upper tier of the flues, add to return downwards at a lower level by which means the draft will leave the boiler upwards of three feet lower than in the present form of boiler.

I have made inquiry from one of our most skillful ship builders in regard to the dimensions of steamers of 500, 600, and 700 tons burthen. The builders are Smith, Demmon and Comstock. Smith, the engineer of the firm who designs the models, was an apprentice of Eckford, and aided him in modeling the Ohio. The dimensions proposed by them are as follows, viz:

- No. 1. 150 feet on deck.
27 feet deep.
15 feet deep. With double decks,
custom house tonnage, 513 37-100 tons.
- No. 2. 165 feet on deck.
28 feet wide.
15 feet deep. Double decked, tonnage, 611 5-100 tons.
- No. 3. 180 feet on deck.
29 feet wide.
15 feet deep. Double decked, tonnage, 719 7-1000 tons.

They would build these vessels with bottom of white oak, and top of live oak and locust; copper fastened and solid floor, with suitable materials as to size and quality, say for hull and spars, including blockwork and outside joinerwork, at the rate of seventy-five dollars per ton. Sheathing copper and joiner's work below upper deck not included. For these vessels I should recommend a single inclined engine of the following dimensions, viz:

- For No. 1, 513-37 tons burthen.
Cylinder 49 inches diameter, 8 feet stroke,
171 horse power.
- For No. 2, 611-5 tons burthen.
Cylinder 54 inches diameter, 8 feet stroke,
204 horse power.
- For No. 3, 719-7 tons burthen.
Cylinder 58 inches diameter, 8 feet stroke,
240 horse power.

The estimate of horse power is made on an effective pressure of 9-9 lbs. on the square inch of boiler, with a velocity of piston of 300 feet per minute for a water wheel of 20 feet in diameter, making 19 1-4 revolutions, allowing 1-3 slip or loss of speed between vessel and exterior of water wheel, will give a speed of nine miles per hour through the water nearly—which is ample for vessels of this size. I have not been able to form an estimate of the cost of these engines, which I presume will be supplied with iron boilers, but will be prepared

shortly in case the board desire that information.

As your letter invites me to touch on any other points which may occur to me, I would call your attention to iron steamers. For the lake service especially, they will be found far more durable, than vessels of wood, and for coasters they will be more durable, and with the water tight bulk heads, in case of getting on the rocks and bilging, they can readily be carried into port, and in dry dock repaired in a few hours at a trifling expense.

They have now been in use for several years on the Savannah river, and an annual coat of red lead is found to preserve them against rust.

Having built one steamer of iron for New Orleans at the West Point foundry association, we can safely say that the work can be done in this country as well as in England.

I regret that I did not meet Lieut. Hunter, when here in the "Germ;" but not having examined her machinery, shall not venture an opinion.

I have spun out my reply rather longer than originally intended, but have found this necessary to give you the practical explanation of the horse power, which appeared to me to be necessary to make the question understood by those not conversant with the subject; and if the subject be not sufficiently plainly stated, when we meet I think it can be made so by a few minutes' conversation.

I have omitted to speak of Capt. Ericsson's propeller, and also of Lieut. Hunter's wheels—your queries relating directly to the engines.

From the experiment, however, on board the "Clarion," of the effect of the propeller, in company with Capt. Perry and Mr. Rhodes I was satisfied that the effect produced by the quantity of fuel used, was fully equal to what would have resulted from the ordinary water wheel. Whether the same velocity given by the ordinary water wheel can be produced by increasing the power, I think doubtful; but it possesses the advantage of being submerged; and I think the trials have established the fact that with great economy of fuel, a speed of 7 knots per hour can be attained, and by increasing the power, have little doubt that 9 knots can be attained. I hope, therefore, to see one of the new steamers constructed with the propeller. Yours respectfully,

[Signed,] W. KEMBLE.

New York, 9th October, 1841.

To be continued.

Mathematics as a Branch of Professional Study.

(Continued from page 343.)

"The most fatal error which can be committed by a young professional student, is that any one kind of knowledge can be acquired without close and systematic application. If, too, there be one class which is less capable of being so acquired than another, it is the mathematical. The length of time which a suitable professional course will require is quite another matter: but we must insist, as a primary condition, upon close and systematic study during the time that the subject requires. For those alone who are prepared to fulfil this condition do we offer our suggestions: and we should much regret if in any way we shall be found to have contributed to the formation of that most disgusting of professional characters—a compound of half-learning, self-conceit, and supercilious dogmatism.

"We hear so much every day respecting *taste* and *genius*—especially that mathematics inevitably tend to destroy the one and repress the other—that we cannot too earnestly warn the professional student against the influence of this kind of ignorant *cant*. Taste and genius are not familiar terms in the vocabulary of those few men who really possess them. Such men know too well how they cultivated the faculties which they possess, to feel justified in urging any young man to trust to his rude natural powers, however high their order may be. Why, we would ask, should the taste be depraved by a knowledge of the conditions within which the laws of nature *compel* all structures and machines to be limited? What is the use of fancies which can never be realized in construction? What is the value of those imagined forms which can only look well on *paper*? Possibly, however, the outcry against science will be in the main confined to those 'exhibitors' and 'candidates' whose highest ambition is to figure as the designers of something extravagantly original; and who have not the most distant expectation of being employed to build according to their own designs. It is strange to what expedients men will resort for 'obtaining a name;' and few modes are more common, we may say more vulgar, than to make a dash at reputation for taste and genius! Let such persons ponder well the following remark on the latter subject from one of the ablest men of our time—Professor Young, of Belfast:—

"The great object of education is to originate an earnest desire after knowledge, and to foster the habit of private and solitary study. Without such a habit intellectual eminence can never be attained. It is in this that the true secret of what is called *genius* consists—a name that only serves to conceal from us the continuous effort—the untiring perseverance, and the days and nights of solitary labor, to which the attainment of excellence is always due."

"Algebra and geometry, as sciences, are almost alike repulsive to the unpractised mind upon the first glance; although that repulsiveness in the two cases does not arise from precisely the same cause.

"In algebra, the chief difficulty is that of attaching general ideas to general symbols, whilst those symbols have already acquired different, and altogether dissimilar meaning in our estimation. There certainly is, when we carefully analyze the operations of our own minds, a very natural difficulty in attaching the idea of 'any number' to a symbol, which in all our previous acquirements has been solely viewed as the visual representative, or symbol of *sound*. Yet it is, in fact, an effort of the mind not greater to conceive a number represented by a visual symbol, than a sound represented by it, or a thing represented by a sound. All the real difficulty arises from the previous appropriation of the symbol as that of a sound. Yet, on the other hand, numbers are familiarly represented by peculiar symbols in the ordin-

* Three Lectures on Some of the Advantages of Mathematical Study. Souter and Law, 1846.

ary notation, and even by letters in the Greek, Roman and other languages. The difficulty, then, will be probably transferred to the expression by means of a letter of any *arbitrary* number, so that in one research a letter may represent 5, in another 999, and in fact any number we please.

"It may assist the young algebraist to be impressed, *in initio*, with the conviction that algebra is but an application of the *rules* of arithmetical operation to those symbols of number taken as of *any actual values* whatever:—that the symbols +, —, ×, ÷, √ etc., designate *directions* to perform certain operations which they represent, according to the definitions given of them:—that in all, or in nearly all cases, the algebraic solution ends with a *direction* to perform the indicated arithmetical operations, when the specific numbers of a given problem are substituted for the literal symbols: and that, in fact, the literal symbols are only abbreviated expressions of the terms 'first number,' 'second number,' etc., of any given arithmetical rule which applies to those numbers from the relations given in the particular question itself. To take a single instance, let us suppose a question in 'the rule of three' proposed, which, when stated according to rule was,

$$3 : 6 :: 9 : \text{answer.}$$

Then the rule itself for finding the answer is,

$$\text{answer} = \frac{6 \times 9}{3} = 18.$$

"Suppose now, that instead of the *given* numbers, 3, 6, 9, we had the general literal symbols, *a, b, c*, of any numbers whatever, and that *x* be put for the present unknown answer; then it would stand

$$a : b :: c : x, \text{ or} \\ x = \frac{bc}{a}.$$

"In this case, the value of an *x* can only be expressed in the form of indicated operations, and its *actual value* will depend upon those of *a, b, c*. This, then, is clearly, only a symbolical-expression of the *rule* for finding the fourth term of a proportion, from having given the actual values of the first three.

"It is not, however, our object to write an elementary treatise on algebra, and we have only referred to it to point out what we conceive to be the real cause of the early repugnance of students to algebraic practice; and by showing its origin, to prove by how easy considerations it may be removed. We may further specially recommend to every young student the tract of Professor De Morgan, on *Algebraic Equations*, published by the Society for the Diffusion of Useful Knowledge. It is, in fact, a little work from which mathematical teachers themselves may derive much 'useful knowledge;' and to the private student, it will prove of the greatest advantage, in clearing up those elementary difficulties, which, by so often occurring, much retard his progress and diminish the pleasure and satisfaction of the study itself. He will, with this aid, very soon acquire a facility in the transformations, and clearness in comprehending

the force of the symbols of the ordinary algebra. In conjunction with this, the student may read in the algebra of Professor Young, the 'Introduction to the Elements of Algebra' by Mr. Hind, of Cambridge, or the algebra in the 12th edition of 'Hutton's Course.' In the last mentioned work there are several improvements in different operations, and in some parts of it a closer approximation traced between arithmetical and algebraical processes than we have noticed elsewhere; at the same time, we feel sorry to say, that we consider the editor not to have made the full use of his views of which they are capable. There is room for much improvement in this part of the work. May we hope for their full development in a future edition?

"With respect to algebraic problems, they are usually taken much more from combinations of general commercial transactions, or the affairs of common life, than from amongst the technical examples of the uses to which algebra may be professionally applied.—Writers on elementary science have less in view to serve the demands of particular classes, than to supply the wants of the general teacher. No publication, we should think, would undertake the risk attendant on an algebraic work, professedly and exclusively designed for the use of engineers and architects; although, doubtless, such a work may be composed by many mathematicians now living, had they adequate encouragement to proceed. Still, all such examples as may furnish exercise in the formation of equations expressive of given conditions, and the subsequent resolution of those equations, do answer a useful purpose—that of creating algebraic skill and power. One advantage, on the other hand, of a professional algebra, would be the fixing in the mind from their frequent occurrence certain constants that occur in the practice of these sister arts; whilst another would be, that greater facility of investigation in problems of the professional class would be given, than can be acquired by imaginary problems of merchandize, horses, wine, or dogs. We should think, indeed, that a course having a more direct professional bearing in this respect would be a desideratum with the professors of the College for Civil Engineers; and but for our knowledge of its former mismanagement, we should have certainly looked to it to furnish a model of such a 'Course' as seems to be naturally expected to emanate from a college instituted with such special objects as this is. We conceive, that whilst it would be thus conferring a boon on the profession, it would be materially serving its own pecuniary advantage, and still more materially contributing to its own reputation. We would earnestly direct the attention of its principal to this subject.

"It will be utterly useless for the student to proceed to the ulterior applications even to professional purposes, till he has acquired a complete mastery over the practice of the ordinary rules of operation and transformation. This is his first stage—which we consider to terminate with the resolution of quadratic equations—and which, once passed,

algebra will cease to offer other than the most ordinary difficulties.

"Many subjects are discussed in our elementary works, upon which we would advise he professional student to bestow but little attention in the earlier stages of his reading; and in fact, not at all, till he finds that his pursuits make some demand upon them.—They can be easily acquired if found necessary; and till they are found so, all attention to them will retard his progress towards other topics which are most essential to him. Such, for instance, as continued fractions, progressions, quadratic surds, infinite series, the properties of numbers, etc.

"We would, however, strenuously urge the clear understanding and facile employment of the doctrine of intermediate co-efficients as an object of the greatest importance. It is one of the most powerful instruments of research that we possess; and may, indeed, be considered the key of the higher mathematics. It immediately introduces us to the most simple proofs of the binomial theorem, the exponential theorem, the doctrine of logarithms, the expansion of trigonometrical functions, and even of the differential calculus. In point of fact, there is nothing to prevent our immediately entering upon the study of this last subject, when the use of intermediate co-efficients is once rendered familiar to us, except it be that some other of the subjects which are usually made to intervene in a mathematical course are also of greater importance to be studied early. Upon this, however, more hereafter.

"We can never too urgently warn the professional student to beware of a captious spirit, and of cavilling with the metaphysics of the algebraic system. What he cannot now see in this respect, he will understand hereafter, if he will steadily pursue the route through which he is led. Let him avoid the discussions which he may stumble upon, respecting symbolical and arithmetical algebra, the interpretations which some ingenious persons may have put upon $\sqrt{-1}$, apart from its being the expression of impossibility; and twenty others which may come before him. His business is with the ordinary processes of algebra, and with valid reasons for their adoption; and as a professional student, he has no other business with the subject, whatever, as a mere lover of speculation he might have had. On the other hand, we are far from recommending his acquiring a lax habit of reasoning, or taking any rule that may be propounded without reasonable and satisfactory evidence. As a habit it will be the most pernicious, the most fatal he could contract. It would, indeed, be scarcely better than the 'rule of thumb' practice that has done, and still does, almost invariably constitute science amongst engineers and architects.

"Having made these general remarks upon the study of elementary algebra, we shall in our next number proceed to suggest some considerations relative to geometry; after which, algebra and geometry in combination will receive due consideration."

Statistics of the Coal Trade of Schuylkill County.

In an article on the effect of the tariff upon the coal trade of Schuylkill county, the Miners' Journal gives an interesting statement of the amount and increase of this trade within a few years. The statistical tables we copy.

Capital invested in 81 miles of incorporated railroads	\$1,000,000
50 do. of individual do.	150,000
50 do. under ground do.	60,000
1500 railroad cars.	150,000
2400 drift cars.	96,000
34 collieries below water level, with steam engines, pumps, etc.	850,000
100 collieries above water level.	500,000
Landings.	200,000
Boats and boat horses.	500,000
Working capital.	300,000
Schuylkill canal.	5,000,000
Reading railroad, cars, engines, etc.	10,250,000
Towns in the coal region.	3,000,000
Danville and Pottsville railroad.	800,000
80,000 acres coal land at \$50 per acre.	4,000,000

	\$26,856,000
Estimated investment for same items in 1842	17,526,000

Increase in four years with protection	9,330,000
Tons of coal sent to market in 1845	1,131,724
Consumed in the region about	75,000

Total tons	1,206,724
Sent in 1841	620,345

Increase—almost doubled in 4 years. 586.37.

The population of the coal region of Schuylkill county is now almost 25,000. There are also about 2000 horses used in the trade in the region.

Agricultural Products consumed in the Coal Region in 1845.

Wheat and flour	\$187,000
Corn, rye and buckwheat	180,000
Oats	70,000
Hay	80,000
Straw	6,000
Beef and pork	260,000
Potatoes	30,000
Poultry	25,000
Butter	23,000
Lard	7,000
Milk	35,000
Eggs	8,000
Vegetables, apples, peaches, turnips, onions, etc.	50,000

	\$961,000
Consumption in 1841	580,000

Increase in 4 years.	\$373,000
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Merchandize Consumed in 1845.

Groceries	\$750,000
Dry goods—foreign and domestic	625,000
Boots and shoes	100,000
Drugs, glass, dye stuffs, etc.	40,000
Hats and caps	40,000
Saddlery	15,000
Nails and spikes	20,000
Bar, pig and boiler iron	75,000
Railroad iron	50,000
Stone and hollow ware	10,000
Confectionery	15,000
Jewelry	8,000
Books, stationery and paper	10,000

	\$1,758,000
Consumption in 1841	918,000

Increase in 4 years.	\$840,000
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The quantity of oil included in groceries is a pretty considerable item. It is estimated that the quantity consumed in the region last year was worth at least one hundred and sixty thousand dollars.

Lumber.—The quantity of lumber used for buildings is very large in this region—and the value of the timber used in the mines for props, shutes, etc.,

will not fall short of fifty thousand dollars per annum and very probably exceed it.

Coal Rents.—The income received last year by the holders of coal lands, for coal land, did not fall short of three hundred thousand dollars. This is a large sum extracted from our mountains annually in the shape of rent.

The above estimates are based upon correct data, and will rather fall under than over-run the reality.

It is hardly necessary to add that the market, created in this region for the produce of the farmer has nearly doubled the value of farming lands in Schuylkill county, and has also increased the value of lands in the adjoining counties.

In 1837, the quantity of coal sent to market from Schuylkill county was—tons..... 540,000

In 1842, the trade had increased to only... 572,000

Increase in a period of six years only thirty-two thousand tons.

In 1845, the quantity sent to market from this county reached—tons..... 1,132,000

In 1841..... 572,000

Increase in only three years..... 560,000

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N.Y.

Saturday, June 6, 1846.

Electro Magnetic Telegraph.

The use of this new and valuable invention is rapidly spreading over the English lines of railway, although the systems there employed are far inferior to that of Prof. Morse, which is the only one adopted in this country. Why is it that so few of the railroads in this country have availed themselves of the inestimable advantages of this telegraph—by means of which, intelligence may be conveyed to any station on a line, no matter how long, and at any moment of time.

To a railroad company, giving the use of their line for the erection of the telegraph, as a means of conveying general news, the expense would be trifling for such an increase of wires and apparatus as would insure the instantaneous communication of orders and messages from any one point to all others—an advantage hardly to be estimated in money.

Reading (Official) Railroad.

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending—

	May 25th, 1844.	May 24th, 1845.	May 23d, 1846.
Travel.....	\$1,702 79	\$2,107 63	\$3,147 09
Freight on goods.	761 07	1,237 09	3,169 53
Do. do. coal..	8,724 24	15,758 31	25,111 50
Miscell's receipts.	.....	.....	.....
Transp. U.S. mail.	.....	.....	.....

	\$11,188 10	\$19,103 03	\$31,428 72
Coal trans., tons..	8,857	15,990	20,056

The subjoined table of the rates of transportation at present adopted for the above road, will be found of interest to all those engaged in the business now being passed over it.

Office of the Phila and Reading R. R. Co. } Philadelphia, May 20th, 1846. }

Notice is hereby given that on and after June 15th next, the rates of freight and toll on coal transported by this company will be as follows:

	From Mt. Carbon.	S. Haven.	Pt. Clinton.
To Philadelphia.....	\$1 70.....	\$1 60.....	\$1 45
Inclined plane.....	1 60.....	1 50.....	1 30
Richmond.....	1 60.....	1 50.....	1 30
Nicotown.....	1 60.....	1 50.....	1 30
Germantown r.r.d.	1 60.....	1 50.....	1 30
Falls of Schuylkill	1 45.....	1 35.....	1 20
Manayunk.....	1 35.....	1 25.....	1 15
Conshohocken.....	1 25.....	1 25.....	1 10
Turnout, 1 mile below Norristown.	1 20.....	1 20.....	1 10
Plymouth railroad.	1 20.....	1 20.....	1 10
Bridgeport or Norristown.....	1 20.....	1 20.....	1 10
Port Kennedy.....	1 20.....	1 20.....	1 10
Valley Forge.....	1 20.....	1 20.....	1 10
Phoenixville.....	1 15.....	1 15.....	1 05
Royer's Ford.....	1 10.....	1 10.....	1 00
Pottstown.....	1 10.....	1 10.....	1 00
Dougllassville.....	1 10.....	1 10.....	1 00
Reading.....	1 00.....	1 00.....	0 90
Mohrsville.....	0 80.....	0 80.....	0 70
Hamburg.....	0 60.....	0 60.....	0 50
Orwigsburg.....	0 50.....	0 50.....	0 50

By order of the Board of Managers, S. BRADFORD, Sec'y and Treasurer.

Central Railroad, Michigan.

The receipts of this road for the month of April were, \$25,720 27. For the corresponding month of 1845, the receipts were, \$11,607 15.

The receipts for three months on this road show a larger increase than any other road in the United States, not excepting the Reading railroad.

	1845.	1846.
January.....	\$6,412 83.....	\$19,703 75
February.....	7,308 47.....	14,254 36
March.....	6,977 81.....	22,254 54
	\$20,699,11.....	\$56,212 65
		20,699 11

Increase..... \$35,513 54

The Detroit Advertiser says, this table shows in unerring figures, the onward march of our state, and the great value of its principal work. The increase in freight is really astonishing. The crop of 1844, it is true, partially failed; but this alone will not account for the amazing increase. When the road is rebuilt and relaid with heavy iron, the result will be still more surprizing and gratifying. And when it is completed through, and due measures taken to counteract the injurious policy of the steamboat combination, the fare from passengers will increase in equal proportion. We cannot believe that any light consideration will prevent the Boston corporations from accepting the purchase.

Comparative Cost of the Transportation of Coal on the Reading and on the English Railroads.

We have been furnished, at our special solicitation, by John Tucker, Esq., the able president of the Reading railroad company, with the following copy of a letter written by Edward Wood, Esq., engineer of the Grand Junction Railway, (England,) to Wm. Brown, Esq., of the house of Brown, Brothers & Co., of Liverpool, in relation to the accuracy of the statements of cost of transporting coal, as set forth in the last annual report of the Reading railroad company.

The letter of Mr. Wood, it will be perceived, fully sustains the statement of cost as made by the superintendent of transportation on the Reading road.

The letter is dated—

“GRAND JUNCTION RAILWAY, }
 Liverpool, 28th March, 1846. }

WILLIAM BROWN, Esq.

Sir:—Our secretary, Mr. Booth, has handed to me the report of the directors of the Philadelphia and Reading railroad company, with the request that I would examine it and give my opinion how

far the statements of the cost of transport is borne out by the experience of English railroads. I have carefully read the report and analyzed such of the calculations as bear upon the question, and I do not find them to differ to any material extent from the results of the experience of railways in this country. By the statement H, page 27, it appears that the cost of hauling coal for the year ending 30th November, 1845, has been 37 1-10 cents per ton per round trip of 186 miles, from the coal region to tide water, with an average load of 295 tons of coal, say 93 miles with loaded wagons and 93 miles with empty wagons. Abstracting the several amounts comprising the whole cost, and classifying them as we are accustomed in this country, we have the cost per ton per round trip, as follows:

1. Locomotive power, including assistance, etc., etc..... 25 7-10 cts.
 2. Wagon disbursements..... 7 3-10 “
 3. Conductors, brakemen, lamps, portage, etc..... 4 1-10 “
- 37 1-10 “

To arrive at the cost of working a similar railway, with similar traffic, I assume what experience has shown me to be tolerably near the truth—that the cost of locomotive power, including depreciation of stock, would be about 18 pence, say 36 cents per mile run, with heavy loads; and that the cost of repairs of wagons, oiling, and depreciation, would be at least 10 per cent. on the value of the stock; then the cost of locomotive power per ton, per trip, is—

183 miles at 18 pence = £13 14s. 6d. ÷ 295 tons.
 295 tons = 11 2-10 pence, say 22 1-2 cents.
 And wagons, supposing a stock of 4,000 value at £60 each, £240,000. 10 per cent. on £240,000 is £24,000, which, divided by 1,200,000 tons, the annual traffic, gives 4 6-10 pence, say 9 1-4 cents per ton per trip.

Comparing these results with the recorded cost on the Philadelphia and Reading, we have—
 For locomotive power..... 22 1-2 cts. ag't 25 7-10
 And for wagon disbursements. 9 1-4 “ “ 7 3-10
 31 3-4 “ “ 33 cts

The expense of conductors, brakemen, etc., would probably be very nearly the same in both cases.

The results are, perhaps, as near as can be expected under the difference of circumstances.

The expenses of repairs and maintaining the stock of wagons on the Philadelphia and Reading railway, certainly appears to me rather low; and I do not discover that any sum has been set aside to cover that portion of the depreciation which cannot be renewed by repairs.

When the improvements in the efficiency of the locomotives, advertised to in the report, have been carried out, I have no doubt the cost will be lessened.

I am, sir,

Your most obt' serv't,

(Signed,) EDWARD WOOD.”

The Maryland Mining Company, and their Works.

The enterprize of the Maryland Mining company, in the bituminous coal region of Maryland, bids fair not only to attract much attention, but to exercise an important influence on the coal trade of our country. We notice in the Cumberland Civilian of the 15th inst., the announcement of the completion of the railroad, and works to bring this valuable fuel to market in the Atlantic cities; and we find names connected with this enterprize that insure its certain and early development.

The Maryland Mining company, we understand

possess a tract of about 2,300 acres of coal land in Allegany county, situated nine miles from the town of Cumberland. The stock of the company is principally owned by wealthy mercantile houses in this city, and its affairs are mainly under the control of Horatio Allen, Esq., as president—a man whose character is favorably known to the public, and who possesses, in an eminent degree, the requisites to manage so important an enterprise.

The coal from this region, by the analysis of eminent chemists, is shown to be, for many purposes, superior to any in this country. It possesses from 77 to 85 per cent. of pure carbon, from 12 to 15½ per cent. of bitumen, and only from 4¼ to 6 per cent. of incombustible matter. It burns with a pure white flame, and almost entirely free from smoke and sulphurous gas. Practical use, we understand, has borne out this analysis. Those who have used this coal in the ocean steamers, as well as in manufactories, bear high testimony to its value.

The works now completed connect the mines with the Baltimore and Ohio railroad at Cumberland, and with the Chesapeake and Ohio canal—now in progress of completion from Alexandria to that place—and we may soon look for a large supply of this valuable article, equalling, if not surpassing in quality, the product of the best English mines, delivered in our city at prices greatly reduced below the rates charged for English coals.

The railroad of the Maryland Mining company is worthy of remark, and interesting in itself to engineers. Its grades are higher, if we recollect, than any hitherto worked in this country. The total elevation overcome from Cumberland to the mines, is 1,134 feet in 9¼ miles—5 miles of which have a grade of 135 feet per mile, intended to be worked by the powerful 25-ton locomotives of the Baltimore and Ohio railroad. These engines are calculated to haul up to the mines a train of 25 iron cars, weighing 2½, and carrying 7 tons each. The superstructure is laid in a substantial manner, with a Z rail of 38 pounds per yard, according to the plan of B. H. Latrobe, engineer of the B. and O. road, of which a description was given in No. 6, vol. VI, new series of this journal. The iron rail is fitted to a string piece, its lower web projecting horizontally inside the track, supported every two feet by cross-ties; its upper table projects outwards and overlaps the string piece to which it is bolted by horizontal bolts ¾ inch diameter, fastened by a nut and screw on the outer side, which adjusts the rail at all times to its side support of timber. This combination, it is said, accomplishes two desirable results, viz: guarding the rail from a downward or longitudinal movement, and at the same time protecting it in the most perfect manner from the side lurching of the engine and train, a force causing a deflection double that of the direct pressure. In height, the stem of the rail is 4¼ inches from the cross-ties, on which it rests, to the upper surface, and the thickness of the stem is ¾ of an inch. This form of rail has not yet been fairly tested, but we have much confidence in its success. The passage of the engine and cars over it is said to be smooth, having none of the unpleasant jarring at the joints common to most other descriptions of heavy bar. This results from the bolts passing through the bar near the joints, each bar being secured at its terminus, thus securing an *even joint*.—When a track becomes deranged by the settlement of embankments, common on new works, it will not become disjointed, or disconnected, but goes down uniformly, and may be again readily adjusted to the grade line without any separation of its parts.

Should this experiment prove as successful as we

understand, the present trial gives fair promise, a material saving will be effected both in iron and cost of construction, by the use of the Z, instead of the H, or bridge, rails. Tracks laid in this manner afford a resistance, with a 38-lb. bar, equivalent to a 50-lb. bar of the usual H form. The cost of superstructure, other circumstances being equal, will, it is said, be reduced about \$1,200 per mile.

The Z rail used on this work was manufactured during the last year at the Mount Savage iron works, located on "Jennor's run," within three or four miles of the mines of the Maryland Mining company.

Should the Chesapeake and Ohio canal be completed to Cumberland, as it surely will and should be, the coal of this region will possess an ample outlet to the seaboard. The Baltimore and Ohio railroad co. has contracted with the Maryland Mining company to deliver from 30,000 to 50,000 tons per annum in Baltimore, working the road of the latter company from the mines. We are gratified to learn that a combination of interests is likely soon to be brought to bear to insure the speedy completion of the canal to Cumberland—forty-two miles of which are in an unfinished state, and the estimated amount required is so inconsiderable, in comparison with the important results to accrue to the iron and mining interests, that much longer delay cannot possibly exist.

We copy the following account of an excursion to the mines, by way of celebrating the event of the completion of the road, from the Civilian. The editor says:

"At ¼ before 10 o'clock, the president Horatio Allen, Esq., of New York—the engineer, Col. M. O. Davidson—the contractors who did the work—several of the stockholders and directors of the company, with a number of gentlemen who attended by invitation—in all about fifty—left Cumberland depot for the mines. The car in which they took passage was drawn by the engine J. Quincy Adams, which, although it is old and has seen much service, still has, like him whose name it bears, an abundance of steam power. After several times stopping on the way to examine the work over which we passed we were brought up at our destination, safe and in good spirits, about 12 o'clock.

"The road is, in our judgment, and in this we speak the opinion of gentlemen of great practical experience, well built and admirably adapted to the purpose for which it is intended—the transportation of coal. It is strong in all its parts, and bids fair to be as durable. The track is laid with the Z rail, weighing 38 lbs. to the yard, which is said to be one of the very best rails in use. The construction of this work was no small undertaking. For the length of it—it is nine miles and a half—it is one of the heaviest works we have ever examined. Its route is directly through the 'Narrows,' all the way in view of the National road, and through a country abounding in the most bewitching scenery. It combines whatever is grand and picturesque in nature, and extravagant as are the praises bestowed on the wild mountain scenery about Harpers' Ferry, we do not think it is comparable to this. Your true worshipper of nature might look upon it for days, and still discover new beauties on which to feast the unwearied vision. If any one

doubts us, let him pass through the 'Narrows' and catch, as we did, one long, lingering sight of Wills' mountain, with its tall cliffs, hoary and weather-beaten, yet erect and majestic. The very rocks are eloquent of Omnipotence, and in the pride of conscious power, they seem to mock in fantastic imagery, the ruined and antiquated castles of other days—

"Whose rocky summits, split and rent,
Form'd turret, dome and battlement."

"About two miles from Cumberland, Wills' creek is crossed by a bridge, which deserves a passing notice. It is two hundred feet long, and has three arches of 45 feet span each, supported by stone piers and abutments. The superstructure is of brick masonry. It is, exactly what we should call a capital bridge and furnishes the very best evidence of the skill and fitness of the engineer, Col. Davidson, under whose direction the work has been done. As to its strength, the freshet of Saturday last, which brought the water up two feet higher than the springing line of the arches, has fully and satisfactorily tested it. It cost \$6,500, a sum so low that we would have supposed it impossible, had we not the best authority for our statement.

"There are two tunnels, which have no other walls and arching than the rude rock through which they are cut—one 540 feet and the other 360 feet from point to point.—There are also six deep cuts through the hardest rock, varying from 20 to 50 feet each, besides several heavy embankments. The elevation at the mines is 1,134 feet above the grade at Cumberland, and five miles of the road is made to the enormous grade of *one hundred and thirty-five feet to the mile*. It was commenced on the 10th of April, 1845, and notwithstanding these formidable difficulties, which appear almost insurmountable to the inexperienced and unskillful, the *whole* work except the putting down of three miles of the track, was ready for use before winter, which of course suspended all operations.—This spring, again, it was thrown back by land slides, the consequence of frequent and heavy rains, else it would have been entirely completed a month or two earlier. Such energy and perseverance are so rare—therefore the more honorable—that we should manifest a great contempt for merit, did we not give all praise to the contractors, Messrs. Gonder, Hazlehurst & Co. They have been indefatigable, and *their work* is of itself the highest tribute to their capacity, it gives them all the certificate they need. We were happy to be informed by the president, that these gentlemen are owners of one-fifth of the stock of the company.

"But if we were pleased with our trip over the road, we found new pleasures in visiting the mines, through which, torch in hand, we sped our way, examining and admiring as we went. The grand entrance to these is by an archway of stone masonry, with a girt of 15 feet. From this, two galleries make a straight passage for a distance of 700 feet, a track being laid in each. The track in the upper gallery is for bringing out the loaded cars, whilst that in the

lower is used when they return empty. Besides these galleries, there are ten smaller ones, to be enlarged as necessity may require, making into them; the bed of each a little more elevated than the other, as they run in succession, with a view to a perfect drainage of the mines, to which the lower of the two main galleries, already mentioned, acts as the drain and keeps them always dry. The coal, of which the veins are ten feet in thickness, is of superior quality and quite free from slate and sulphur. One miner will, we understand, get out five tons a day, and with fifty—the number the company will have in their employ—two hundred and fifty tons will be the daily product. The mines and the road together cost about \$260,000; and the cost of the road alone was not less than \$175,000.

"The thing of greatest interest here, however, was the opening of a very pretty room, about sixteen feet square, with its walls and ceiling, and floor, all of virgin coal, which, in honor of the mines, was called the *Eckhart saloon*. Here was a sight most refreshing to hungry men. Two tables were spread, well supplied with the finest mutton and ham, flanked by all the necessary 'trimmings.' On these the work of destruction was soon begun, and the ladies (we beg their pardon most humbly for not mentioning them before) and gentlemen of the party were much pleased with the entertainment. Its novelty certainly helped the appetite, for some of us evinced quite as much love for 'the provant' as ever did Dugald Dalgetty, and he was by no means slow.

"We left the mines a little after 3 o'clock in the afternoon, and were in Cumberland again in less than 50 minutes, although our friend Slack, who had the honor of conducting the first car over the road, did not make the engine keep up her 'best licks.'"

Speculation in England.

The number of joint stock companies registered in 1845 was 1,520, being for all conceivable objects, even the most absurd—so that the spirit of speculation and not the railway system must bear the blame.

From the extracts which we give from the *St. Louis New Era*, it would seem that, much as railroads are thought of and desired, there is yet something not quite friendly to them in the policy of "the political wiseacres of Missouri."

"The charter for a railroad from Richmond to the Ohio river is very liberal. It permits the company to select its own route, authorizes the subscription of a capital of twelve millions of dollars, two millions of which may be invested in lands, mills and machinery. It permits the company to make the point of termination at any point below the mouth of the Great Kanawha. In the Old Dominion they do not seem to be so much afraid of useful corporations as are the political wiseacres of Missouri."

In New England they are pushing forward various lines of railroad with a degree of liberality, industry and enterprize that is truly admirable. If railroads are profitable over the broken hills and sterile soil of New England, will they not richly repay for the investment when they shall be constructed over the level prairies and exuberant soil of the west? We anticipate the time when our state will be intersected by a number of most valuable railroads, unless it shall be deprived of such advantages by a blind and suicidal course of policy."

"The most profitable railroad in the United States

will probably be one extending from St. Louis eastwardly through the central portions of Illinois, Indiana and Ohio, with branches reaching to Cincinnati, Parkersburg, Pittsburg, Cleveland and Erie, and connecting with roads leading into all the Atlantic states. This great line of road will be profitable because it passes over a country free from mountains, and in which the construction of a railroad will be easy, and cheap; its entire line will be through an exceedingly fertile and productive country; the right of way will cost very little, and it will form a connection between the great river of the west, the great lakes of the north, and lines of railroad extending to every Atlantic port. It is manifest that this road will be exceedingly profitable. A stream of trade and travel will come westward. A railroad from Virginia will strike the Ohio below the mouth of the Great Kanawha; the Baltimore and Erie, and Pennsylvania railroads will bring great currents of trade from Baltimore, Philadelphia and New York, and all these lines will connect with the Central Western railroad and send a large trade toward St. Louis. The country interested ought to begin to take measures to secure the construction of this line."

"A railroad has been surveyed from Mobile to Pascagoula, forty miles, on a direct route to New Orleans. They are constructing a railway from New Orleans to Cat Island, distant 35 miles by water from Pascagoula. These railways, if completed, would bring New Orleans and Mobile within five hours travel of each other."

War and Railroads.

The present excitement consequent upon the declaration of the president that we are in "a state of war with Mexico," and upon the recent news from the Rio Grande, has drawn men's minds from all other topics. We desire, however, to "improve the occasion," by a word or two in favor of railroads. The defenceless condition of some of our seaports is well known, and not without reason have some apprehended a sudden attack from war steamers, even upon the city of New York.

It is worth while remembering that no city could long remain defenceless whose communication with the interior was secured by numerous lines of railroad. Before many shots could be fired at the city of Boston, an innumerable force could be gathered from every direction. But what communication has the great city of New York with the interior in winter time? The Hudson river closed, upon what defence, except that of the inhabitants themselves, could we depend? and among our floating population, how large a proportion would be ready to play into the hands of our enemy?

The military value of railways is attracting the attention of all the European powers, and as we have declared ourselves, the great American power—as we have through our rulers thrown down the gauntlet to all the world—would it not be worth our while to think of all the means useful to us in the extremities to which we may be driven?

The remarks of Sir John Burgoyne, in the following extract from the *Railway Express*—although intended for England, and its relations to France—are in no wise inapplicable to our own country.

"*Railways vs. the Prince de Joinville.*—I look upon the whole safety of the kingdom to depend upon railways. Looking at the facility there is now for making incursions upon the coast, with large bodies of men, such as the French have, nothing but the power of concentration which the railways would give you could enable you to risk successfully, and I think you will thus be able successfully to counteract, with the aid of a few other means, the apprehension from invasion from the power of steam vessels. I quite understand Sir Willoughby Gordon's reasoning about the difference between the present and former times.

Formerly, the apprehension was always upon the south coast of England, and it was very necessary to have the troops stationed there, so that they could be within reach of every part by the then mode of communication, which was by ordinary marching, therefore you could not afford to have them above three or four days' distance, but now you would have your troops 200 miles in the north, and you could bring them down within 24 or 48 hours to any part where there was a threatening: giving you that power, the great advantage of which is well known in military tactics—the power of concentrating upon any given point in a short time. For you could concentrate all the forces of England before the enemy could go through the operation of actually landing twenty thousand men! For we know that the operation of landing a large body of men under every advantage which the British navy afforded us was very serious—it took days and weeks to effect it, with all the equipments. I do not believe any other power is at all aware as we are of the difficulty of landing troops, because we have tried it over and over again, which they never did, and we have found by experience that it is attended with very great difficulty, and takes a very long time. The whole question of war depends upon the general who can concentrate his troops with the greatest rapidity, and in the greatest numbers, upon a given point of importance; and if you carry down your men from the north faster than the enemy can land them upon the coast, you have every advantage."—Sir John Burgoyne.

Atmospheric Railways in France.—It is most probable that the French atmospheric lines will be constructed after the system of Mr. Mallette, at Arras. According to the report of Mr. Seguler, read at one of the last meetings of the institute, it is, besides some other advantages, the method of closing the tube, proposed by Mr. Mallette, which deserves commendation. The closing, namely, of the tube whence the air has been extracted, is not done (as chiefly proposed in England) by greased valves, but by smaller tubes of caoutchouc adequately inflated. These lie on both sides of the fissure of the main tube, and their inner segments close towards each other, which is effected by the air (both the outward, as that contained in them) pressing on the vacuum of the main tube. Mr. S. says, that to become convinced of that state, he had water thrown on the India rubber tubes, which, however, remained on them, without, in the least, penetrating into the main tube. As, however, the content of air in the smaller tubes, is to be a constant one, every guard is to be provided with a small hand pump, by which he can introduce the necessary quantity of air into the elastic tubes, which is indicated by a manometer placed in the inside.—*The Builder.*

The Law of Railways.—The beautiful uncertainty of the law was never better illustrated than by the delicious ambiguity that prevails with reference to actions on the subject of railway liabilities. Every case that comes before a jury, if the defendant is charged with any liability on account of any railway, is sure to terminate in a verdict for the plaintiff. A provisional committeeman can recover a deposit from an allottee to-day, and an allottee may recover it back again from the provisional committeeman to-morrow. The judges seem to have adopted the old court of requests principle of "how will you pay it?" in reference to all claims made upon any person in respect to any railway. Every one is declared to be

liable to every one else; but it seems to be at the same time, perfectly understood that every verdict will be set aside, as a matter of course no matter which way it happens to be, or what principle it proceeds upon. Any one may have a verdict to any amount, upon any ground whatever, provided his demand arises out of something connected with a railway. The lawyers have hitherto been the persons to profit by railway speculation, and it seems they are likely to continue so; for while verdicts are being allotted to all who take the trouble to ask for them at the hands of a jury there will naturally be a strong and general desire to litigate.—*Punch*.

Patent Rotary Fire Engine.

Is not the following a mere copy of a pump once much used and approved in this country, under the name, we think, of "Cooper's rotary pump?" If any of our readers can answer the question, and tell us what has become of what seemed to be a cheap and useful article, we shall feel obliged.

"The Midland Counties Herald gives an account of a trial lately made at Birmingham of a new fire engine, invented by a Mr. Farmer. Three engines of different sizes, manufactured for exportation, were tried. The largest threw a perfectly compact stream of water, half an inch in diameter, to a height of upwards of sixty feet; and by substituting a rose for the jet, covered an area of nearly forty feet diameter. Another of the engines was constructed so as, if required, to act as a pump, for the purpose of supplying water to the largest engine, or for any other purpose. The principle in all these cases is that of the action of the wheel within a circular chamber, with which the pipe leading to the cistern and one end of the hose communicate. Attached to the wheel are slots which close the apertures of each of those pipes at the same time. Let the wheel be turned as it may, one-half of the chamber is *in vacuo*, and thus the loss of the up-stroke in the ordinary construction of the pump is avoided, and the machine, by one revolution, throws out the water through the jet, and draws it up from the cistern. The application of the multiplying power of cog-wheels produces five revolutions of the central wheel for one turn of the winch, thus of course rendering the working of it so much easier. The trial gave great satisfaction, it being evident that the rotary engine was much more effective and certain in its operation than the ordinary fire engine."

Lexington and Ohio Railroad.

The late movement of the legislature in withholding from the citizens of Kentucky the privilege of making railways at their own expense seems to have excited some surprise to the eastward, as the following extract of a letter from a gentleman in New York to his friend in this city shows:

"I regret to learn that Kentucky is so backward in undertaking, or allowing the construction of railroads. It only shows how difficult it is to eradicate error and inculcate truth," etc. "It is surprising to me that the legislature of Kentucky could have been induced to do so foolish an act as to reject a bill allowing her citizens to invest their money in a way from which so much good would arise."

It would be unfair to judge of the action of the legislature without explanation. The state has expended \$1,000,000 nearly in constructing five dams on the Kentucky river, and she has a right to expect some revenue from that expenditure. The railroads to Louisville and Cincinnati, from Lexington, were received as antagonists or rivals to the slack water improvement—and this supposition, it is believed, was the ruling cause of the defeat of the *railroad bills*. There was not an individual who voted for the road bills, who was opposed to the extension of slack water to the points originally contemplated, on the Barren, Kentucky and Licking rivers, to wit: the coal and iron regions.

And here let us ask, if 10,000 tons of freight and 15,000 passengers, to and from Lexington, is all that is to feed slack water for all time to come? Is the improvement to stop at the head of pool No. 5? Were the people not promised a navigation to Three Forks in 1835? That our coal, iron and lumber should be reduced in price? Stop at No. 5, indeed! What a lame and impotent conclusion to a great enterprise! Of what use is No. 5 or No. anything else, as it now is, to the raftsmen or flatboatmen, who want to run his craft from above slack water to the Ohio? It is an obstruction and a tax on the highway nature has made for him. The slack water *must* go to the mountains, for until that goal is attained, *nothing is done*.—Short of this will be an injustice, a deception, and a humbug to the mountain interest, which has an equal claim to the fostering care of the commonwealth. The coal fields of Pennsylvania send yearly to market rising 2,000,000 tons of coal, which is more than 66,000,000 bushels of coal as measured here. Our coal field can send off more than that yearly, and not see that anything has been taken away. When to this is added the iron, which is always found in the coal measures, lumber, and general traffic incident to a great business, there is a mass of business presented worthy of the attention and enterprise of the commonwealth. It is manifest that the mere local trade of Lexington can be but a drop in the bucket compared with this. Also it is an erroneous opinion that the railways can ever compete to an injurious extent with the slack water navigations, for the line to Louisville will intersect the Kentucky river almost at right angles, and that to Cincinnati will not touch it, and scarcely touch the Licking. These lines will also penetrate regions of country now nearly or quite destitute of the benefits of the public improvements. The people on these lines do not ask the state to make the works. They are taxed to pay for the works from which they derive no advantage. They are willing to pay the state what the railroad has cost her as a purchaser.—They do not envy their fellow citizens the great advantage they derive from the public works, but are willing that the purchase money for the old railroad shall be applied to the building of more locks and dams. To present the case in a manifest view, suppose the people of Henry, Shelby, Oldham, and Jefferson should apply for privilege to build

a railroad at their own cost to Louisville, would it not be a clear injustice to refuse them the right? Or suppose the people of Campbell, Kenton, Grant, Pendleton, Harrison and Scott should apply for the same privilege to Covington, upon what sound principle of justice or expediency could the application be refused?

The city of Louisville, which is justly the pride of our state, has expended \$200,000 in the extension of the railroad from Frankfort; this and other capital has for the last 9 years laid buried in excavations and embankments. The total amount so expended and so long useless is not much short of \$300,000. In the opinions and estimates above given, we are confident that we are right; but if wrong we will cheerfully admit it. We therefore invite investigation from all our contemporaries as to the following positions:

1st. That an adoption of a system of railroads, to be executed by private enterprise, will be highly advantageous to the citizens of the state.

2d. That the roads from Lexington to Louisville, Mayville and Covington cannot be of detriment to the state works, if these works are carried as they should be, and were promised to be carried, to the coal measures.

3d. That the building of these roads will give to a numerous and industrious population the advantage of public and cheap conveyance, which is now destitute of such advantage—that such population is now paying tax for the maintenance of works from which they derive no benefit.

4th. That railroads are in an eminent degree beneficial to all the "industrial interests" of a community—to the farmer, to the mechanic, to the manufacturer, and to the merchant—to the capitalist they are a safe and steady investment.

5th. That they will increase production of home products, and its correlative consumption of foreign products, and add to the population, wealth, strength, and renown of the commonwealth.—*Lexington Observer*.

ATLANTIC AND ST. LAWRENCE RAILROAD.—Notice to Contractors.—Proposals will be received at the office of the Atlantic and St. Lawrence railroad company in this city, from the 17th to the 27th day of June next, for the grading, masonry and bridging of a division of the road, extending from a point at or near Portland to Royall's river in North Yarmouth—a distance of about eleven miles.

Plans, profiles and specifications will be exhibited, and the requisite information given at the engineer's office in Portland on and after the 17th day of June.

Persons offering to contract for the work, or any part of it, who are unknown to the undersigned or the directors of the company, will be required to accompany their proposals with references as to character and ability.

A further extension of the road, embracing a distance of some fifteen or more additional miles, will be prepared for and put under contract about the first of August next.

By order of the Board of Directors.

WM. P. PREBLE, President.

A. C. MORTON, Chief Engineer.

Portland, Me., May 18, 1846.

1m22

WILLIAM R. CASEY, Civil Engineer, New York. Address Box 1078, Post-office, New York. 21

STEPHENS' RULING AND MECHANICAL
Drawing Ink, for Engineers, Artists and Designers. This article will be found superior to the best Indian Ink for the above purposes. It does not smear with India rubber or wash off with water. It flows freely from the drawing pen, and never corrodes or encrusts it. It may be used on a plate or slab, with a camel's hair brush, diluting it with water, or thickening it by drying, as required. It has the advantage of being ready for immediate use.
Sold in conical-shaped bottles, convenient for using from, without any stand, at 15 cents each.

STEPHEN'S WRITING FLUIDS.

These compositions, which have so remarkably extended the use of the STEEL PEN, are brought to great perfection, being more easy to write with, more durable, and in every respect preferable to the ordinary ink. In warm climates they have become essential.

They consist of a Blue Fluid, changing into an intense Black color.

A Patent Unchangeable Blue Fluid, remaining a deep Blue color.

A Superior Blue Ink of the common character, but more fluid.

A brilliant Carmine Red, for Contrast Writing.
A Carbonaceous Record Ink, which writes instantly black, and being proof against Chemical Agents, is most valuable in the prevention of frauds.

Also, a new kind of MARKING INK for Linen and Inkstands adapted for, preserving Ink from evaporation and dust.

Sold in Bottles of various sizes, by all Stationers and Booksellers.

Be sure to ask for Stephens' Writing Fluid.

N. B.—These unchangeable Blue Fluids are Patent Articles; the public are therefore cautioned against imitations, which are infringements, to sell or use which is illegal.

Stephens' Select Steel Pens.

The utmost possible care having been bestowed upon the manufacture of these articles, so as to procure the highest finish, they can be confidently recommended, both for flexibility and durability.

All the above articles are prepared by *Henry Stephens*, the inventor, No. 54 Stamford-street, Blackfriars road, London, and sold by Booksellers and Stationers in bottles of various sizes, and may be had wholesale from the agents in Boston, New York, Philadelphia, Baltimore, Washington, Charleston, New Orleans, and St. Louis.

Wm. W. Rose, Wall-street, New York, is my general agent in the United States.

VALUABLE PROPERTY ON THE MILL

Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 1/2 feet two stories high, with a shed part 45 1/2 x 20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & C., Philadelphia.

RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaille, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATTLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

(Signed,) RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed,) Wm. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent, 138 1/2 Water st., N. Y.

Also by Isaac Bridge, 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street, Charleston, S. C.

THE WESTERN AND ATLANTIC
Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculmbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 17

TWO LOCOMOTIVE AND MARINE ENGINE
Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia

LAWRENCE'S ROSENDALE HYDRAULIC
Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Fooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by JOHN W. LAWRENCE,

142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1/2

A. & G. RALSTON & CO., NO. 4
South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/2 x 1/4 inch Flat Punched Rails, 20 ft. long.

25 " 2 1/2 x 1/4 " Flange Iron Rails,
75 " 1 x 1/4 " Flat Punched Bars for Drafts

in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES,

Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/2 to 6 inches in width, and of any thickness required; large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,
Albany Iron and Nail Works,

L EXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1.25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

RAILROAD IRON—1700 TONS VERY

Best English Rails, ready to be delivered.—These Rails weigh 60 lbs., the lineal Yard, are 3 1/2 inches deep; 4 inches deep at base; 2 1/2 inches wide at top; 17 1/2 feet long, except one-tenth of 15 and 12 1/2 feet in length.

A first rate Steam Pile Driver built by "Dunham & Co." has never been in use, is in perfect order, and for sale a bargain; also 12 Railway Passenger Cars that have never been used, which will be sold very low.

DAVIS, BROOKS & CO.,

June 1. 30 Wall Street.

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846.. Spring Arrangement.. 1846
Commencing April 1st.

Passenger trains leave daily, Sundays excepted—
Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6½ " and 2½ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.
Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Boston and New York, via Springfield: Passengers leaving Boston at 4 p. m., arrive in Springfield at 8 p. m., proceed directly to Hartford and New Haven, and thence by steamers to New York, arriving at 5 o'clock a. m.

For Buffalo: the trains for Buffalo leave Albany at 7½ a. m. and 7 p. m., arriving at Buffalo at 8 a. m. and 8 p. m. next day. Returning, arrive at Albany at 4 a. m. and 4 p. m.

New York and Boston, via Albany: the trains from Boston arrive at Albany in season for the 7 o'clock boats to New York. Returning, the boats, leaving New York at 5 and 7 p. m., reach Albany at 5 a. m., in ample season for the morning trains to Boston.—Steamboats also leave Albany at 7 a. m. and 5 p. m. and stop at the usual landing places upon the river.

The trains of the Springfield, Hartford and New Haven railroad, connect at Springfield, and passengers from Albany or Boston proceed directly on to Hartford and New Haven.

Montreal: through tickets to Montreal may be obtained in Boston, by which passengers may proceed to Troy, and thence by stage via Chester, Elizabeth, etc., and in the season of navigation by canal to Whitehall, and thence by the splendid steamers of Lake Champlain to St. John, via Burlington, and thence by railroad and steamers to Montreal.

The trains of the Hudson and Berkshire railroad connect at Chatham and State Line.

The Housatonic railroad connects at State Line.

The trains of the Connecticut River railroad connect at Springfield, and passengers may proceed without delay to Northampton, and thence by stage to Greenfield, Brattleboro, Bellows Falls, Hanover, Haverhill, etc.

Stages leave West Brookfield for Ware, Endfield, New Baintree and Hardwick; also leave Palmer, for Three Rivers, Belchertown, Amherst, Ware and Monson; Pittsfield for North and South Adams, Williamstown, Lebanon Springs, etc.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES,
Superintendent and Engineer.

Western Railroad Office,
Springfield, April 1, 1846. } 14 1y

MANUFACTURE OF PATENT WIRE
Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers, etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.
PETER COOPER, 17 Burling Slip.
New York, January 23d, 1846. 1y 10

C. J. F. BINNEY,
GENERAL COMMISSION MERCHANT
and Agent for Coal, and also Iron Manufacturers, etc.

No. 1 CITY WHARF, Boston.
Advances made on Consignments.
Refer to Amos Binney, Boston.

Grant & Stone, } Philadelphia.
Brown, Earl & Erringer, }
Weld & Seaver, } Baltimore.
December 8, 1845. 1m 50

SCRIBNER'S ENGINEERS' AND MECHANICS' Companion. For sale at this office. Price \$1-50.]

LARD OIL FOR MACHINERY, ETC.—Winter pressed, cleansed from gum, and manufactured expressly for engines and machinery of all kinds, railroads, steamboats, woollen and other manufactures, and for burning in any lamp without clogging the wick. Engineers of railroads and others who have used this oil, and to whom reference can be made, give it preference over the best sperm for its durability, and not requiring to be cleaned off like that, and costing about two-thirds the price. For sale by the barrel, and samples can be sent for trial, by addressing
C. J. F. BINNEY,
Agent for the Manufacturer,
Boston, Mass.

11 eop 1m

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, near Third, below Walnut, Philadelphia.

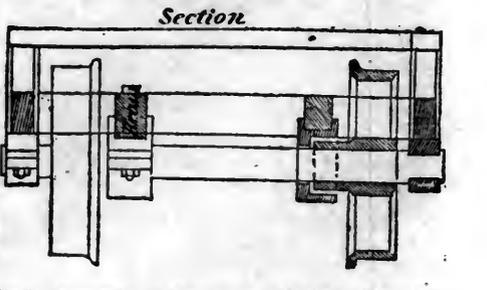
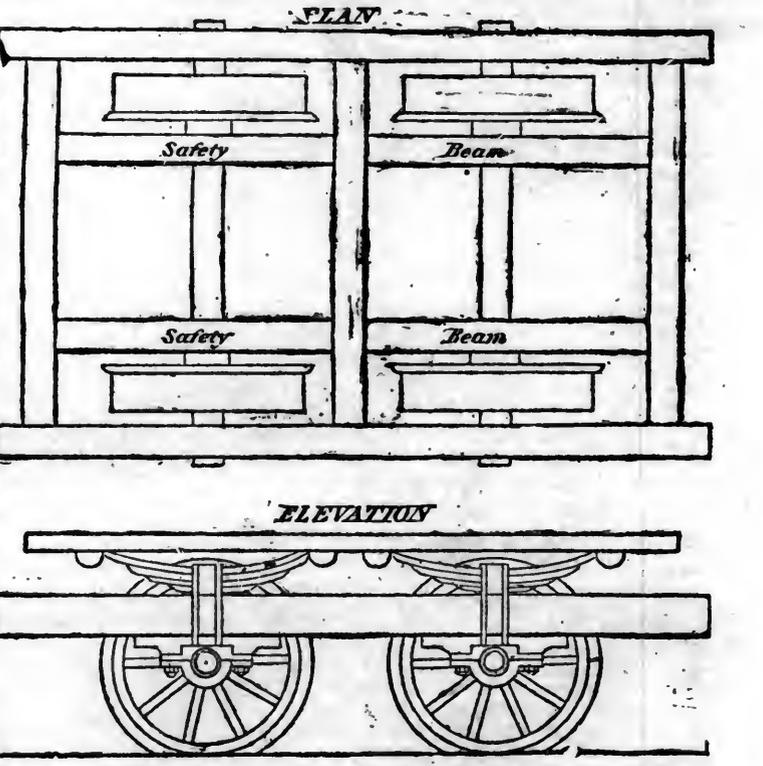
KITE'S PATENT SAFETY BEAM.

MESSRS. EDITORS.—As your Journal is devoted to the benefit of the public in general I feel desirous to communicate to you for publication the following circumstance of no inconsiderable importance, which occurred some few days since on the Philadelphia, Wilmington and Baltimore railroad.

On the passage of the evening train of cars from Philadelphia to this city, an axle of our large 8 wheeled passenger car was broken, but from the particular plan of the construction, the accident was entirely unknown to any of the passengers, or, in fact, to the conductor himself, until the train, (as was supposed from some circumstances attending the case,) had passed several miles in advance of the place where the accident occurred, whereas had the car been constructed on the common plan the same kind of accident would unavoidably have much injured it, perhaps thrown the whole train off the track, and seriously injured, if not killed many of the passengers.
Wilmington, Dec., Sept. 28, 1840.

The undersigned takes pleasure in attesting to the value of Mr. Joseph S. Kite's invention of the Safety Beam Axle and Hub for railroad cars. They have for some time been applied to passenger cars on this road, and experience has tested that they fully accomplish the object intended. Several instances of the fracture of axles have occurred, and in such the cars have uniformly run the whole distance with entire safety. Had not this invention been used, serious accidents must have occurred.

In short, we consider Mr. Kite's invention as completely successful in securing the safety of property and lives in railroad travelling, and should be used on all railroads in the country.
JOHN FRAZER, Agent,
GEORGE CRAIG, Superintendent,
A model of the above improvement is to be seen at the New Jersey railroad and transportation office, No. 1 Hanover st., N. York.



Wilmington, Dec., Sept. 28, 1840.
JAMES ELLIOTT, Sup. Motive Power,
W. L. ASHMEAD, Agent.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, *Agent.*

Albany Iron and Nail Works, Troy, N. Y.
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, *Agent.*

Spikes are kept for sale, at Factory Prices, by I & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

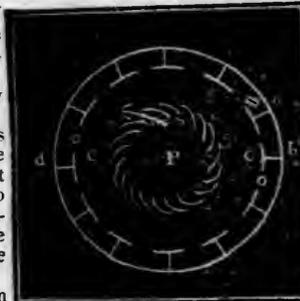
These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Snp't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

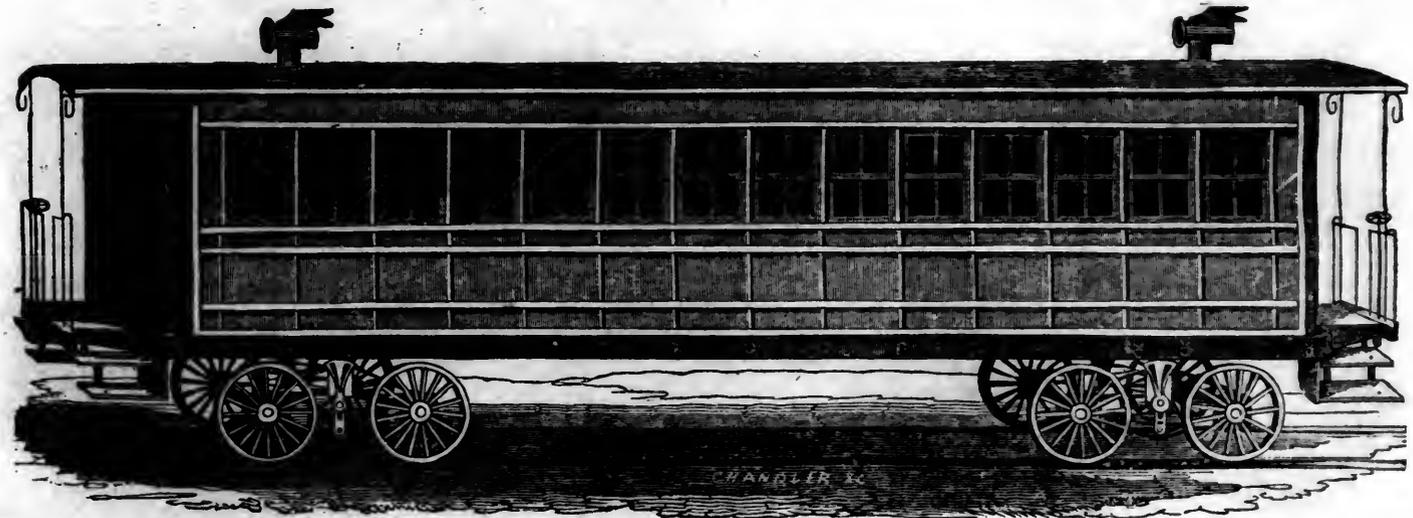
Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844. ja45



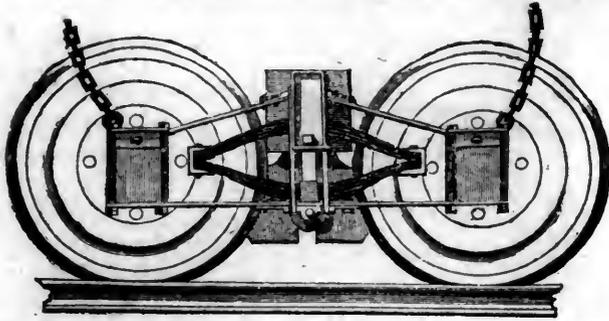
BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

Jersey City, November 4, 1845.

[Signed,] T. L. SMITH,

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

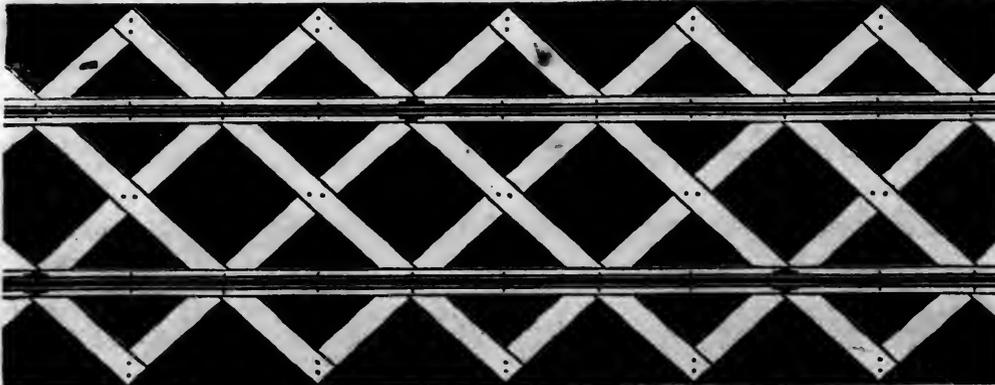
Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845. }

Sup't Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount with interest, being made from the large margin of profits that will result from its use.

JAMES HERRON,
Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum...	5 00

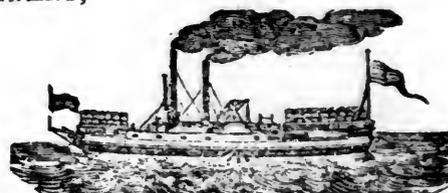
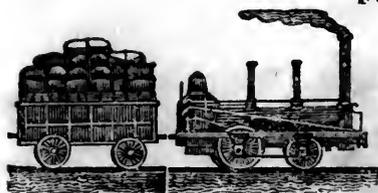
ENGINEERS and MACHINISTS.

- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON and NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM and GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- H. R. DUNHAM & Co., N. Y.
- WEST POINT FOUNDRY, N. Y.
- PHENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,

AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

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SATURDAY, JUNE 13, 1846.

[WHOLE No. 520, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3½ p.m.

All baggage at the risk of the owners thereof.

31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD AND STAGES CONNECTING with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich. New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 32 ly J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading,

Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.

Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m.

Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m.

Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, *Super't.*

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHICALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot.....16 cts.

" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs.....95 "

" Sugar, coffee, iron, hardware, etc.....65 "

" Flour, bacon, mill machinery, grindstones, etc.....33½ "

" Molasses, per hogshead \$9.50; salt per bus.20 "

" Ploughs and cornshellers, each.....75 "

Passengers \$10.50; children under 12 years of age half price.

Passengers to Atlanta, head of Ga. Railroad, \$7.

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON, *Ch. Eng. and Gen. Agent.*

Augusta, Oct. 21 1845. *44 ly

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April

1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.

" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts.

H. C. SEYMOUR, *Sup't.*

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 tf

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the

Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pitsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pitsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pitsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

BALTIMORE AND SUSQUEHANNA Railroad. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a.m., and arrives at 6 1/2 p.m. Arrives at York at 12 1/2 p.m., and leaves for Columbia at 1 1/2 p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62 1/2. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3 1/2 p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc.

Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day any passenger train.

D. C. H. BORDLEY, *Sup't.*
Ticket Office, 63 North st.

31 1y

CENTRAL RAILROAD-FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

- On weight goods generally... 50 cts. per hundred.
- On measurement goods..... 13 cts. per cubic ft.
- On brls. wet (except molasses and oil)..... \$1 50 per barrel.
- On brls. dry (except lime)... 80 cts. per barrel.
- On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
- On hhd. and pipes of liquor, not over 120 gallons..... \$5 00 per hhd.
- On molasses and oil..... \$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, 40 Gen'l. Sup't. Transportation.

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4, 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams' Bridge trains will be regulated according to the state of the weather. 18

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sts. 43 1y

LITTLE MIAMI RAILROAD.—1846.— Summer Arrangement.

Two passenger trains daily. On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1 1/2 p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m.

On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m. Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.

Tickets may be procured at the depot on East Front street.

The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount.

W. H. CLEMENT, Superintendent. 19

CALIGRAPHIC BLACK LEAD PENCIL, Manufactured by E. Wolf and Son, 23 Church Street, Spitalfields, London.

The Caligraphic Pencils have been invented by E. Wolf and Son, after the expenditure of much time and labor. They are the result of many experiments; and every effort that ingenuity and experience could suggest, has been made to insure the highest degree of excellence, and the profession may rely upon their being all that can be desired.

They are perfectly free from grit; and for richness of tone, depth of color, delicacy of tint, and evenness of texture, they are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use.

The Caligraphic Pencils will also recommend themselves to all who use the Black Lead Pencils as an instrument of professional importance or recreation, by their being little more than half the price of other pencils.

An allowance will be made on every groce purchased by Artists or Teachers.

May be had of all Artists, Colourmen, Stationers, Booksellers, etc.

A single pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

Caution.—To prevent imposition, a highly finished and embossed protection wrapper, difficult of imitation, is put around each dozen of Pencils. Each Pencil will be stamped on both sides, "Caligraphic Black Lead, E. Wolf and Son, London."

The subscriber has on hand a full supply of Wolf and Sons celebrated Creta Loevis, or Colored Drawing Chalks, also their pure Cumberland Lead and extra prepared Lead Pencils, and Mathematical Lead Pencils.

P. A. MESIER, Stationer and Sole Agent, No. 49 Wall Street.

N. B.—A complete assortment of Steven's Genuine Inks, Fluids, Imitating Wood stains, and Grain- ing Colours at the Manufacturers prices.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Allaire, } New York.
- Peter Cooper, }
- Murdoch, Leavitt & Co. }
- J. Triplett & Son, Richmond, Va.
- J. R. Anderson, Tredegar Iron Works, Richmond, Va.
- J. Patton, Jr. } Philadelphia, Pa.
- Colwell & Co. }
- J. M. L. & W. H. Scovill, Waterbury, Con.
- N. E. Screw Co. } Providence, R. I.
- Eagle Screw Co. }
- William Parker, Supt. Bost. and Worc. R. R.
- New Jersey Malleable Iron Co., Newark, N. J.
- Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly. 35 1y

FLAT BAR, ENGLISH ROLLED, RAILROAD IRON, 2 1/2 x 1/4—a large part suitable to relay. For sale by C. J. F. BINNEY, Commission Merchant, 1 City Wharf, Boston, Mass.

11 1m

TROY AND GREENBUSH RAILROAD. Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at 6 1/2 A.M.	Leave Albany at 7 A.M.
" " 7 1/2 " " " 8 " "	" " 8 " " " 9 " "
" " 8 1/2 " " " 9 " "	" " 9 " " " 10 " "
" " 9 1/2 " " " 10 " "	" " 10 " " " 11 " "
" " 10 1/2 " " " 11 " "	" " 11 " " " 12 M.
" " 11 1/2 " " " 12 P.M.	" " 1 1/2 P.M.
" " 1 " " " 2 1/2 " "	" " 2 " " " 3 " "
" " 2 " " " 3 1/2 " "	" " 3 " " " 4 1/2 " "
" " 3 " " " 4 " "	" " 4 " " " 5 " "
" " 4 " " " 5 1/2 " "	" " 5 " " " 6 " "
" " 5 1/2 " " " 6 1/2 " "	" " 6 " " " 7 " "

The 6 1/2 a.m. and 2 o'clock p.m. runs from Troy, to Boston runs.

The 12 m. and 6 o'clock p.m. trains from Boston runs.

Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT, Superintendent. Troy, April 1st, 1846. 14 1y

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE, j245 N. E. cor. 12th and Market sts., Philad., Pa.

THE SUBSCRIBERS, AGENTS FOR the sale of Codorus, Glendon, Spring Mill and Valley, Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L. KIMBER, & CO., 59 North Wharves, Philadelphia, Pa. Jan. 14, 1846. [1y4]

RAILROAD IRON AND LOCOMOTIVE
Tyres imported to order and constantly on hand
by **A. & G. RALSTON**
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS.
etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having to use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
Albany, N. Y.

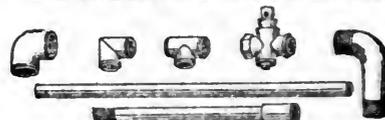
Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

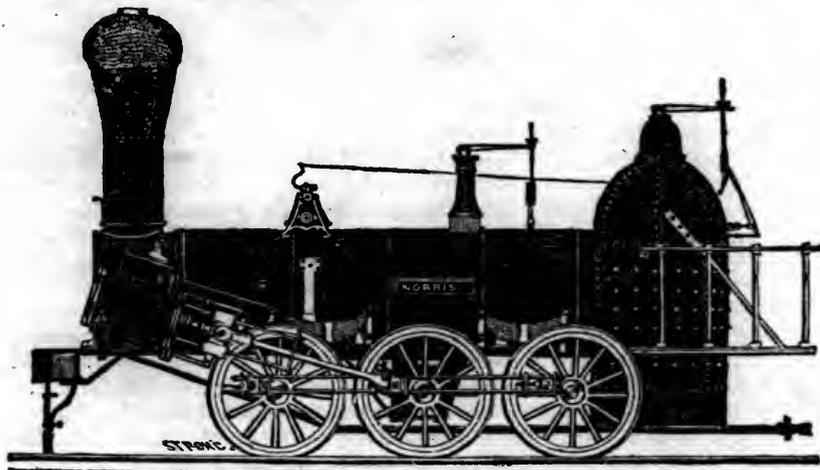
From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLOWS.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " × 24 " "
"	3,	14½	" " × 20 " "
"	4,	12½	" " × 20 " "
"	5,	11½	" " × 20 " "
"	6,	10½	" " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels or the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6¼ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00
" " " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to
STOCTON & FALLS, Agents.

GEORGE VAIL & CO., SPEEDWELL IRON

Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective iron and Brass Castings of all descriptions.
ja451y

NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee.
G. A. NICOLLS,

ja45 Reading, Pa.

RAILROAD IRON WANTED. WANTED, 50 tons of Light Flat Bar Railroad Iron. The advertisers would prefer second-hand iron, if not too much worn. Address Box 384 Philadelphia P. O.—Post paid. 8 4t

Blast Furnace.

The following "Observations" contain the substance of all the recent investigations into the Theory of the Blast Furnace. The clear and simple exposition of the subject is due entirely to Dr. Smith, whose reputation is a sufficient guarantee for the accuracy with which the views of various experimenters are condensed into a space better adapted to the taste and leisure of practical men, than that occupied by the original memoirs.

The importance of the paper required an earlier notice, but it is only recently that a copy of the article has reached us.

Observations on the more recent researches concerning the operations of the Blast Furnace in the Manufacture of Iron.—By Dr. J. L. Smith.

From Silliman's Journal for March, 1845.

The great difference existing between metallurgical operations of the present day, and those of a former period, is owing chiefly to the ameliorations produced by the application of the science of chemistry to the *modus operandi* of the various changes taking place during the operations, from their commencement to their termination.

Copper and some other metals are now made to assume forms in the chemist's laboratory, that formerly required great artistical skill for their production—the chemist simply making use of such agents and forces as are at his command, and over which he has, by close analytical study, acquired perfect control. Our object, at present, is only to advert to the chemical investigations more recently made on the manufacture of iron, treating of those changes that occur in the ore, coal, and flux, that are thrown in at the mouth of the furnace, and in the air thrown in from below. For most that will be said on this subject, we are principally indebted to the recent interesting researches of M. Ebelman.

The importance of a knowledge of the facts to be brought forward in this article, will be apparent to every one in any way acquainted with the manufacture of iron. It will be seen, that the time is not far distant when the economy in the article of fuel will amount in value to the present profit of many of the works. The consequences must be, that many of those works that are abandoned will be resumed, and others erected in localities formerly thought unfit.

It is well known that the blast furnace is the first into which the ore is introduced, for the purpose of converting it into malleable iron, and much therefore depends upon the state in which the pig metal passes from this furnace, whether subsequent operations will furnish an iron of the first quality or not.

In putting the blast furnace into operation, the first step is to heat it for some time with coal only. After the furnace has arrived at a proper temperature, ore, fuel and flux, are thrown in alternately in small quantities, so as to have the three ingredients properly mixed in their descent. In from 25 to 48 hours from the time when the ore is first thrown in, the entire capacity of the furnace, from the tuyer to the mouth, is occupied with the ore, fuel, and flux, in their various stages of transformation.

In order to explain clearly, and in as short

space as possible, what these transformations are, and how they are brought about, we may consider:—1. The changes that take place in the descending mass, composed of ore, fuel and flux.—2. The changes that take place in the ascending mass, composed of air and its hygrometric moisture, thrown in at the tuyer. 3. The chemical action going on between the ascending and descending masses.—4. The composition of the gases in various parts of the furnace during its operation.—5. The causes that render necessary the great heat of the blast furnace.

1. *Changes that take place in the descending mass, composed of ore, coal and flux.*—By coal is here meant charcoal; when any other species of fuel is alluded to, it will be specified. In the upper half of the fire-room, the materials are subjected to a comparatively low temperature, and they lose only the moisture, volatile matter, hydrogen, and carbonic acid, that they may contain; this change taking place principally in the lower part of the upper half of the fire-room.

In the lower half of the fire-room, the ore is the only material that undergoes a change, it being converted wholly or in part into iron or magnetic oxide of iron—the coal is not altered, no consumption of it taking place from the mouth down to the commencement of the boshes.

From the commencement of the boshes down to the tuyer, the reduction of the ore is completed. Very little of the coal is consumed between the boshes and in the upper part of the hearth; the principal consumption of it taking place in the immediate neighborhood of the tuyer.

The fusion of the iron and slag occurs at a short distance above the tuyer, and it is in the hearth of the furnace that the iron combines with a portion of the coal to form the fusible carburet or pig-iron. It is also on the hearth that the flux combines with the siliceous and other impurities of the ore. This concludes the changes which the ore, coal and flux undergo from the mouth of the furnace to the tuyer.

If the fuel used be wood, or partly wood, it is during its passage through the upper half of the fire-room that its volatile parts are lost, and it becomes converted into charcoal. M. Ebelman ascertained that wood, at the depth of ten feet, in a fire-room twenty-six feet high, preserved its appearance after an exposure for $1\frac{1}{2}$ of an hour, and that the mineral mixed with it preserved its moisture at this depth; but three and a half feet lower, an exposure of $3\frac{1}{4}$ hours reduced the wood to perfect charcoal, and the ore to magnetic oxide. The temperature of the upper half of the fire-room, when wood is used, is lower than in the case of charcoal, from the great amount of heat made latent by the vapour arising from the wood. In the case of bituminous coal, Bunsen and Playfair find that it has to descend still lower before it is perfectly coked.

After the wood is completely charred, or the coal become coked, the subsequent changes are the same that happen in the charcoal furnaces.

2. *Changes that take place in the ascending mass, which is composed of air and hygrometric moisture.*—The weight of the air thrown in at the tuyer in twenty-four hours is twice that of the ore, coal and flux, thrown in at the mouth during the same time.

The air, as soon as it enters the tuyer and reaches the first portion of coal, undergoes a change—its oxygen is converted into carbonic acid, and its moisture decomposed, furnishing hydrogen and carbonic oxide—after ascending a short distance (12 or 18 inches), the carbonic acid is converted into carbonic oxide—between this point and the upper part of the boshes it undergoes but very little change, having added to it a further small amount of carbonic oxide. So the ascending column at the top of the boshes is composed of nitrogen, carbonic oxide and hydrogen—from this point it begins to undergo a change; the carbonic oxide diminishes, carbonic acid appears, and goes on increasing for about half the way up the fire-room; after which the carbonic acid, carbonic oxide, and nitrogen remain the same, when the hydrogen increases, and moisture begins to appear and augment up to the mouth. The ascending mass, as it passes out of the mouth, contains the vapour of water, carbonic acid, carbonic oxide, hydrogen, and nitrogen. The nitrogen undergoes no alteration in its passage through the furnace, and the same is true of the hydrogen formed at the tuyer.

If wood be used, the gases passing out of the mouth are the same as those just mentioned, with an increased quantity of moisture, and the addition of those pyroligneous products arising from the dry distillation of wood.

In case of the use of bituminous coal, the gases, first alluded to, have added to them ammonia, light carburetted hydrogen, elephant gas, carburetted hydrogen of unknown composition, and sulphuretted hydrogen.

3. *The chemical reaction occurring between the ascending and descending masses.*—From the foregoing statements we can at a glance see what are the materials to be met with in the different parts of the furnace, and can therefore readily study their reactions upon each other.

In the upper half of the fire room little or no chemical action is taking place, the ore, flux and coal, as already stated, simply losing their volatile parts. In the bottom of the upper half and the entire lower half of the fire room a reaction is taking place between the ore and the carbonic oxide of the ascending column; iron or magnetic oxide of iron and carbonic acid being the result. It must be borne in mind that the coal has played no part in this reduction down to the commencement of the boshes. Between the boshes, and in the hearth, no reaction appears to take place between the ascending and descending masses, but the reduction of the ore is completed by the direct action of the coal upon the remaining portion of the undecomposed ore; carbonic oxide being formed;—and here is the first consumption of the coal in its passage downwards.

According to M. Ebelman, the ore lose

in the fire-room $\frac{2.8}{3.3}$ of its oxygen by the reaction of the oxide of carbon, and the remaining $\frac{5.5}{3.3}$ disappears in the boshes and hearth, in the manner already stated, at the expense of from $\frac{1.0}{1.0}$ to $\frac{1.2}{1.0}$ of the entire amount of charcoal used.

The ore being now completely reduced, unites with a portion of carbon in the hearth, melts at about 13 inches from the tuyer, and descends into the crucible; and here also the flux, combining with the impurities of the ore, forms the slag, which melts.

The coal and the air react upon each other most powerfully, just in the neighborhood of the tuyer, where the most intense heat is produced; the oxygen becomes converted into carbonic acid, which acting upon a portion of the ignited coal, is almost at the same moment reduced to carbonic oxide; the moisture of air acting on the ignited charcoal undergoes the decomposition already mentioned, hydrogen and carbonic oxide resulting therefrom.

When the ore is easy of reduction, the gas at the boshes is represented by 100 nitrogen and 52.5 carbonic oxide, plus the quantity of carbonic oxide and hydrogen afforded by the moisture.

It must be clearly understood, that these rules do not apply to every variety of ore. They are especially applicable to the hematites and such ores as are either naturally porous or become so in their passage through the fire-room of the furnace, thus increasing the surface of contact exposed to the action of the reducing agent (carbonic oxide), so that when it has reached the boshes the reduction is nearly complete.

The specular, magnetic, and siliceous ores, are reduced with much more difficulty; most of the ore, in these cases, reaching the boshes but slightly altered, they being principally dependant upon the direct action of coal for their reduction. This circumstance largely increases the consumption of coal when any of these ores are employed; and the amount of caloric made latent, in consequence of the reduction requiring the direct action of the coal, is very great; whereas in the reduction of the ore by carbonic oxide no heat becomes latent, for the heat rendered latent by the oxygen of the ore becoming gaseous, is compensated by the sensible heat produced by the combination of the carbonic oxide with the oxygen. Where the reduction is produced by the carbon, with the formation of carbonic oxide, 1598 unities of heat are made sensible, while 6216 are rendered latent, giving a difference of absolute loss of 4618.

It should be the object of the metallurgist to reduce as much of the iron as possible by the oxide of carbon. Magnetic, siliceous, and other hard ores, should be reduced to smaller fragments than those softer and more easily managed. Were it possible to reduce them to powder without the danger of choking the furnace, it would be all the better, as the great object is to have a large extent of surface exposed to the carbonic oxide. The different capacity of different ores for reduction shows the necessity of having furnaces of different dimensions for them respectively.

The matter which covers the melted metal in the crucible, and that which adheres to the interior of the hearth, contains silicate of iron and charcoal in a pasty state, and there is consequently a constant reduction of the oxide of iron, which gives rise to carbonic oxide; this gas bubbles through the slag, which, if drawn off at this time, will, when cold, present a porous structure,—a sure indication that the furnace is not working well, and that the slag, itself contains much of the ore in the form of a silicate.

4. Composition of the gas in various parts of the furnace during its operation.—The analysis lately made by Ebelman are the most accurate and best detailed that we are in possession of. What follows has reference to a furnace worked with charcoal.

Gas taken from the mouth of the furnace and dried:

Carbonic acid.....	12.88
Carbonic oxide.....	23.51
Hydrogen.....	5.82
Nitrogen.....	57.79

The vapor of water in a hundred columns of this gas, varies from nine to fourteen volumes. Examinations made at different times show the proportion of hydrogen to be nearly uniform, and that the sum of the volumes of carbonic acid and carbonic oxide is constant, but that there is a variation in their respective proportions.

Gas taken from the interior of the fire-room at 5 to 10, and 13 to 17 feet from the mouth (fire-room 36 feet). From five to ten feet the proportion of moisture diminishes, the other ingredients remaining about the same. From 13 to 17 feet the proportion of carbonic oxide increases, while the carbonic acid and hydrogen diminish.

Gas from the bottom of the fire-room and top of the boshes:—This is remarkable for the constancy of its composition, and for the absence of carbonic acid and watery vapor.

Composition:—

Carbonic oxide.....	35.01
Hydrogen.....	1.92
Nitrogen.....	63.07

Gas from the bottom of the boshes and commencement of the hearth:—

Carbonic acid.....	0.31
Carbonic oxide.....	41.59
Hydrogen.....	1.42
Nitrogen.....	56.68

Gas from the neighborhood of the tuyer:

Carbonic oxide.....	51.35
Hydrogen.....	1.25
Nitrogen.....	47.40

The two last statements would appear to contradict the rules previously laid down, as regulatung the operation of the blast furnace; for, according to them, the proportion of carbonic oxide, at the top of the boshes, should be a little greater than in the hearth, whereas the reverse would appear to be the case by the analysis here given. Besides, from a glance at the composition of the three last gases alluded to, it would appear that the gaseous products, as they ascended the furnace, lost completely a portion of the carbonic oxide, without a replacement by carbonic acid or other compound; in other words, a portion of it would appear to be completely annihi-

lated, which of course is an impossibility. This apparent anomaly is easily accounted for, when it is stated how the gas was collected.

In order to obtain the gas from different portions of the furnace, holes were bored into the side, and a tube inserted, by which it was drawn off. Allusion has already been made to the fact that a pasty mass adheres to the sides of the hearth, containing silicate of iron and charcoal, in which there is a constant reduction of the iron, with the formation of carbonic oxide. Now it is evident that the gas drawn off by a hole bored into the side of the hearth, will be largely mixed with this carbonic oxide forming in the immediate neighborhood of the opening, and that it cannot serve as an index to the character of gas passing through the centre of the hearth. M. Ebelman was aware of this fact, but he was not able to overcome the difficulties in the way of obtaining the gas under the proper circumstances.

Gas taken at the tuyer.—Here it is little else than atmosphere mixed with a few per cent. of carbonic acid.

From these results it will not be difficult to admit, that the oxygen of the air is converted immediately into carbonic acid, which is rapidly changed into carbonic oxide, under the influence of an excess of carbon and the high temperature developed near the tuyer.

5. The causes that render necessary the great heat of the blast furnace.—The weight of the ore, flux, and combustible, which enters the furnace, being only one-half that of the ascending column, and as the specific heat of these three materials is very much below that of the gas of the ascending mass, it is not the heating of them that explains the necessity of the very great heat of the blast furnace. But the principal cooling causes are,—

1. The drying of the ore, flux and coal, and the expulsion of carbonic acid from the flux, etc., rendering much of the heat latent; for what was solid is now transformed to the gaseous state.

2. The reduction of the ore, or in other words, the transformation of the solid oxygen of the ore into gaseous oxygen. If the ore has been deprived of its oxygen by the action of carbonic oxide, with the formation of carbonic acid, the heat rendered latent by the oxygen, is compensated for by the heat developed by the reaction between the oxygen and carbonic oxide; which is the character of the operation that principally takes place in the lower part of the fire-room. If the ore has been deprived of its oxygen by the direct action of the coal, the amount of heat rendered latent is enormous, as already stated; for carbonic oxide is the result of this reaction, and the amount of heat developed by it falls far short of that rendered latent by the oxygen that has entered into its formation, assuming the gaseous condition,—this is the character of the reduction taking place in the boshes and hearth.

3. The conversion of the carbonic acid near the tuyer into carbonic oxide has a powerful influence in cooling the upper part of the hearth; for of the 6260 units of heat formed

by the first action of the air upon the coal, 4662 are rendered latent by the conversion of this carbonic acid into carbonic oxide.

This terminates what it was proposed to treat of; it is little else than a sketch of the chemistry of the blast furnace, sufficient to show its importance.

In a future article, some remarks will be made upon the amount of combustible lost in the operation of this furnace, the recent methods employed to prevent this loss in the complete combustion of coal, the action of the hot blast, theory of the refining furnace, charring of wood, and other points of interest.

The Alterations to be Effected in the "Great Britain" Considered, and the Virtues of the Screw Propeller still further Developed.
By Commander J. C. Hoseason, R. N.

"Says Hudibras to Don Fernando,
What can a screw do more than it can do?"

Sir:—When last I had the pleasure of addressing to you a letter upon the properties of the screw propeller, I had not the advantage which I now possess, of knowing the various opinions of nearly all the parties who were present during the experimental trips of the *Rattler* and *Alecto*; but I have since had the good fortune to be introduced to many others, who authenticate to the letter every objection raised by me in your magazine of January 24, 1846. I am therefore not at all astonished to learn that the proprietors of the *Great Britain* deem it necessary to make most important alterations in the masting of that steamer; the nature of which alterations clearly proves that they no longer consider the screw propeller in any other light than that of a mere auxiliary; and thus a steam vessel which it was affirmed would be the fastest out of the ports of England, will soon, despite her thousand nominal horse power, sink into so insignificant a position as hardly to be able to hold her place amongst the American sailing packets. I should not consider it my duty to comment further upon this vessel; but that the baneful influence of the erroneous opinions entertained by the projectors of that *sad* scheme, made converts of others, and induce them to advocate, without sufficient consideration, a too general adoption of the screw propeller into the navy.

Amongst the manifold mischiefs attendant upon the screw as a propeller, there is one, marked, clear, and decisive; but which, from the nature of the line of argument adopted by me, could not find place in my last letter. I here speak, sir, of the frightful and dangerous rolling which is the inevitable consequence of this mode of propulsion. Engineers too often hold in sovereign contempt the long tried experience of the seaman; they consider their theoretical notions of the action of a sea upon a steamer as more infallible than the laws of the Medes and Persians: and you may labor in vain to convince them that your practical experience, acquired in every variety of weather, is not to be held in contempt or despised with impunity.

I may safely affirm that my profession, almost to a man, came very early to the conclusion, that the results of the experiments with screw propellers were anything but satisfac-

tory; and the most they deemed it right and proper to recommend was, that still further experiments ought to be carried out.

The ruin of a company possessed of a handsome capital, will I trust, act as a salutary lesson, and induce engineers the more readily to believe for the future, that their theoretical deductions will often be found diametrically opposed to facts.

I now hear that the engineers of the Great Western company hope to make a material decrease of the frightful rolling of the *Great Britain*, by placing whale pieces along each bilge, of 110 feet long, 2 feet wide, and 2 feet deep!! This will most effectually retard the velocity of the *Great Britain* through the water, but will not, I take it, materially decrease her propensity to roll, particularly when under steam, with the wind about two points on the bow.

The simple cause of her terrific rolling is that she is not a paddle wheel steamer; for were she so, the wheels would effectually serve to check so great a defect, for the weather wheel would require a powerful force to raise it out of the water, and the lee wheel a still greater force to immerse it; thus, then, most powerful counteracting effects would be in full operation to bring within some degree of limitation so dangerous and mischievous a tendency.

It is curious that engineers seem entirely ignorant of the very simple fact, that a dismasted ship rolls most dangerously, so much so, that after a general action, it has been hardly possible to stand upon the vessel's deck; now, a steamer in a heavy swell, and not under canvass, may be likened to a dismasted ship; and nothing but what has been deemed the unsightly paddle wheels, will be found to counteract so injurious a defect.

I am now in a position to place before you some interesting experiments which have been carried out on board the *Bee* steamer, at Spithead, which is, as you are aware, built so that the engines can work alternately, or even simultaneously, both the screw and the paddle wheel.

In consequence of my stating in my letter, published in your magazine, that the screw steamer's engines would be required to be kept nearly at a maximum, whatever the velocity of the steamer might be through the water, the officers of the royal naval college, at Portsmouth, have very properly been carrying out experiments to set so simple a matter at rest. The following is an extract from a letter, which the writer has received, giving the results of these experiments:

Portsmouth, April 4, 1846.

"The screw is now in the *Bee*, and the other day, at Spithead, head to wind and sea, she was going but one knot with 33 revolutions per minute, and with the same wind, had the paddles been on, she would have gone four knots. We tried her with the expansion gear on 23 revolutions against a fresh breeze; she went only one quarter of a knot, just holding her own; now with the paddle wheels, with that number of revolutions, and the same force of wind, (about 5,) she would have gone three knots. When we went be-

fore the wind with the expansion gear, she went four knots; mark the slip of the screw in the case of the steamer going head to wind when compared to running before it. The experiments I intended to make are vitiated, in consequence of the new screw having too much surface: the engines at full speed only making 34 revolutions per minute, when they should be 40, that being the power of the boiler, and the same that the wheels are proportioned to balance."

Now Mr. Editor, I wish to point out a simple truth or two deduced from the above experiments, that to obtain a velocity of only one knot per hour against a head sea, the revolutions were forced to be kept up within one of the maximum; and that when the expansion gear was put on, with the view to reduce the speed of the engines and economize fuel, twenty-three cylinders full of steam per minute were consumed in standing still!! Oh, most admirable virtues of the screw! Only fancy a steamer burning fuel to all eternity while standing still! This is to the letter all that I have written and predicted of the screw.

Had the patentee of the screw not increased its surface, the effects would have been even worse against a head sea. The following is from another letter from Portsmouth:

"The *Bee's* screw is unshipped to reduce the surface of the screw, so that we can work up to the full power of the boiler; of course we shall have a greater per centage of slip, more especially when head to wind and sea."

You will perceive, Mr. Editor, from the perusal of the above, that two sorts of screws, at least, are necessary to be fitted for each vessel, the one for smooth water, and the other to be used against a head wind and sea.

I have heard that some frantic schemer made a proposition to have several different screws fitted, to meet these variable circumstances, the same to be thrown into gear as need might be! Just imagine for a moment your being under the necessity of stopping your engines in a heavy gale of wind, upon a lee shore, to ship and unship screws varying in weight from two to four tons!

The *Rattler* on her last cruise unshipped her screw, to place her under sail alone, as she could not steam off a lee shore, and the following day was not able to ship her screw even in a dead calm! So much for the anticipations of landsmen.

The *Phanix* screw steamer in a moderate gale, when head to wind, absolutely—so the officers state—stands and looks at it—the engines working at heaven knows what number of revolutions, and consuming no end of fuel, standing still! Behold what science has effected at last. A steamer of 260 horse power and 800 tons burden, burning away fuel without any limit, and not advancing one foot towards her destination!

I presume, sir, you have read in the daily papers of the *Massachusetts* auxiliary screw steamer, which vessel was so much eulogized in your magazine by her owners. She just took forty-two days to perform her last voyage to New York; thus demonstratively establishing the fact by that, as well as all pre-

vious voyages, that her auxiliary screw has only been an effectual retarding power.

I cannot conclude this important letter, written with the single object of eliciting the truth, without clearly and distinctly stating that I am personally unacquainted with every individual connected with the Great Western company, and also with nearly all the patentees of the screw propellers, whose interests may be affected by this as well as my former letter. No individual more admires the mass of talent, whose interests are involved, than the writer; nor should I have considered myself called upon to write a single line in your magazine, but to guard my profession against having foisted upon them the erroneous opinions of others. The vessels whose performances I have criticised, have hitherto afforded themes of inexhaustible panegyric—the papers have for more than a year past teemed with most laudatory accounts of their beautiful performances, the public, misled by what they have seen and heard have called aloud for the universal adoption of the screw into the navy—and public lecturers have pointed out the necessity of no further delay. The writer then thought it high time to step forward to rescue his profession from the mischief which its too general adoption would give rise to. His first letter told with fearful effect; this second will settle the question for ever.

"Magna est veritas et pravelebit."

Your obt. servant,

J. C. HOSEASON, Commander, R. N.
Army and Navy Club,
St. James's Square.

April 22, 1846.

Power to overcome inertia of Railway Trains.

Paper read at the Royal Society, on the *Investigation of the power consumed in overcoming the Inertia of Railway Trains, and of the Resistance of the Air to the Motion of Railway Trains at high velocities*, by P. W. BARLOW, Esq.—The object of the author in this inquiry is to obtain a more correct knowledge than has hitherto been possessed of the resistance which the air opposes to the motion of locomotive engines at high velocities, and of the loss of force arising from increased back pressure, and the imperfect action of steam. For this purpose he institutes a comparison between the velocities actually acquired by railway trains with those which the theory of accelerated motion would have assigned; and his experiments are made not only on trains propelled by a locomotive engine, but also on those moving on the atmospheric railway, which latter afford valuable results, inasmuch as the tractive force is not subject to the losses at high velocities necessarily incident to locomotive engines. A table is given of the theoretical velocities resulting from calculations founded on the dynamical law of constant accelerating forces, in the case of trains of various weights, impelled by different tractive forces, moving from a state of rest, and is followed by another table of the observed velocities in Mr. Stephenson's experiments on the Dalkey line;

the result of the comparison being that, in a distance of a mile and a quarter, the loss of velocity is about one-half of the observed velocity. A series of experiments on locomotive lines is next related; but the comparison is less satisfactory than in the former case, because the tractive force cannot be so accurately estimated; it is, however, sufficiently so to establish the fact, that the power lost by the locomotive engine below the speed of thirty miles per hour, is so small as to be scarcely appreciable; and that the time and power which are absorbed in putting a railway train in motion are almost entirely required to overcome the inertia of the train, and do not arise from any loss or imperfection of the engine. It appears from these experiments that above one-fifth of the whole power exerted is consumed in putting the train in motion at the observed velocity. In the atmospheric railway the author finds that the tractive force of a fifteen-inch pipe is so small (being less than half that of a locomotive engine) that the time of overcoming the inertia must limit the amount of traffic on a single line, especially with numerous stations. When a great velocity is obtained, the tractive force of the locomotive is much reduced, and, therefore, a much greater velocity can be attained on an atmospheric railway. The inquiries of the author into the amount of resistance exerted by the air on railway trains, lead him to the conclusion that on the atmospheric railway the loss of the tractive power of the piston from friction, etc., is very considerable, and that the resistance of the air is less than had been hitherto estimated, not exceeding, on an average, ten pounds per ton on the average weight of trains. A tabular statement is then given of the results of the experiments made by the British Association for the purpose of comparison with those obtained by the author. The general conclusion which he arrives at is, that the resistance of air in a quiescent state is less than had been previously estimated, and that the ordinary atmospheric resistance in railway progression arises from the air being generally itself in motion, and, as the direction of the current is not always oblique, from its producing increased friction in the carriages. This kind of resistance will not increase as the square of the velocity; and as it is the principal one, it follows that the resistance to railway trains increases in a ratio not much higher than the velocity, and that the practical limit to the speed of railway traveling is a question, not of force, but of safety.

Resistance of Railway Trains—Dynamometers.

At a recent meeting of the Institution of Civil Engineers, a discussion on the resistance of bodies moving through fluids took place, which in the end turned upon railway resistance. We give it as interesting and containing new statements upon this point. The method of recording resistance by the apparatus of M. Morin will be found fully described in this journal in the memoir of M. Morin on friction—July, 1842, p. 5, vol. IX, 2d ser.

“Mr. Scott Russell gave an account of the experiments tried by him on vessels of large tonnage, dragging them through the water

by a steam tug, and recording the resistance by a dynamometer, the peculiarities of which he described, and exhibited the diagrams produced by it, both with steam vessels and with locomotive engines. The instrument consisted of two pair of plate springs of a parabolic form, as designed by M. Morin, and so proportioned as to have an equal degree of flexure throughout their length. Four self-inking pens, with different ink, recorded upon long strips of paper wound upon bars, all the effects of resistance, etc., by a series of curves, the area of which were afterwards measured by a simple self-registering instrument, which he also exhibited. For measuring the velocity, he used the Pitot's tube; and of its correctness he spoke in the highest terms. Mr. Rennie's experiments on the subject were also discussed, as were also those of Colonel Beaufoy, of Mr. Palmer, Sir John Macneill and Mr. Walker, and the various results arrived at were compared. The general result appeared to be, that with regard to vessels, no general law would be universal in its practical application, as it must be modified by circumstances due to the forms of the vessels, the lateral friction, and numerous causes, all of which must influence the results.

“The application of the dynamometer to testing the resistance of railway trains was then discussed, and the members were generally surprised to find so small an amount of inequality of action at the starting of a train, and how soon the diagram showed comparative steadiness of traction. Still the delicacy of the instrument was such as to indicate distinctly every change of gradient, and even the entering and leaving a cutting or tunnel, showing the greater or less influence of the wind. The usual dynamometers with helical springs, and pistons working in oil, were shown to be for such purposes nearly useless, as they smothered the results. It was stated that the table of the force of wind at certain velocities, as given in Smeaton's Reports, was erroneous by 50 per cent., and that the front and the lateral action of the air upon a train constituted a large portion of the actual resistance. It was necessary to make these corrections, which, when made, showed an extraordinary accordance between the calculated resistance and that absolutely recorded by the instrument. The results given showed that a change must take place in the usual allowance for resistance on railways. These tables were promised to the institution within a short time.”

Norwegian Railways.—A letter from Norway, dated March the 26th, is quoted by the London Daily News, as stating that Mr. G. Crowe, consul general for England in Norway, has obtained from the government (subject to the approbation of the Storting) authority to establish a series of railroads, whose principal lines will have their centres in the capital. This gentleman has informed the minister of the interior that three principal banking houses in London—those of Messrs. Coutts, Masterman, and Hanbury—have subscribed £100,000 sterling each for shares in this undertaking.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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Wire Suspension Bridge over the Monongahela, at Pittsburg.

It is with more than ordinary pleasure that we lay before our readers the drawing and description of this work of our esteemed friend and correspondent, JOHN A. ROEBLING, C. E. The readers of this Journal will remember that for years we have employed every opportunity to urge the superiority of wire suspension bridges. Mr. Roebling furnished us with several articles upon the subject in 1841—and these, together with a translation of a memoir of Le Blanc, made expressly for the Journal, and published in vol vii, new series, p. 33, 1841, give about as much information on wire suspension bridges, as can be found in any American work.

The construction of the Fairmount bridge, at Philadelphia, by Mr. Ellet, [for a description and illustration of which, see Railroad Journal, vol. iv, new series, 1840, page 129,] and of the aqueduct at Pittsburg, by Mr. Roebliag, has at last encouraged us to hope that wire bridges are soon to replace the costly, ugly and unsafe structures so common throughout the country. The aqueduct is hardly finished, before we hear of a new work of Mr. Roebling, and next that it is finished and in use. This work, the Monongahela bridge, is a credit to Pittsburg, and to the ingenious constructor—the test which it will afford of this system of construction will be conclusive, as the traffic is a very heavy one, as will be seen from the description.

We consider the aqueduct, however, as the greater work, as it offered greater difficulties, and required greater skill. Had this mode of construction been adopted for the Croton aqueduct at the Harlem river, as we repeatedly advised, an immense amount of money might have been saved to the city of New York—and the work completed long since.

The test to which this beautiful structure has been subjected will, we think, convince those who have heretofore doubted, that the suspension bridge may be adopted, not only with entire safety, but also with great economy, on railroads; and more especially where the span and height are necessarily great—as will be the case in passing the Connecticut river, at Middletown, for the New York and Boston contemplated direct railroad; and over the Ohio at Pittsburg, at Wheeling, and at Cincinnati; and over the NIAGARA, just below the FALLS, to connect the Rochester and Niagara Falls railroad with the Gt. Western railroad, from Niagara Falls and Hamilton [C. W.] to Detroit—in relation to all which, Mr. ROEBLING has, we understand, been consulted.—These, if constructed upon the plan of Mr Roebling, will be works of great beauty and strength—especially the one at Pittsburg—which is designed to be

a tri-partite structure, or to span in three directions from a centre pier, and thus connect the point of land between the two rivers with the opposite bank of each; and that at Niagara—which will be 750 feet long, and over 200 feet high—will be second only, as a curiosity, to the cataract itself. We hope, therefore, that it may be speedily commenced and early in successful use.

The rapid extension of railroads in this country will require a vast number of bridges, and it may be well for those who have them to construct, to investigate the relative merits of the different kinds of bridge now in use, before they decide upon the plan to be adopted.

Those who desire information in relation to the suspension plan, can obtain it, of the most reliable character, by addressing the gentleman who constructed this beautiful work, at Pittsburg, where he now resides.

In giving this beautiful illustration of the Monongahela bridge, we must not omit to give proper credit to the artist who executed it on stone in such beautiful style. It shows to what excellence the lithographic art has attained in this country, and we most cordially recommend him to all those who desire services of a similar character, either for railroad or other works: and we shall at all times be gratified to aid our railroad friends, when they desire his services.

For the American Railroad Journal.

The new suspension bridge over the Monongahela river at Pittsburgh, was commenced in June, 1845, and opened for travel in February, 1846. The piers and abutments of the old wooden structure, which was destroyed by the great fire, required extensive repairs to be fitted for the reception of the new superstructure. The whole length of the work between the abutments is exactly 1500 feet, and is divided in eight spans of 188 feet average distance from centre to centre. The piers are 50 feet long at bottom 36 feet high, and 11 feet wide on top, battering 1 inch to the foot.

Two bodies of substantial cut stone masonry, measuring 9 feet square and 3 feet high, are erected on each pier, at a distance of 18 feet apart. On these the bed plates are laid down for the support of the cast iron towers, to which the wire cables are suspended by means of pendulums. Each span being supported by two separate cables, there are, therefore, 18 cables suspended to 18 towers.

The towers are composed of four columns, moulded in the form of a two-sided, or cornered, pilaster; they are connected by four lattice pannels, secured by screw bolts. The pannels up and down stream close the whole side of a tower, but those in the direction of the bridge form an open doorway, which serves for the continuation of side-walks from one span to the other.

On top of the pilasters or columns, a massive casting rests, which supports the pendulum to which the cables are attached. The upper pin of the pendulum lies in a seat which is formed by the sides and ribs of a square box occupying the centre of the casting. For the purpose of throwing the whole pressure upon the four columns underneath, 12 segments of arches butt against the centre box and rest with the other end upon the four corners.

The pendulums are composed of four solid bar of 2 feet 6 inches long, from centre to centre of pin, 4 inches by one inch—the pins are 3 inches in diameter. To the lower pin, the cable of one span is attached directly, and the connection formed with the next cable by means of four links of 3 feet 6 inches long and 4 inches by 1½ inch.

The opposite cables, as well as the pendulums, are inclined towards each other—the distance between being 27 feet at the top of the towers, and 22 feet at the centre of a span. The pendulums on the abutments, however, occupy a vertical position.

The two sidewalks are outside of the cables, and 5 feet wide. The roadway between is contracted to 20 feet, and separated from the sidewalks by fender rails, which are raised from the floor by means of blocks of 6 inches high, 8 feet apart. The total width of the bridge between the railings, is 32 feet.

The anchor chains which hold the cables of the first and last span, are secured below ground in the same method which was applied to the aqueduct—their oxidation is guarded against in the same manner.

The cables are 4½ inches in diameter, and protected by a solid wrapping; they are assisted by stays, made of 1½ inch round charcoal iron; the suspenders are of the same material, 1½ inch diameter, and placed 4 feet apart.

The peculiar construction of the Monongahela bridge was planned with the view of obtaining a high degree of stiffness, which is a great desideratum in all suspension bridges: this object has been fully attained. The wind has no effect on this structure, and the vibrations produced by two heavy coal teams, weighing 7 tons each and closely following each other, are no greater than is generally observed on wooden arch and truss bridges of the same span. This bridge is principally used for heavy hauling; a large portion of the coal consumed in the city of Pittsburgh passes over it in four and six horse teams.

As a heavy load passes over a span, the adjoining pendulums, when closely observed, can be noticed to move correspondingly—the extent of this motion not exceeding one half inch. By this accommodation of the pendulums, all jarring of the cast iron towers is effectually avoided. Another object of the pendulums is to direct the resultant of any forces to which the work may be subjected, through the centre of the towers, as well as of the masonry below.

Two of the piers of the old structure had once given way in consequence of the shaking and pressure of the arch timbers, when subjected to heavy loads. Such an accident can never take place on the new structure, as the piers are only subjected to the quiet and vertical pressure of the towers.

I do not recommend the application of pendulums in all cases; but in this, it appeared to me the best plan which could be adopted.

The two towers on each pier are connected by a wooden beam, properly encased and lined by the same mouldings which ornament the top of the castings.

The lightness and graceful appearance of this structure is somewhat impaired by the heavy proportions of these connections, but I had to resort to it from motives of economy.

The whole expense of this structure does not exceed \$55,000—a very small sum indeed for such an extensive work.

A great portion of this work had to be done during last winter, and in cold weather; it was accomplished without any accident, with the exception of one of the workmen who was seized by fits and killed by falling off a pier.

TABLE OF QUANTITIES OF MONONGAHELA BRIDGE.

Length of bridge between abutments.....	1500 feet.
Number of spans.....	8
Average width of spans from centre to centre.....	188 feet.

Diameter of cables.....	4 1/2 in.
Number of wires in each.....	750
Weight of superstructure of one span, as far as supported by the cables.....	70 tons
Tension of cables resulting from it.....	122 "
Weight of four six-horse teams, loaded with 104 bushels of coal each.....	28 "
Tension resulting from it when at rest....	49 "
Weight of 100 head of cattle at 800 lbs....	40 "
Tension resulting from it when at rest....	70 "
Aggregate weight of one span as far as supported by the cables, plus 100 cattle at rest.....	110 "
Tension resulting from it.....	193 "
Ultimate strength of two cables.....	860 "
Section of anchor chains.....	36 in.
Section of pendulums.....	62 "

"All the materials of iron used in the construction of the Monongahela bridge, as well as of the aqueduct, were manufactured at Pittsburg. The wire was furnished by Messrs. R. Townsend & Co. and by Mr. S. M. Wickersham."

Iron Trade.

"By the Hibernia we have papers to May 16th.—by them we learn that the prices are well sustained, quotations showing a slight advance since the last arrival.

[From the Mining Journal May 16th.]

	£	s.	£	s.	d.
Bar a Wales—ton.....	8	10	8	5	0
" London.....	9	0	9	5	0
Nail rods.....	0	0	10	0	0
Hoop (staf.).....	11	0	11	5	0
Sheet.....	9	0	12	5	0
Bars.....	10	10	11	0	0
Welsh cold blast foundry pig.....	4	5	5	0	0
Scotch pig b Clyde.....	0	0	3	10	0
Rails.....	19	15	10	0	0
Russian, CGND c.....	0	0	16	0	0
" PSI.....	0	0	16	0	0
" Gourieff.....	0	0	14	10	0
" Archangel.....	0	0	13	12	6
Sweedish d, on the spot.....	0	0	11	10	0
" Steel, fagt.....	0	0	15	5	0
" " kegs e.....	0	0	14	5	0

From our correspondent.

Iron.—The transactions in Welsh and Staffordshire continue to be very limited, and quotations are scarcely supported; large sales of Scotch pig have been made within the last 10 or 12 days, said to be upwards of 20,000 tons; at prices varying from 65s. to 70s., with a few small parcels at 72s. 6d., but the market is flat again, with sellers at 70s. Our quotations for foreign are nominal, there being no sales made lately.

Communicated by Messrs. Whitcomb and Barton.

English iron continues firm, with a fair amount of business doing. A further advance has taken place in Scotch pig iron, and considerable transactions done at from 70s. to 72s. net cash, according to brand and number. We quote the price 72s. 6d. cash, and 75s. bill, at four months date, with a very firm market.

Glasgow Pig Iron.—May 14.—The market for pig iron has continued firm during the week, and closed to-day at 72s. 9d., net cash, for No. 1.—The extent of business has been very limited, and the export orders seem entirely exhausted for the present. There is consequently a reduction of about 10 per cent. on rates of freight of pig iron to foreign ports.

Important if true.—A letter, received this morning from Birmingham, announces the important branch of manufacture of iron as still continuing prosperous—there being many large orders on hand, which cannot be executed for a long time to come. The demand for locomotive engines is so great, that the large makers will not engage to execute fresh orders under three years. The agent of an extensive colliery proprietor, near Dudley, lately tendered a considerable order for engines, for mineral purposes—but it could not be undertaken within that period. The home consumption for iron is very brisk, particularly from the engineering department; there is therefore, now no prospect of a reduction in price.

Railway Speculation in England.

Our papers by the late arrival give, as far as we have been able to judge by a cursory examination, but a small hope for the abatement of the spirit of speculation; in fact there has been something of a revival. The recent measures of government for the relief of shareholders, have actually increased the gambling in stocks—only a new direction has been given to the current.

By the present regulations, a bill must be presented to the shareholder after sufficient notice, and unless a certain majority decide upon going on, the company must "wind up." With scarcely an exception, these meetings have resulted in a vote to go on, and in some cases this vote has been "almost" unanimous.

That it is impossible that a large proportion of the schemes now before parliament should go on to construction, we shall prove to our readers in another number. We have before us a valuable lesson, it is to be hoped that we may profit by it.

We are much indebted to "A Canadian" for his excellent notice of a great work, which we trust will prove the best kind of peace maker, and produce a more lasting and friendly union of interests than any annexation.

Our correspondent is in error, however, in saying that we have taken no notice of this undertaking, as will be seen by a reference to our last volume—pages 508, 587 and 729.

For the American Railroad Journal.

Sir: Among the many schemes which your paper advocates, with so much ability and zeal, I do not observe that the projected road from Rome, in the state of New York, to Kingston, in Canada, occupies any place. It may not be within your knowledge, or that of many of your readers, that the legislature of Canada has, during its present session, amended the charter of the Great Western railroad, by allowing that company to continue its road to Toronto, some thirty-six miles to the east of its former terminus—Hamilton. In connection with this amendment, the act incorporating the Wolfe Island, Kingston and Toronto road was so framed as to extend that line from the boundary line of the province opposite cape Vincent, (the proposed northern terminus of the Rome and Kingston road,) across Wolfe Island to Kingston, and thence across the north shore of lake Ontario to Toronto, a distance of about one hundred and forty-six miles.

At this latter place, the two roads would meet and a line of communication by railroad from Detroit, (the western terminus of the Great Western road,) through Canada to Kingston and cape Vincent be opened. This is the scheme: and now for the means of carrying it into execution, and the likelihood of that being done within a reasonably short period.

It will be within your recollection, that Sir Allan McNab, the president of the Great Western railroad company, visited Great Britain, in connection with the business of that company, in the summer of last year; his mission was to get the balance of the Gt. Western stock taken up in the English market. In this he succeeded, through the agency of Mr. Hudson and others, in a very short time. On Sir Allan's return to Canada, he met first the provisional committee of the Wolfe Island, Kingston and Toronto road; and subsequently a number of the citizens of Kingston, at a public dinner given to him by them, and gave on both occasions the strongest assurances that the English capitalists interested in the Great Western road would come to the assistance and support of the Wolfe Island, Kingston and To-

ronto road the moment a charter was procured for it. Subsequently, when the report of the preliminary survey of the road, with the statistical information accompanying it, was laid before the public and the importance of the work, as an auxiliary to the business of the great Western pressed upon the attention of the gentlemen interested in that road, a letter was sent out from England to Sir Allan McNab, authorizing him to sign the names of the English stockholders in the Great Western road to the petition for a charter for the Wolfe Island, Kingston and Toronto road, and Mr. Hudson, Mr. Moss, Mr. Masterman and others of the leading railroad men of the day, are now mentioned, and included by name, along with almost all our leading men in the act incorporating the last mentioned company. I need not dwell upon the ability of such men as I have named to carry a railroad, such as the one under consideration, into operation. They are the same men who sold out some two years ago the Gt. French road, which they had built and worked for several years, for seven millions of francs. They embrace, among themselves, a capital sufficient to build four or five such roads as ours, and their names carry influence enough in the English stock market to procure capital to almost any extent. Now these men are embarked with us in our road, they have evinced their will in the most earnest manner, and we know they have the means. I will mention one more fact in order to show the view taken in England on the subject of these roads—it is a fact which any of your readers can ascertain for themselves, by turning to a file of the London Times, viz: that the stock of the Great Western railroad, a Canadian enterprise, recollect, and one which is only just about to be entered upon, is quoted in that paper, the leading one of the day, and the position of which is a pledge for its accuracy, at 5 1/2 per cent. premium. A fact of this sort shows more satisfactorily than anything I can say, that the Canadian railroads are in high favor in England, and that stock in them is certain to be taken up. Unfortunately, a dispatch from the colonial secretary, Mr. Gladstone, to the different governors of North American colonies, instructs them not to give the royal assent to any bill incorporating a railroad, except after the persons applying for the charter shall have complied with the regulations in his dispatch, which are wholly inapplicable to Canada, having been framed with English feelings to counteract an inordinate railroad speculation—whereas, in Canada, instead of wanting our courage "slacked" in that manner, we want more "fire." Railroad enterprise wants to be fostered, not counteracted—on this account, the bill incorporating the Wolfe Island, Kingston and Toronto road, although it has received the sanction of both houses of parliament, will not become law probably for a couple of months. We are assured, however, in a letter from the member for Kingston, who had charge of the bill, that "the legislature and government of Canada will remonstrate so strongly against the impolicy of the restrictions insisted on by Mr. Gladstone, that there is little doubt that the bill will eventually receive her majesty's assent."

Thus stand our Canadian railroads. I have perhaps dwelt too long upon them; but I have done so with the view to show yourself, Mr. Editor, and the New York people, that no reasonable doubt can be entertained of their being constructed. I now turn to the bearing which they will have upon the business of this country and the United States, a subject which might be beneficially dilated upon at considerable length, but which I shall only touch so far as I conceive it to bear upon the proposition that it is

the interest of the "Empire city" to carry through the Rome and Kingston road without loss of time.

There are many merchants in your city fully alive to the importance and extent of what is termed "the Canadian business;" and who are also aware that it has increased with amazing rapidity in the last seven or eight years. What has hitherto been done, however, is but the commencement of the beginning—population has increased in Canada west during the last ten years faster than it has done in any state in the union—the business heretofore done between the United States and Canada has been wholly an *import* business on the part of the latter. Suppose Sir Robert Peel's free trade bill goes into operation—a similar action will take place here and in the United States.

A series of resolutions calling upon Great Britain to request the United States to remove all duties upon Canadian produce have already been laid before the Canadian house of assembly; they may or may not be adopted during the present session, but that they will follow the fate of Sir Robert Peel's bill eventually admits in my opinion, of no doubt. It then we are to have free trade on both sides of the St. Lawrence, what follows? This necessarily, that the great porportion of Canadian business will be done through the United States. Who will go or send round nearly two thousand miles by the Saint Lawrence, when they can arrive at the desired point, the Atlantic, by going through the United States, with a distance only of some four hundred miles. The position that the great current of business will run by the shortest route to the place of consumption or use, admits of no questioning. And if all obstacles are removed, and the thing left to itself, Canadian business will run to New York and Boston, as sure as the St. Lawrence runs to the Atlantic.

Now, Mr. Editor, the Boston people are "wide awake" on this point, so are the Montreal people, so are the Portland people, but so are *not* the New York people. The Montreal and Portland road has occupied a good deal of public attention, and has been noticed on several occasions in your Journal. What is the object and design of that road? Why, to attract the business of Canada to Portland and Boston. Who have been its warmest supporters? The Bostonians. The Plattsburg and Ogdensburg road stands precisely in the same position; it has been brought prominently before the public, the stock has been taken, the work is actually commenced—and who have been mainly instrumental? The Bostonians. The Canada business forms a large item in their estimate of its importance. It is said they have purchased one hundred thousand dollars worth of real estate in Ogdensburg, under the impression that place would become a great depot for Canadian trade. The Boston people make every exertion to attract this trade there; and the New Yorkers none. And yet the natural advantages are altogether in favor of New York. *Western Canada is Canada* for all commercial purposes—the exports of the province come together from that section. It was stated by the inspector general, the head of the fiscal department of the present administration in the Canadian house of assembly last month, and not denied by any one, that with the exception of peas and rye, the produce imported into Canada east through the Lachine canal from *Canada west exceeded the exports of the province*. Now, what does this show? Why, that Canada east, so far from being an exporting country is obliged to stop a portion for its own consumption from the abundance of the western province, on its passage through its territory. If this

be so the business of Canada west is what the people of New York should aim at. The construction of the Rome and Kingston road would necessarily give them this—by that route they can place Canada west *nearer them by two hundred miles* than it will be by either of the other railroads to Boston; they would have only *one hundred* miles of road to construct, while the others will have some *four hundred*—they will pass through a rich and fertile country, *amply competent, out of its own business, to sustain the road*, which will not be the case with either of the others. Every natural facility, too, is offered by their route, while obstacles of serious importance to any other but Boston people, present themselves on the others. In one of them, the Ogdensburg route, the crossing of lake Champlain will in the winter form a very cogent argument against the road; in the other, the Portland route, the road will pass through a country producing nothing, and when completed, will still leave a distance of ninety miles between its terminus and Boston, and both will leave the place whose business they wish to get, *two hundred miles further away* than it would be from New York, if the Rome and Kingston road were built.

The subject is amply capable of extension, but I feel that I have already trespassed too much upon your room. I could not have expressed myself more tersely, and said all I wished to say, or I would have done so. If my remarks do but attract your attention and interest, I feel that the Rome and Kingston road will have a far more able and experienced advocate than I have it in my power to be, and I shall be highly gratified with the result of my present communication. I am, Mr. Editor, your most obedient servant,

A CANADIAN.

Kingston, Canada, May 25th, 1846.

An Act Relating to Railroads.

The act of the Massachusetts legislature regulating the crossing of highway by railroad, contains some provisions worthy of notice.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

Sec. 1. Every railroad corporation which may hereafter construct a railroad across any turnpike, highway, or townway, shall construct it so as to cross over or under the turnpike, highway, or townway. And if the railroad shall be constructed to cross over the turnpike, highway, or townway, a sufficient space shall be left under the railroad conveniently to accommodate the travel upon the turnpike, highway, or townway—and such railroad corporation shall build, keep up, and maintain in good repair, such bridges, with suitable and convenient approaches thereto, as may be required to accommodate the travel upon the turnpike, highway, or townway, over such crossing, except such as are provided for in the second section.

Sec. 2. The county commissioners of the county in which such crossing is situated, upon the application of the railroad corporation, or of the proprietors of the turnpike, or of the selectmen of the town, or of the mayor and aldermen of the city in which the crossing is situated, after due notice to the railroad corporation, the proprietors of the turnpike, and such selectmen, or mayor and aldermen, not being themselves the applicants, and to any other person or parties, as they may direct—and, after hearing the parties, may authorize and require the railroad corporation to construct their railroad at such crossing, upon a level with the turnpike, highway, or townway, in such manner as they may direct; and if they shall consider it necessary, may require the railroad corporation to erect and maintain a gate across the railroad at such crossing, and to provide an agent to open and close the same, as is provided in the eightieth section of the thirty-ninth chapter of the revised statutes. And the railroad corporation shall pay the cost of every such application, excepting in cases where the county commissioners shall deny the application of the proprietors of a turnpike, or

the selectmen of any town, or the mayor and aldermen of any city.

Sec. 3. Every railroad corporation shall erect and maintain suitable fences, with convenient bars, gates, or openings therein, at such places as may reasonably be required, upon both sides of the entire length of any railroad which they may hereafter construct, except at the crossings of any turnpike, highway, or other way, or in any places where the convenient use of the railroad would be obstructed thereby. And shall also construct and maintain sufficient barriers, at such places as may be necessary, where it is practicable to do so, to prevent the entrance of cattle upon the railroad.

Sec. 4. Any railroad corporation which shall unreasonably neglect to comply with any of the provisions of this act, shall, for each and every such neglect, forfeit a sum not exceeding two hundred dollars, for every month during which such neglect shall have continued.

April 16. Approved by the governor.

Southern Railroad Company.

Extract from the Report of the Committee appointed by the Citizens of Vicksburg to obtain a Charter from the Legislatures of Alabama and Mississippi; together with the Documents accompanying the same.

The committee appointed by a meeting of the citizens of Vicksburg, on the 6th December, 1845, to solicit charters from the legislatures of Alabama and Mississippi for the Charleston and Western railroad, report:

That those states have, by concurrent acts, chartered the Southern railroad company for the objects in view, and a copy of these acts is hereto appended.

The capital is \$3,000,000, divided into shares of \$100 each; on which \$5 must be paid at the time of subscription, \$5 at six months, \$5 at 8 months, and \$5 at 10 months afterwards, and the residue as the same may be called for by the company, not exceeding \$10 a share in 60 days. The company is to be organized as soon as \$500,000 shall be subscribed, for which purpose books of subscription will be opened in May next.

The company has all the necessary powers to construct, use, and receive the income of the road perpetually, between West Point, on the eastern line of Alabama, and Jackson, Mississippi, with provisions to connect with, or in certain contingencies to own, on the same terms, the links between West Point and Montgomery, and between Brandan and Jackson, and with powers to acquire any connected road by purchase and with the assent of the proper authorities.

The part of the two per cent. fund of Alabama set apart for this route, was by law of last year loaned to the Montgomery and West Point railroad company, to aid in completing that link.

The two per cent. fund of Mississippi, amounting to near \$300,000, and most of it now subject to draft on the U. S. treasury, is granted to the Southern railroad company on certain terms securing its application, as a gift to encourage subscriptions of stock.—These terms are:

1st. That the company be organized. 2d. That an amount of stock equal to the fund subscribed in Mississippi, and either paid or well secured. And, 3d. That the fund be paid over to the company no faster than equal sums shall have been expended by the company in its road, or else that guaranties sat-

isfactory to the governor shall have been given that it will be faithfully applied in making the road to which the act of congress appropriates the fund.

The management rests with nine managers elected by the stockholders, one appointed by the state of Alabama and one by the governor of Mississippi. The latter is in addition required to report to the governor as to the application of the two per cent. fund, from which he receives \$500 per annum for these services, until the road shall be completed.

The tolls are to be fixed annually by the company, published, and "not changed oftener than once a year," with a restriction that the annual net profits shall not exceed "25 per cent."

The company, its capital and property, are exempt from taxation until a portion of the road be completed and brought into actual use, and then "such portion may be taxed the same per centage and no more upon the capital expended in the construction thereof, as lands in the state shall be taxed."

The Alabama subscriptions are to be applied first to making the road in Alabama, and the Mississippi subscriptions first towards making the road in Mississippi. Other subscriptions may be applied to such part of the work as the company may prefer. Provision is made for the immediate progress and completion of the road between Jackson and Brandon, and for its becoming part of the Southern railroad company's line, upon their repaying the expenditure to be made for its completion; in which event the state releases and transfers to that company its entire interest in that road.

The above is a summary of the acts. In the selection of the route, there is no designation of points between Brandon and Montgomery, and all the advantage is secured which a choice of routes on a line of 210 miles length gives, in the way of favorable surface and cheap rights of way.

We proceed to consider this railroad in reference to—

1st. Its connection with other railroads.

This road will extend from Jackson, Mississippi, to Montgomery, Alabama, a direct distance of 103 miles in Mississippi, and 124 miles in Alabama, or total air line 227 miles, or about 240 miles on any probable location of the railroad.

From Jackson it connects with the Mississippi river at Vicksburg by means of the railroad now in use.

Eventually, it will probably have a branch to Natchez, and extensions westward from the Mississippi river towards Texas.

At Montgomery it connects with the Montgomery and West Point railroad, of which about 45 miles are completed and the remainder of 45 miles principally graded and the work in active progress. It is the expectation of the managers to have it completed to West Point next year.

From this point to the Macon and Western railroad is a distance of 53 miles. The right to construct that connection, as well as one to Columbus and thence to intersect the

Montgomery and West Point road, have been granted; and there is no doubt that in one or both these modes Montgomery will be connected with the Macon and Western railroad. This road binds together the Charleston and Savannah lines, and is within a few months of entire completion 101 miles, from Macon to Atlanta. For all practical purposes, therefore, we may consider the Southern railroad as the only wanting link in the chain to bind the Mississippi river to the Atlantic ocean, both at Charleston and Savannah.

The distance from Savannah to Vicksburg may be set down at 670 miles.

2d. The uses of this road.

When completed and connected with the Atlantic and Mississippi termini, it reduces the time of travel from end to end to about two days. It reduces travel between Charleston and St. Louis to six days—New Orleans three days—Galveston five days. It brings down the time of travel between Vicksburg and Washington city to a little over four days, and New York five days. And, on the completion of the Chattanooga and Nashville railroad, this will be the ordinary route of travel to Nashville, which will be reached from Vicksburg in 48 hours.

In regard to freight; it will reduce the time of conveyance from New York to Vicksburg to about ten days, of which six days are allowed to the sea trips to Charleston and four for railroad conveyance to Vicksburg. It will reduce insurance from at least 7 per cent. from New York or Boston to Vicksburg down to 1 per cent. or less to Charleston and none thence to Vicksburg. If the goods be worth 50 cents a pound this would be more than half the railroad charge—leaving profit to the road.

It would enable a merchant, whose packages are usually valuable, (much beyond 50 cents per lb., on the average) to save in direct expenditure, to have his orders promptly supplied, to maintain a large business upon comparatively light stocks, and to exclude from the western markets all merchants who shall persist in continuing the risks, delays, and loss of capital by the cape of Florida route.

It will open a direct avenue for western supplies for the interior of Alabama, Georgia and the Carolinas.

It gives us interior communication between the most important highways in the world, which is not subject to the casualties of storms, wrecks, pirates, or war.

It makes the south Atlantic states, indentified, as they are, with us in all respects, to be neighbors to the great west; and by this means gives assurance of an equitable management of the government of the United States, by which our interests will be protected and our prosperity promoted. It gives to public force that rapidity of motion, which is the great element of its efficiency either to "suppress insurrection or repel invasion."

These things and more does it accomplish in its general uses. To the country in which it runs it brings navigable waters without their overflows, and commerce without haz-

ard or interruption. To that country all times of the year are thus rendered times of commerce and travel; supplies from other places are cheapened and its own productions can reach the market at small cost and at times to suit the owner.

3d. The probable cost.

On such subjects certainty and exactness cannot be attained. We can but use the experience we have to lead us to rational estimates of the future. Such is our daily habit in all matters of business.

But we are not treading a new path.—Twenty years ago, a short road at Quincy, to carry marble, was all the pioneer we had. Now we have nearly 4,000 miles of Rail Road in actual daily operation in the United States; and a great deal more in the rest of the world. The materials of experience are therefore sufficiently abundant. The cost of 79 railroads in the U. States is given in the table published in the American railroad Journal. The aggregate length of them is 3,723 miles, and the cost is \$109,841,460; or \$29,325.85 per mile.

In the Carolinas and Georgia 785½ miles cost but \$14,063,175, or \$17,919 per mile; those of North Carolina and Georgia 583½ miles long, cost \$8,391,723; or \$14,387.72 per mile; those of Georgia, 337½ miles, cost \$5,231,723, or \$15,489 per mile; the Central railroad in Georgia, 190½ miles, cost \$2,551,723; or \$13,570.72 per mile; and that part of the Georgia railroad of 65 miles, which has been constructed of late years, is said to have cost less than \$12,000 per mile, including an edge rail; or, as commonly called, a Trail.

The residue of the railroads on the list, in the northern and eastern states, amounting to 2,937½ miles in length, cost \$95,788,295; or \$32,633.23 per mile.

The reason of this difference of cost in favor of the southern states, is mainly in the abundance and cheapness of timber, the absence of rock excavations, and the low cost of right of way. In all these points, as well as in the suitability of surface for a railway, the route from Jackson to Montgomery for the same length is unequalled. To Brandon the road is almost entirely graded. Beyond Brandon to the Alabama line it has been surveyed, and (although from want of time, but little care could be bestowed on the selection of the line, and it can therefore be improved) the whole estimate of the engineer for grading, including culverts, and bridges, is but \$343,439 or 97½ miles; for \$3,522.44 per mile. Appended is a copy of that report in which the whole cost of the 97½ miles is estimated at \$1,063,428; or \$11,112 per mile which estimate includes \$668,507 or \$5,856.48 per mile for iron only; leaving for all other items of expenditure \$414,921; or \$4,225.60 per mile. This report, although we might not rely entirely upon its estimates, at least establishes beyond a doubt that the part of the route surveyed will admit of the cheap construction of a railroad.

Two of this committee, when in Alabama made diligent inquiry as to the surface of the probable route of this road from the state

line to Montgomery, and not only inspected the profiles and maps of surveys of several railroads in this region heretofore surveyed but also procured useful details as to the route generally. These means of information enable us to affirm with great confidence, that the route in Alabama is more favorable than it is upon the surveyed line in Mississippi, and presents no unusual difficulty, with the exception of the crossing of the Tombigbee and Alabama rivers; the cost of which, they suppose, cannot exceed, but will probably be much short to \$60,000, in addition to the usual outlay. The committee therefore, do not hesitate to express the belief that this road can be made at as small cost per mile as any railroad of its length which has heretofore been examined and presented to the public.

At \$8,000 per mile with heavy flat bar, or \$13,000 with the Huron, 45 to 50 lbs. to the yard, the whole cost of 240 miles between Jackson and Montgomery would be \$1,920,000 on one plan, and \$2,880,000 on the other, to which must be added for bridges, and the necessary locomotives, cars, etc., and from it must be deducted for the parts already graded on the line.

4th. The *inco me*.

On this point the railroads in use furnish much experience, of a part of which a table is appended: It contains all the full statements of length of road and gross income, which are exhibited in the American Railroad Journal—being 28 railroads in the northern and eastern states, including Pennsylvania, and 9 in the southern states. The 28 in the north and east in the year 1844 produced a gross income on 1,320 miles, of \$6,190,649; or \$4,693 per mile; while the southern railroads, of 922½ miles long, yielded \$2,313,623, or \$2,507 31 per mile, those of the cotton states of South Carolina and Georgia have yielded \$1,109,392 or 539½ miles; or \$2,055 per mile.

These results were upon 37 companies, with 2241½ miles of railroads of an average length of only a fraction over 60 miles each, while the Boston and Albany railroad of 200 miles length, connecting with western trade, received as much as \$5,910 a mile within the year; thus manifesting from experience, (what is so very obvious on abstract reasoning) that the receipts per mile of railroad are immensely increased with the increased line of railroad placed in connection. As this line will be 650 to 890 miles long, the most favorable experience of the shortest lines now in use could be fairly applied to an estimate of income for this work.

But waving these considerations, and adopting for an estimate of the business of the two states of Alabama and Mississippi, the less favorable results indicated by the Georgia and South Carolina railroads, (which are also subject to the disadvantage, that the Savannah competes with the Charleston line for the traffic of the same country, and thus divides the business) and we make the following results:

Item 1st. 240 miles of road, at a calculation for the local income of \$2,055 per mile gross annual receipts, (the same as those of the South Carolina and Georgia roads,

and \$1,081 less than the Vicksburg and Jackson railroad, as per tables annexed). \$493,200
Item 2d. Through travel added, (see note). 40 pass each way daily at 4 per cent. prem. 280,320
Item 3d. Through freights added, (see note). 180,000
" 4th. Increased mail pay (do.)..... 36,000

Gross annual receipts..... \$999,520

From the gross annual receipts must be deducted for expenses. The tables annexed show upon the northern 28 roads an expense of 47-62 per cent., on the gross income, and upon the 9 southern roads 53-13 per cent on the gross income. At the rates furnished by southern roads on \$989,528 of gross income the 53-13 per cent for expenses is \$525,913—leaving a net annual income of \$463,607, which on \$3,000,000 of cost would be \$15 45 per annum on each share of \$100.

If the experience of the Vicksburg and Jackson railroad were assumed as the basis of calculation, for the first item, the gross annual income would be—

\$1,218,960
and deducting the 53-13 per cent. for expenses 663,573

there would be a net annual income of... \$585,387
which on 3,000,000 cost would be 19-50 on each share of stock.

These estimates pretend to no higher certainty than belongs to reasonable conjectures derived from experience in like items of detail. The first, founded on the less favorable experience, is believed to be lower than the working results of this road will prove with ordinary good management.

Little Miami Railroad.—We have always predicted the most brilliant success for this road, and we are happy to see that it is approaching rapidly to completion, with results, as to business and profits, which already show that it will realize the most sanguine expectations of its friends. The road is now in operation to Xenia, only 62 miles, and the receipts for the last four months, for freight and passengers, including the transportation of the mail, have been as follows:

Receipts in December..... \$8,008 28
" " January 8,624 02
" " February..... 7,991 49
" " March..... 8,884 71
\$33,508 50

These receipts, it will be perceived, are at the rate of one hundred thousand dollars per year—and the expectation is that they will be doubled when the road shall be finished to Springfield, which will be in the course of this year. The road will have cost then, with the machinery and furniture on it, about a million of dollars, or less than twelve thousand dollars per mile.

When it reaches Springfield, it will have penetrated to the centre of one of the richest counties in this state, the great wheat, corn, and pork region, and will also intersect the national road, one of the great lines of the summer land travel. Some of the largest and finest flour mills in Ohio, are situated around Springfield; and the number of these as well as of the quantity of wheat raised, will be greatly increased by the making of this road. There is no risk, therefore, in saying that the

business of the railroad will be doubled after it reaches Springfield.

This road passes within fifteen miles of Dayton. Will not that connection be made? Unquestionably it must. One-half the stock will be taken by the persons interested in the Little Miami railroad, if the Dayton people will make the remainder—the charter having been already obtained. This will bring a great deal of business.

And how long will it be before branches will be made through Clinton, Highland and Ross counties to Chillicothe? Not long.—Those are very productive counties, and they will not be satisfied until the way to Cincinnati is open to them. The people have only to will it. That branch will unite with the Little Miami railroad, at Todd's Fork, forty miles from Cincinnati.

The railroad from Xenia to Columbus is under contract, and we understand progressing rapidly. The distance is a little over 40 miles, of which 32 miles run on a direct line, without a curve and without grading.

The Mad river railroad, from Springfield to Sandusky, is proceeding rapidly to completion. The distance is 134 miles. Part of this road, at the northern end, is travelled—including which, the grade is done to Urbana, 120 miles, and the remaining 14 miles more than half done. It will be ready for the iron to Bellefontaine, 105 miles from Sandusky, by the 16th of July next; and, if the autumn be favorable, we hope to have the whole line from Cincinnati to Sandusky open for travel next winter. This road is very straight, and runs over a level country.—There are but three bridges in the whole line. The cost of the road, with the furniture on it, will not exceed 9,000 dollars per mile.—*Cincinnati Atlas*.

Smoking Cars—

We do not mean cars with a smoky stove or cars smoking with the breaths and vapor from the damp garments of fifty or sixty persons; no—we mean cars expressly provided for the lovers of the "weed." Such should be provided in all trains; people will smoke, and we do not blame them for it—they should have proper accommodations. See how John Bull rebels against the new bye-law, and Brother Jonathan has a still stronger taste that way.

"On the whole, though the public willingly accords with the by-laws of railways, there is some disposition to evade the prohibition of smoking. A correspondent of the Times, who signed 'Tobacco Stopper,' thus writes to that journal: I came to town this morning in a bran new carriage of the Croydon company, rejoicing in every luxury of modern first-class refinement, but reeking of tobacco smoke! In the tobaccoists' windows you may see craftily contrived 'railway pipes,' adapted for instantaneous concealment. You know, and I know, and everybody knows, that a resolute smoker will smoke on railways, in spite of all precautions. Well, then, why not revive the often discussed plan of railway divans? Attach a second-class carriage to each train, undivided, and with seats round the sides, instead of across; strew the floor with sawdust, write 'for smokers only' on the outside, and shut the cloud compellers

up fast in it, leaving them to the enjoyment of their unsavory luxuries, and me and others to the cleaner pleasures of a sweet seat. They manage these things in the north."

Generous.—We understand that Capt. Henry Robinson, of this village, has presented to the N. York and Erie railroad company, that portion of his property over which their road is to pass. The value of the property deeded to the company by Capt. R. is said to be \$6,000. By the way, the company are preparing to "go ahead," with their branch road in good earnest.—*Newburgh Gazette.*

^ The Del. and Hud. canal co. has declared a semi-annual dividend of 8 per cent.; payable on 8th inst.

SPRING STEEL FOR LOCOMOTIVES,
Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel for 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address
JOAN F. WINSLOW, Agent,
Albany Iron and Nail Works,

THE WESTERN AND ATLANTIC
Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 17

TO LOCOMOTIVE AND MARINE EN-
gine Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 11

SCRIBNER'S ENGINEERS' AND ME-
chanics' Companion. For sale at this office. Price \$1.50.

LEXINGTON AND OHIO RAILROAD.
Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.
 Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 23 miles. Fare \$1.25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and m. 9. from Frankfort, other hours as above. 351y

RAILROAD IRON—1700 TONS VERY
Best English Rails, ready to be delivered.—These Rails weigh 60 lbs., the lineal Yard, are 3 1/2 inches deep; 4 inches deep at base; 2 1/2 inches wide at top; 17 1/2 feet long, except one-tenth of 15 and 12 1/2 feet in length.

A first rate Steam Pile Driver built by "Dunham & Co." has never been in use, is in perfect order, and for sale a bargain; also 12 Railway Passenger Cars that have never been used, which will be sold very low.
DAVIS, BROOKS & CO.,
June 1. 30 Wall Street.

STEPHENS' RULING AND MECHANICAL
Drawing Ink, for Engineers, Artists and Designers. This article will be found superior to the best Indian Ink for the above purposes. It does not smear with India rubber or wash off with water. It flows freely from the drawing pen, and never corrodes or encrusts it. It may be used on a plate or slab, with a camel's hair brush, diluting it with water, or thickening it by drying, as required. It has the advantage of being ready for immediate use.

Sold in conical-shaped bottles, convenient for using from, without any stand, at 15 cents each.

ALSO,

STEPHEN'S WRITING FLUIDS.

These compositions, which have so remarkably extended the use of the STEEL PEN, are brought to great perfection, being more easy to write with, more durable, and in every respect preferable to the ordinary ink. In warm climates they have become essential.

They consist of a Blue Fluid, changing into an intense Black color.

A Patent Unchangeable Blue Fluid, remaining a deep Blue color.

A Superior Blue Ink of the common character, but more fluid.

A brilliant Carmine Red, for Contrast Writing.

A Carbonaceous Record Ink, which writes instantly black, and being proof against Chemical Agents, is most valuable in the prevention of frauds.

Also, a new kind of MARKING INK for Linen and Inkstands adapted for, preserving Ink from evaporation and dust.

Sold in Bottles of various sizes, by all Stationers and Booksellers.

Be sure to ask for Stephens' Writing Fluid.

N. B.—These unchangeable Blue Fluids are Patent Articles; the public are therefore cautioned against imitations, which are infringements, to sell or use which is illegal.

Stephens' Select Steel Pens.

The utmost possible care having been bestowed upon the manufacture of these articles, so as to prepare the highest finish, they can be confidently recommended, both for flexibility and durability.

All the above articles are prepared by *Henry Stephens*, the inventor, No. 54 Stamford-street, Blackfriars road, London, and sold by Booksellers and Stationers in bottles of various sizes, and may be had wholesale from the agents in Boston, New York, Philadelphia, Baltimore, Washington, Charleston, New Orleans, and St. Louis.

Wm. W. Rose, Wall-street, New York, is my general agent in the United States.

VALUABLE PROPERTY ON THE MILL
Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 63,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 1/2 feet two stories high, with a shed part 45x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 51x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS**, 48 State st., or to **CURTIS, LEAVENS & CO.**, 106 State st., Boston, or to **A. & G. RALSTON & Co.**, Philadelphia. ja45

RICH & CO'S IMPROVED PATENT
R SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATAILÉ.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 51 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

(Signed.)

RICHARDS & CRONKITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,

138 1/2 Water st., N. Y.

Also by Isaac Bridge, 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street, Charleston, S. C. 16 tf

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846. Spring Arrangement. 1846. Commencing April 1st. Passenger trains leave daily, Sundays excepted—
 Boston 7½ p. m. and 4 p. m. for Albany.
 Albany 6½ " and 2½ " for Boston.
 Springfield 7 " and 1 " for Albany.
 Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
 Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.
 Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.
 Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.
 Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Boston and New York, via Springfield: Passengers leaving Boston at 4 p. m., arrive in Springfield at 8 p. m., proceed directly to Hartford and New Haven, and thence by steamers to New York, arriving at 5 o'clock a. m.

For Buffalo: the trains for Buffalo leave Albany at 7½ a. m. and 7 p. m., arriving at Buffalo at 8 a. m. and 8 p. m. next day. Returning, arrive at Albany at 4 a. m. and 4 p. m.

New York and Boston, via Albany: the trains from Boston arrive at Albany in season for the 7 o'clock boats to New York. Returning, the boats, leaving New York at 5 and 7 p. m., reach Albany at 5 a. m., in ample season for the morning trains to Boston.—Steamboats also leave Albany at 7 a. m. and 5 p. m. and stop at the usual landing places upon the river.

The trains of the Springfield, Hartford and New Haven railroad, connect at Springfield, and passengers from Albany or Boston proceed directly on to Hartford and New Haven.

Montreal: through tickets to Montreal may be obtained in Boston, by which passengers may proceed to Troy, and thence by stage via Chester, Elizabeth, etc., and in the season of navigation by canal to Whitehall, and thence by the splendid steamers of Lake Champlain to St. John, via Burlington, and thence by railroad and steamers to Montreal.

The trains of the Hudson and Berkshire railroad connect at Chatham and State Line.

The Housatonic railroad connects at State Line.

The trains of the Connecticut River railroad connect at Springfield, and passengers may proceed without delay to Northampton, and thence by stage to Greenfield, Brattleboro, Bellows Falls, Hanover, Haverhill, etc.

Stages leave West Brookfield for Ware, Endfield, New Baintree and Hardwick; also leave Palmer, for Three Rivers, Belchertown, Amherst, Ware and Monson; Pittsfield for North and South Adams, Williamstown, Lebanon Springs, etc.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES, Superintendent and Engineer.
 Western Railroad Office, Springfield, April 1, 1846. } 14 ly

MANUFACTURE OF PATENT WIRE
 Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 ly

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP, 75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron	Tons.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4½	13 5	10	24 -	50	15-16	20	
13	3½	8 3	8½	16 -	27	11-16	13½	
14	3½	6 11	7½	12 8	17	9-16	10½	
15	2½	5 2	6½	9 4	13½	1-2	7½	
16	2½	4 3	6	8 8	10½	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion.

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.
 PETER COOPER, 17 Burling Slip.
 New York, January 23d, 1846. 1y 10

C. J. F. BINNEY,
 GENERAL COMMISSION MERCHANT
 and Agent for Coal, and also Iron Manufactures, etc.
 No. 1 CITY WHARF, Boston.
 Advances made on Consignments.
 Refer to Amos Binney, Boston.
 Grant & Stone, } Philadelphia.
 Brown, Earl & Erringer, }
 Weld & Seaver, Baltimore.
 December 8, 1845. 1m 50

RAILROAD IRON—500 TONS OF 67 LBS.
 per yard—5 inches high—of the double headed pattern, which is now wholly used in England—now on the passage, and a further quantity will be contracted for. Also
 500 tons T pattern, 56 lbs. per yard, for sale by
 BOORMAN, JOHNSTON & CO.
 424 119 Greenwich street.

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.
 For sale in lots to suit purchasers, in tight paper-eu barrels, by JOHN W. LAWRENCE,
 142 Front street, New York.
 Orders for the above will be received and promptly attended to at this office. 32 ly

A. & G. RALSTON & CO., NO. 4
 South Front St., Philadelphia, Pa.
 Have now on hand, for sale, Railroad Iron, viz:
 180 tons 2½ x ¼ inch Flat Punched Rails, 20 ft. long.
 25 " 2½ x ¼ " Flange Iron Rails.
 75 " 1 x ¼ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

LARD OIL FOR MACHINERY, ETC.—Winter pressed, cleansed from gum, and manufactured expressly for engines and machinery of all kinds, railroads, steamboats, woollen and other manufactures, and for burning in any lamp without clogging the wick. Engineers of railroads and others who have used this oil, and to whom reference can be made, give it preference over the best sperm for its durability, and not requiring to be cleaned off like that, and costing about two-thirds the price. For sale by the barrel, and samples can be sent for trial, by addressing
 C. J. F. BINNEY,
 Agent for the Manufacturer,
 Boston, Mass.
 11 eop 1m

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, near Third, below Walnut, Philadelphia.

ATLANTIC AND ST. LAWRENCE RAILROAD.—Notice to Contractors.—Proposals will be received at the office of the Atlantic and St. Lawrence railroad company in this city, from the 17th to the 27th day of June next, for the grading, masonry and bridging of a division of the road, extending from a point at or near Portland to Royall's river in North Yarmouth—a distance of about eleven miles.
 Plans, profiles and specifications will be exhibited, and the requisite information given at the engineer's office in Portland on and after the 17th day of June.
 Persons offering to contract for the work, or any part of it, who are unknown to the undersigned or the directors of the company, will be required to accompany their proposals with references as to character and ability.
 A further extension of the road, embracing a distance of some fifteen or more additional miles, will be prepared for and put under contract about the first of August next.
 By order of the Board of Directors.
 WM. P. PREBLE, President.
 A. C. MORTON, Chief Engineer.
 Portland, Me., May 18, 1846. 1m22

WILLIAM R. CASEY, Civil Engineer, New York. Address Box 1078, Post-office, New York. 21

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

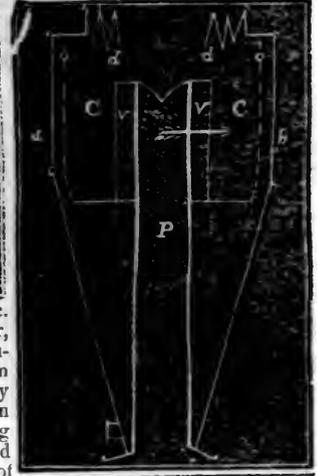
** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.



These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Eliou, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

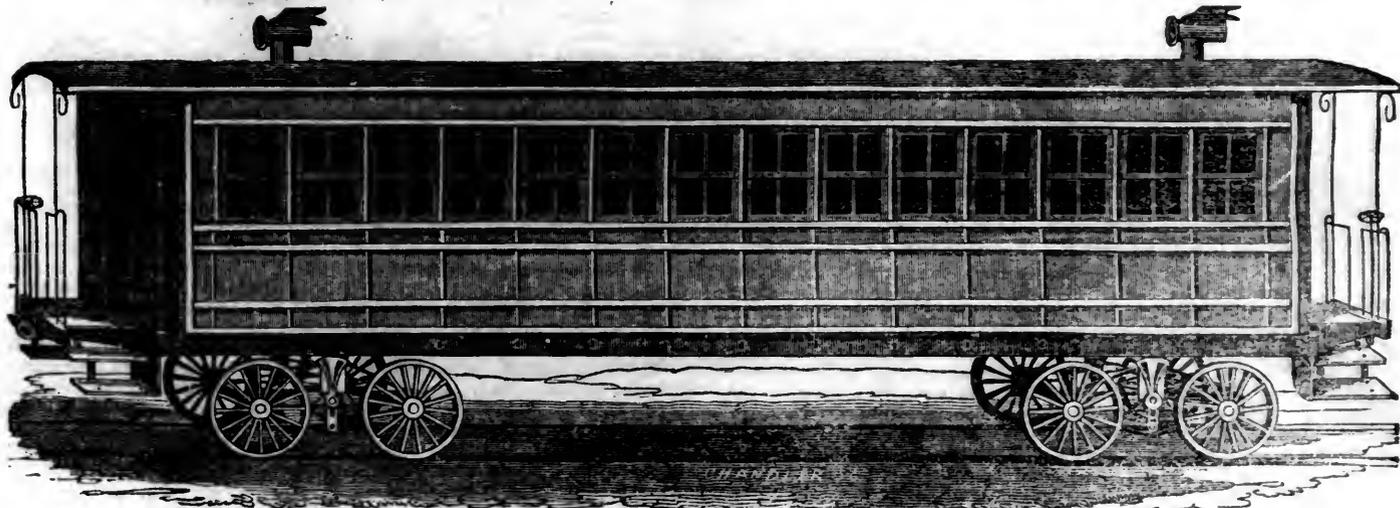
Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

** The letters in the figures refer to the article given in the Journal of June, 1844. ja45

BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco Pressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

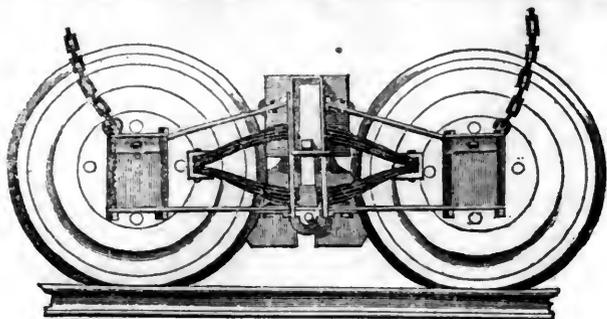
DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

RAY'S EQUALIZING RAILWAY TRUCK--THE SUBSCRIBER having recently formed a business connection in the City of New

York, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.



Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., has had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Supt Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

Supt Motive Power.

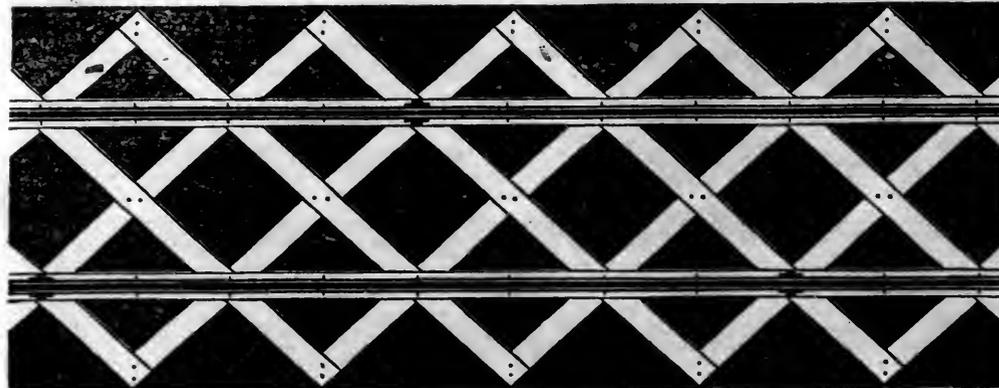
York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAIL-way Superstructure effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

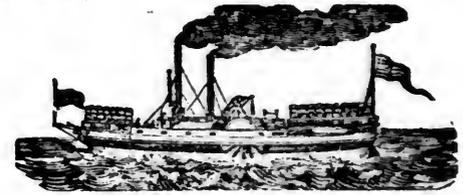
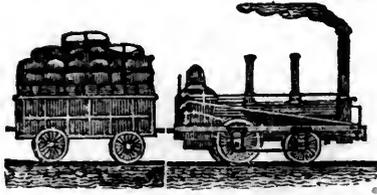
One page per annum.....	\$125 00
One column "	50 00
One square "	15 00
One page per month	20 00
One column "	8 00
One square "	2 50
One page, single insertion.....	8 00
One column " "	3 00
One square " "	1 00
Professional notices per annum...	5 00

ENGINEERS and MACHINISTS.

- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM and GROSVENOR, Paterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- H. R. DUNHAM & Co., N. Y.
- WEST POINT FOUNDRY, N. Y.
- PHENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 25;

SATURDAY, JUNE 20, 1846.

[WHOLE No. 521, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.
Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.
Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.
Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7-20 a.m. and 3½ p.m.
All baggage at the risk of the owners thereof.
31 1y W. RAYMOND LEE, Sup't.

BRANCH RAILROAD AND STAGES Connecting with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.
The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston. New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich. New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. J. W. STOWELL, Sup't. 32 1y

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846. On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:
Boston for Portland at 7½ a.m. and 2½ p.m.
Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m.
Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m.
Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m.
Portland for Boston at 7½ a.m., and 3 p.m.
Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.
Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m.
Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.
The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value. CHAS. MINOT, Super't.

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.
On Boxes of Hats, Bonnets, and Furniture per foot 16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs. 95 "
" Sugar, coffee, iron, hardware, etc. 65 "
" Flour, bacon, mill machinery, grindstones, etc. 33 "
" Molasses, per hogshead \$9-50; salt per bus. 20 "
" Ploughs and cornshellers, each 75 "
Passengers \$10-50; children under 12 years of age half price.

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.
Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.
J. EDGAR THOMSON, Ch. Eng. and Gen. Agent. *44 1y
Augusta, Oct. 21 1845.

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A. M. and 4 P. M.
" Middletown at 6½ A. M. and 5½ P. M.
FARE REDUCED to \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

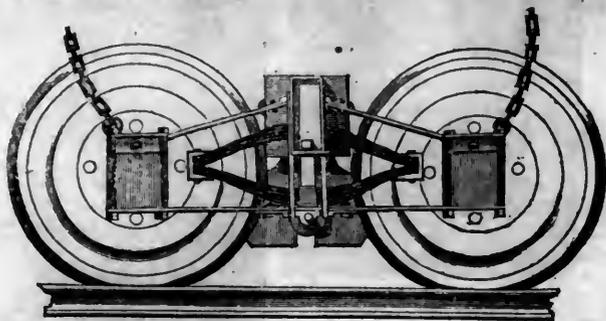
FOR FREIGHT—
Leave New York at 5 P. M.
" Middletown at 12 M.
The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.
Apply to J. F. Clarkson, agent, at office corner of Duane and West sts.

H. C. SEYMOUR, Sup't.
March 25th, 1846.
Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 ft

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.
Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

RAY'S EQUALIZING RAILWAY TRUCK.--THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

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river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

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The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

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[Signed,]

WILLIAM ROE, Sup't of Power.

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Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

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[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

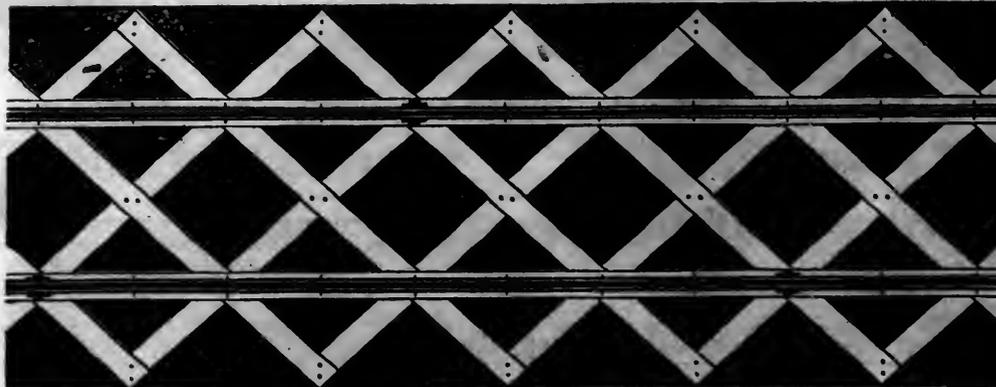
[Signed,] JOHN LEACH,

Long Island Railroad Depot,

Jamaica November 12, 1845.

Sup't Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 60 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. (It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

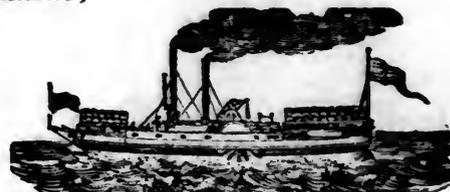
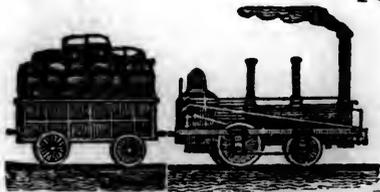
One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum...	5 00

ENGINEERS and MACHINISTS.

- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM and GROSVENOR, Paterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- H. R. DUNHAM & Co., N. Y.
- WEST POINT FOUNDRY, N. Y.
- PHENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 25;

SATURDAY, JUNE 20, 1846.

{WHOLE No. 521, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD.

Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.
Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.
Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.
Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3½ p.m.
All baggage at the risk of the owners thereof.
31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD and STAGES CONNECTING with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD.

Summer Arrangement, commencing Monday, April 6, 1846.
Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 32 ly J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD.

Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco. Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:
Boston for Portland at 7½ a.m. and 2½ p.m.
Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m.
Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m.
Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m.
Portland for Boston at 7½ a.m., and 3 p.m.
Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.
Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m.
Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that *personal* Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value. CHAS. MINOT, *Sup't.*

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA to OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot.....16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs.....95 "
" Sugar, coffee, iron, hardware, etc.....65 "
" Flour, bacon, mill machinery, grindstones, etc.....33½ "
" Molasses, per hogshead \$9.50; salt per bus.20 "
" Ploughs and cornshellers, each.....75 "
Passengers \$10.50; children under 12 years of age half price.
Passengers to Atlanta, head of Ga. Railroad, \$7.
German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON, *Ch. Eng. and Gen. Agent.*
Augusta, Oct. 21 1845. *44 ly

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A. M. and 4 P. M.
" Middletown at 6½ A. M. and 5½ P. M.
FARE REDUCED to \$1.25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P. M.
" Middletown at 12 M.
The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.
Apply to J. F. Clarkson, agent, at office corner of Duane and West sts.

H. C. SEYMOUR, *Sup't.*
March 25th, 1846.
Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton; Ithaca, etc., etc. Agent on board. 13 lf

BALTIMORE AND OHIO RAILROAD.

MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1.60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. *13yl

BALTIMORE AND SUSQUEHANNA
Railroad. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a. m., and arrives at 6 1/2 p. m. Arrives at York at 12 1/2 p. m., and leaves for Columbia at 1 1/2 p. m. Leaves Columbia at 2 p. m., and leaves York for Baltimore at 3 p. m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62 1/2. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3 1/2 p. m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc.

Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a. m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day any passenger train.

D. C. H. BORDLEY, Supt.
Ticket Office, 63 North st.

31 1y

CENTRAL RAILROAD-FROM SAVANNAH
to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

- On weight goods generally.... 50 cts. per hundred.
- On measurement goods..... 13 cts. per cubic ft.
- On brls. wet (except molasses and oil).....\$1 50 per barrel.
- On brls. dry (except lime)... 80 cts. per barrel.
- On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
- On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.
- On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, 40 Gen'l. Supt. Transportation.

NEW YORK & HARLEM RAILROAD
CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4, 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams' Bridge trains will be regulated according to the state of the weather. 18

RAILROAD IRON.—THE "MONTGOMERY
Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sts. 49 1y

LITTLE MIAMI RAILROAD.—1846.—
Summer Arrangement.

Two passenger trains daily. On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1 1/2 p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m.

On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m. Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.

Tickets may be procured at the depot on East Front street.

The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount. W. H. CLEMENT, Superintendent.

LXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a. m., and 2 p. m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a. m. and 2 p. m. Distance, 28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a. m. from Lexington, and 2 o'clock p. m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a. m. from Lexington, and ma. 9. from Frankfort, other hours as above. 35 1y

RAILROAD IRON—1700 TONS VERY

Best English Rails, ready to be delivered.—These Rails weigh 60 lbs., the lineal yard, are 3 1/2 inches deep; 4 inches deep at base; 2 1/2 inches wide at top; 17 1/2 feet long, except one-tenth of 15 and 12 1/2 feet in length.

A first rate Steam Pile Driver built by "Dunham & Co.," has never been in use, is in perfect order, and for sale a bargain; also 12 Railway Passenger Cars that have never been used, which will be sold very low. DAVIS, BROOKS & CO., June 1. 30 Wall Street.

CALIGRAPHIC BLACK LEAD PENCIL
Manufactured by E. Wolff and Son, 23 Church Street, Spitalfields, London.

The Caligraphic Pencils have been invented by E. Wolff and Son, after the expenditure of much time and labor. They are the result of many experiments; and every effort that ingenuity and experience could suggest, has been made to insure the highest degree of excellence, and the profession may rely upon their being all that can be desired.

They are perfectly free from grit; and for richness of tone, depth of color, delicacy of tint, and evenness of texture, they are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use.

The Caligraphic Pencils will also recommend themselves to all who use the Black Lead Pencils as an instrument of professional importance or recreation, by their being little more than half the price of other pencils.

An allowance will be made on every groce purchased by Artists or Teachers.

May be had of all Artists, Colourmen, Stationers, Booksellers, etc.

A single pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

Caution.—To prevent imposition, a highly finished and embossed protection wrapper, difficult of imitation, is put around each dozen of Pencils. Each Pencil will be stamped on both sides, "Caligraphic Black Lead, E. Wolff and Son, London."

The subscriber has on hand a full supply of Wolff and Sons celebrated Creta Loevis, or Colored Drawing Chalks, also their pure Cumberland Lead and extra prepared Lead Pencils, and Mathematical Lead Pencils.

P. A. MESIER,
Stationer and Sole Agent,
No. 49 Wall Street.

N. B.—A complete assortment of Steven's Genuine Inks, Fluids, Imitating Wood stains, and Graining Colours at the Manufacturers prices. 19 1/2

TROY AND GREENBUSH RAILROAD.
Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at 6 1/2 A.M.	Leave Albany at 7 A.M.
" " 7 1/2 " " " " 8 " "	" " 8 " " " " 9 " "
" " 8 1/2 " " " " 9 " "	" " 10 " " " " 11 " "
" " 10 1/2 " " " " 12 " "	" " 11 1/2 P.M. " " 1 1/2 P.M.
" " 11 1/2 " " " " 2 " "	" " 3 " " " " 3 1/2 " "
" " 2 " " " " 4 " "	" " 4 " " " " 5 " "
" " 3 " " " " 5 1/2 " "	" " 5 " " " " 6 " "
" " 4 " " " " 6 1/2 " "	" " 6 " " " " 7 " "

The 6 1/2 a. m. and 2 o'clock p. m. runs from Troy, to Boston runs.

The 12 m. and 6 o'clock p. m. trains from Boston runs.

Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT,
Superintendent.

Troy, April 1st, 1846. 14 1y

MACHINE WORKS OF ROGERS,
Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship. Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.

TO RAILROAD COMPANIES AND MANUFACTURERS
of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.

THE SUBSCRIBERS, AGENTS FOR
the sale of

Codorus, Glendon, Spring Mill and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L. KIMBER, & CO., 59 North Wharves, Philadelphia, Pa.

Jan. 14, 1846. [174]

RAILROAD IRON AND LOCOMOTIVE
Tyres imported to order and constantly on hand
by **A. & G. RALSTON**
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gear- ing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.
The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

CUSHMAN'S COMPOUND IRON RAILS.
etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc. —respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.
W. Mc. C. CUSHMAN, Civil Engineer,
Albany, N. Y.
Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.
Warranted free from dampness, as well as fire and thief proof.
Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.
Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.
On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.
S. C. FIELD.
Vicksburgh, Miss., March 9th, 1846.

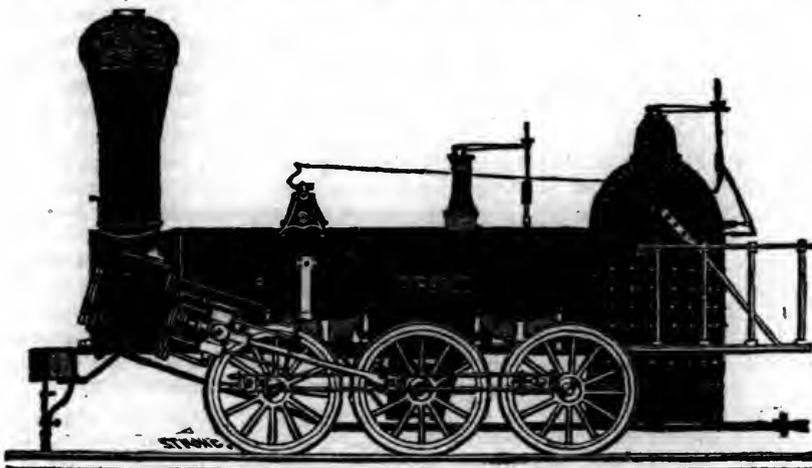
Certificate from Judge Battaile, of Benton, Mississippi.
In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.
JOHN BATAILLE.
Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.
The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.
(Signed,) **RICHARDS & CRONKHITE.**
New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.
(Signed,) **WM. BLOODGOOD.**
New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by **A. S. MARVIN, General Agent,**
138½ Water st., N. Y.
Also by Isaac Bridge, 76 Magazine street, New Orleans.
Also by Lewis M. Hatch, 120 Meeting street, Charleston, S. C. 16 of

NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of	Cylinder,	×	20 inches	Stroke.
" 2,	14	"	"	×	24	"
" 3,	14½	"	"	×	20	"
" 4,	12½	"	"	×	20	"
" 5,	11½	"	"	×	20	"
" 6,	10½	"	"	×	18	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels on the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

Mathematics as a Branch of Professional Study.

(Continued from page 539.)

We have stated in our last article our general views respecting the origin of the difficulties experienced by the young algebraist in his early studies. There is one other which we have implied rather than expressed—the continually recurring inquiry into the utility of the study. It wears to him the aspect of a system of ingenious trifling rather than of a practical pursuit; since he can find no case of a professional nature either in his usual books or in the oral instructions of his superior, to which his algebra can in any way be applied. We have alluded to the cause of this: that though pure algebra can be applied directly in professional inquiries, the cases are not pointed out in the books which he is likely to read, nor are those cases themselves so numerous as to render the formation of a good collection of examples an easy task.

The great value of algebra is, let him ever remember, not as a science *per se*, but as an organ of future research. Its great use is prospective; and with prospective reference, it is not only invaluable, but altogether indispensable. It will confer upon him a power of great magnitude in his professional studies; though like the acquisition of a language, it can be of little real value to him beyond the uses which he shall afterwards make of it.—The most ample acquirements of a pure algebraic character, we should deem to be idly made by the engineer or architect, were his mathematical studies not to take a wide range beyond that subject, and his application to be ramified into every department of his profession.

We have already intimated that algebra and geometry are almost alike repulsive upon the first glance; although in the two sciences the causes of the dislike are not precisely the same. On the first head we have already spoken—we now proceed to the second.

It very naturally occurs to the student to procure a copy of *Simson's Euclid*; and, of course, he reads the definitions, axioms, postulates, and a few of the earlier propositions of the first book, with the zeal of absolute determination to become a geometer. He pauses to reflect upon his progress, and asks himself what he has learnt that he did not know before? His mind, his eye, and his hand have already been familiar with the circle and the triangle; and he had, or thinks he had, acquired some little acquaintance with the geometrical properties of the simpler classes of figures. Undoubtedly those properties of figures which are intellectually true, are also visually true; and tolerably obvious properties of the figures most commonly used will be subjected to the practised eye by a survey of the diagram, and verified by actual measurement in any selected example of that class. By varying the related parts of the figure, and finding the law to hold in all the cases that he shall have tried, he is not only constrained to admit, but considers it absolutely proved, that the properties in question are universally true. Those stu-

dents, therefore, who have been at all employed on plan drawing, (if not otherwise previously disciplined,) are invariably self-educated in a mode of research that is directly opposed in its spirit and character, to the true mental geometry of Euclid. We regret to say that it is to be found in the school of "*Practical Geometers*" of England; and we are ashamed to add that it is to be found there only. One of our own correspondents has even urged that the "eye is a good geometer, when properly taught"; and in this sense the phrase is intelligible; although the doctrine contained in it is most pernicious as a principle, in reference to a professional course of study.

The retrospective survey of his progress to which we have alluded, will inevitably have led the student to institute a very unsafe criterion of the value of the course of rational geometry, which he finds in Euclid's Elements. Because he finds only a formal, and as he thinks, complicated, proof of propositions which he is not only prepared to admit, but considers to be so plain as to need no proof, he is led to conclude at once, that the geometry of Euclid is only a system of elaborate trivialities, fit at best to occupy the time and exercise the ingenuity of college idlers, who have no serious business to perform in life. He soon learns to cavil with the fundamental principles of the science.—He asks if a line can be drawn which shall have no breadth, or a point can be marked which shall have no magnitude—or a surface can be made which has no thickness?—He asks, why cannot a distance be taken in the compasses, and set off in a given direction, instead of the "round-about" processes of the constructions in Euclid's second and third propositions? Why there should be the parade of unintelligible reasoning, by which the fourth and fifth propositions are established, when "everybody" can see with a single glance that they must be true? Thus he proceeds, guided by what he is pleased to call "common sense," till he arrives at what to him appears a very conclusive proof that the study of rational geometry is little, if anything, better than "sheer nonsense."

This is the starting point of the most fatal course of thinking in respect of geometry that the student can pursue. It deprives the science of its peculiar characteristics as a science, and degrades the mental system into a merely experimental one. It shuts out all chance of the discovery of the more recondite, and often of the more practically important truths of geometry; whilst it places even the earlier and more obvious ones upon a basis which to every reflecting person is one of the most unsatisfactory character.

We entreat of such readers and such thinker's an attentive consideration of the remarks that we are about to offer; and in order to render our remarks as intelligible as possible, we shall either enforce them by illustration, or actually found them upon particular examples.

Let us suppose, then, that it is required (*Euc. iv. 11*) to inscribe a regular pentagon in a given circle, and that the experimental

geometer, to whom we have referred, is familiar with the actual mode of construction.—He has verified by actual stepping the compasses from angle to angle, the truth of that construction in a great number of cases; and never having found it fail, he does not entertain the least doubt of its correctness. These experiments are his evidence of its truth.—Let now another and a rational geometer state his grounds of belief of the same truth. The two conclusions agree as to the fact; but the amount of certainty is remarkably contrasted. The rational geometer is led by irresistible evidence to the conclusion that such a course of operation as is prescribed, cannot, under any circumstances, but produce a regular pentagon; whilst the experimental geometer concludes that this course will probably produce it in any case, since it has produced that figure in every one of the cases which he has tried. The evidence of the rational geometer is absolute, whilst that of the experimental geometer is only a varying but small amount of probability. We can imagine a geometer of the practical class tossing his head proudly, and with a scornful contempt for the logical geometer, expressing his own satisfaction with such evidence as his senses and experiments afford him; but still we entreat him to pause before he dismisses this question so cavalierly from his mind.—He will soon see that not only intellectually is his knowledge of an infinitely inferior class, but that in reference to practice itself, his knowledge is as inferior to that of the rational geometer as it is intellectually.

We ask him, whether his kind of knowledge would have enabled him, *in initio*, to have invented this method of construction? Let him look at the operations which he performs with due attention, and then say whether there be any one of them which, upon the face of the process, has the slightest apparent tendency towards the ultimate production of the regular pentagon? He will not venture to answer in the affirmative; or if he do, it will only be in mere random ignorance of what he says. There cannot be, in fact, the slightest probability entertained of such a result flowing from those operations; and we will add more—that could we suppose a practised rational geometer to have by some accident never studied that construction, and it were now propounded to him for the first time, even he would not perceive the tendency of that operation to produce a regular pentagon, without first going through the demonstration with logical care. It is very improbable, then, that the mere practical geometer should have invented that process; and indeed, we can hardly suppose that he will prefer his claim to the inventions in even practical geometry beyond the simplest and most obvious constructions. He must trust to the theoretical geometer for even his own practice.

The instance we have just given, so far from being a solitary one, is only a very limited specimen of the class of practical problems that the professional engineer and architect are called upon to construct. It is sufficient as an illustration of the fact—that

had the theoretical geometry of the school of Plato not been created, there could only have existed an extremely small number of the practical geometrical constructions that are in daily professional use. This, at any rate, ought to produce a feeling very different from the supercilious contumely with which "practical men" are wont to treat the "mere theorist;" and should create a feeling of respect for the superior mental powers of the logical geometer, and gratitude for the benefits which he has conferred upon the arts of construction. But this is not all. The problems of plane geometry, important as they are, are far less important than those which have relation to space of three dimensions.—It is true, that most practical men have obtained a few crude notions respecting orthographic projection, and can perform some trivial operations connected with "plan and elevation," whilst a select few "can put a building in perspective." Still their knowledge is of the same nature as their knowledge of the construction of the pentagon, whilst their conceptions are still more confused, and their operations more hesitatingly performed than they were in that case. A slight variation of the data of the problem, under certain circumstances, creates insuperable difficulties, and the artist is at length obliged to complete his work *trusting to the eye alone*; or else to construct the whole in model at great labor and expense—and this not for *illustration* or the facilitation of clear conception, but for the purpose of obtaining a *scale of actual measures* for the construction of the work. The theoretical geometer, on the other hand, would have in general been able to have deduced all the measures, to have formed all the scales, and to have indicated all the constructions which would have been requisite for the object in view; and that at far less expense of time, in a manner perfectly applicable to all possible cases of magnitude and proportion, and accompanied by demonstrations of the inevitable correctness of the entire series of steps in the process. In fact, the theoretical geometer is the only really practical geometer; and those who commonly call themselves practical geometers are mere mechanists, working by rule, as much as the carpenter or brick-layer; only they work with different instruments and with greater delicacy of manipulation.

We have, in a former paper of the *Miscellanea Mathematica*, referred to the late Mr. Nicholson as the only English writer on the geometry of space in reference to the arts of construction. Nicholson is admitted on all hands to have been acquainted with the ancient geometry, both as to principles and methods; and it would be difficult to show that he has left a successor who is wholly given up to the objects he had in view—the application of pure geometry to the arts of construction. His works too, as we have said before, are the only ones to which the profession can refer with the slightest expectation of finding any process that may be required for practical use. This circumstance of itself would, we should think, have its weight upon our "practical geometers" who

have so insultingly contemned "theoretical persons;" inasmuch, as it shows them that the few rules which of Nicholson has put them in possession, were not the inventions of mere mechanical draughtsmen, but the reward of theoretical investigation.

We must be allowed a momentary digression. It is insinuated by Tredgold (*Joinery, Encyc. Britt.*) that Nicholson "derived much assistance" from the writings of Monge and others of the French geometers. Now, we yield to no one in our admiration of the French writers on these subjects, and we believe we are in a condition to offer a decided opinion on this question. It will be recollected that a considerable portion of the works of Monge—(all, or nearly all, that related to the point, line, and plane)—was translated by the late Mr. Webster, and published in *Nicholson's Architectural Dictionary*. This article embodied, in a most elegant form, the fundamental principles and elementary practice of descriptive geometry; and hence the system was laid open to professional men as much as it was to Nicholson himself, and the same "assistance" might have been derived by others that is alleged to have been derived by Nicholson. If, therefore, he has really so obtained the stated assistance, and others have not, it must be attributed to the superior power which his *theoretical* geometry gave him over his competitors. But we more than question the statement; we dispute its truth. Nicholson never fully comprehended the character of the descriptive geometry, and the few elementary constructions which he has given in his works, bear ample testimony to his never having been familiar with the French writers on these subjects. Beyond picking out an isolated construction here and there, and modifying it to suit the *ungeometrical* minds of his "practical" readers, we know nothing that Nicholson *can* have taken from that source; and we confess it appears like injustice to Nicholson to suppose that he was incapable of devising those constructions, as their difficulty is, in every case, by no means great to a mind familiar with the objects to which the constructions related.—There is still to be urged in confirmation of Nicholson's having really invented those processes, that the development of them is, in general, inferior as to arrangement of work and facility for obtaining the results, to those given by the French writers. Can any stronger proof of the independence of Nicholson's invention of them be offered? Still, we would not, for one moment, suggest in explanation of Tredgold's error, that it was a mere ebullition of professional jealousy, or anything more than a mistake, to which his own extremely confined knowledge of these subjects would render him peculiarly liable.

But supposing for the moment that Nicholson *did* copy from Monge, let us ask our "practical geometers" who and what Monge was? He was appointed at 20 years of age professor of geometrical drawing in the school of military engineers at Mezieres; he being then undisputedly the finest draughtsman of his time even in France. But he was then a mere draughtsman: there was not his supe-

rior either in genius or acquirements in Europe—though Euler, Laplace and Lagrange were his contemporaries. Monge's discoveries were scientific discoveries—his inventions were the reward of his real science.—The "Descriptive Geometry" was only one small part of his contributions to mathematical discovery: though from being the most practical it had obtained for him a wider and more popular celebrity than all his other researches. Still, none but a man of the most profound geometrical science could have produced the system to which his name must ever be attached. Let us not be misunderstood. Many of the *processes* themselves which Monge has so beautifully systematized were matters of familiar knowledge amongst the French architects, long before Monge's time; and in most cases, *demonstrations*, more or less elegant, are to be found in earlier works—especially in the writings of Desargues and Frezier. Monge's great merit as regards this class of researches (we expect, in the present case, the merely theoretical applications of his principles) consisted in his giving to the scattered elements of construction a consistent arrangement, dependent upon pure geometrical relationship. His work contains the real general problems that occur in construction—not their applications to specified professional cases. The latter object has, however, been amply fulfilled by his pupils and successors. The inventors of the problems which Monge found in existence, were also rational geometers; and without a considerable degree of such power as the rational geometer alone possesses, those constructions would never have been invented. Let us not, then, "lay the flattering unction to our souls" that at any period of practical history the processes of the geometry of space have been invented by mere experimental and empirical persons. Mentally speaking, "there were giants in those days," as well as in our own.

We have said that Nicholson was a geometer in a rational sense; yet his was limited knowledge, and his skill was not of a high order—nor were his views or researches either widely expanded or geometrically elegant. In respect to the geometry of space, he had no English models upon which to form his mental habits; and he appears, indeed, to have viewed every problem which undertook strictly and entirely in reference to the practical object that suggested it. His researches terminated with the solution of which he was in quest; and of any attempt at systematizing his results with the results of collateral general inquiries, none of his writings display the slightest trace. He seldom gives a demonstration of any process—never but of the simplest; and we have good ground to doubt whether, as a general practice, he ever took the trouble to write out a demonstration of any considerable degree of complexity. Those which he has given are almost invariably clumsy and inelegant; and it is more than possible that his real investigations were mentally performed upon unlettered models of the objects under consideration. He, however, understood, what the

"profession" of his time required—*rules, not reasons*; and he was too wise a book-maker to increase the price of his works by the insertion of what he foreknew nobody would read.

Although Nicholson has thus added to the rules for actual construction a number of useful processes, he has at the same time, somewhat encouraged the system of experimental geometry amongst professional men which we so strongly deprecate. Yet we would urge that Nicholson owed his discoveries to the amount of geometrical science which he possessed, and not to mere tact, shrewdness of observation, or still less to a mind of any peculiar powers. His powers were in no respect above the average of those of his contemporaries; but his mental discipline had been different from that of his professional brethren: His history offers no justification for the architect and engineer of one day affecting to despise, or even for neglecting, the study of the rational geometry in a systematic form.

The demands both of architecture and engineering upon geometry are, however, daily becoming more numerous and more profound in their character. Who is to answer these demands? Most assuredly not the mere mechanical draughtsman or experimental geometer. The ordinary cases of theoretical solid geometry contain but little research into the class of problems which these professions require. In themselves and apart from their uses, too, these problems possess but little interest to the speculative geometer; and he is not likely to enter upon such investigations without an adequate personal motive. The ordinary technical terms, also, in which these problems are expressed amongst workmen, render them unintelligible to the general scholar, and hence there is little prospect of obtaining the aid from him which we have obtained in the problems of plane geometry. We are therefore thrown upon our own resources, and it becomes imperative that we devote our own energies to meet the exigency. A better opening for the exertions of the fairest professional ambition cannot be pointed out, than that which is furnished by the cultivation of the *descriptive geometry* and its application to practical purposes. Yet, let no one dream of a "royal road to geometry" or imagine that this career is open to any but those who enter at the "wicket gate" of Euclid himself.

If the reasons we have given shall effectually convince our professional student that a regular and more systematic study of the pure geometry is *essential* to the accomplishment of his hopes and designs in life, we shall not have penned these remarks in vain. We cannot indeed bring ourselves to believe that our representations will pass wholly unheeded. We shall, therefore, proceed to show them *how* to pursue their studies,—to remove a few of the preliminary obstacles,—and to trace the subjects that will especially and successfully demand the attention of the student.

Steam Navigation—Its Power and Importance.]

BY J. MACGREGOR, ESQ.

When we reflect upon the wonderfully increased intercourse between the United Kingdom and the United States—and when we estimate the comparatively speaking limitation of the distance by calculating the time required now with that occupied formerly, in passing to and fro between both countries—it would be rash and hazardous to give an absolute opinion on the future elements, rapidity and extension of navigable power. It was but late in the world's history, when a Dutch ship performed the voyage, by leaving Rotterdam or Amsterdam in the spring of one year, sailing only during the day, and furling her sails and, laying-to during the night; and on reaching New York, then called New Amsterdam, this ship was discharged, unrigged, and laid up for the winter. On the following spring, this ship was rigged, her condition examined and repaired, then laden with wood, fish, or furs, and then made her homeward voyage during the summer, as slowly as her outward passage was performed the preceding year.

The voyage was afterwards performed out and home the same year. English ships then made two voyages during the year; and growing bolder, three voyages, to and from America were made annually by the same ship. Those splendid vessels, the Liverpool and New York line of sailing packets, were then established, and the intercourse between Europe and America astonished the world. Steamships were now seemingly about supplanting these sailing ships, at least in the carriage of passengers.

The space between the old and new world ceases to be calculated by miles and leagues—days and hours measure the distance.—Liverpool and Halifax are brought within 10 days, and Liverpool and Boston within 12 days of each other.

Steam vessels now ply along the coasts of Africa, in the Chinese seas, and along the shores and rivers of New Holland.

The steamships now employed between London and Scotland are of enormous power and magnitude. So are those which run between the Mersey and Clyde, and between the two latter rivers and the several ports of Ireland.

The float of the General Steam Navigation company maintains a constant intercourse with the ports of France, Holland, and Germany, as well as in the coasting trade of the British channel.

The states of continental Europe are also advancing in the acquisition of steam power. France, Austria, and Russia are the foremost in the number of their steamships. Austria excels all the states of the continent in merchant steamships. France and Russia in steamships of war. The Italian states, especially Naples and Tuscany, possess several well-built and well-navigated steamships.—Prussia and Holland, on the Rhine, contribute greatly to the facility of intercourse.—Belgium has made attempts, at great expense, to establish a trans-Atlantic line of steam

packets. The attempt has failed. The Hanse Towns, Denmark, and Sweden, also possess steamships, but only on a comparatively small scale. Greece and Turkey are far behind other countries in the possession of steam vessels. The Greeks, were their country and commerce in a flourishing condition, would, no doubt, manage steamships as ably as they certainly have their sailing vessels. The Turks have been clumsy mariners, and their few steam vessels are wretchedly managed. Of all Orientalists, the ruler of Egypt has made an extraordinary advance in the acquisition of powerful steamships.—In 1814, there was but one steamboat belonging to the British empire. During 30 years the number has increased to about 1000 British steamboats, which are now navigating all parts of the world.

In 1846, the British government employs a magnificent fleet of steamships, managed by, and belonging to, a private association, which sail, semi-monthly for eight, and monthly for four, months in the year, between Liverpool, Halifax and Boston. From Boston, the great means of intercourse, by steamboats and railroads, diverges to all parts of North America—extending to the furthestmost of the great lakes, and up and down the navigable rivers, flowing from the Rocky mountains. Iron is made to swim, in the form of a ship (the Great Britain) exceeding 3600 tons burden, impelled forward from Liverpool to New York, against the currents, raging storms, and seas of the Atlantic, by an invisible power, moved by the resistless force of fire causing the expansion of water.

Another splendid fleet of steamships, belonging also to a private company, are employed by the government to maintain a monthly intercourse between the United Kingdom, by Southampton, and all the islands of the West Indies and the states of Mexico and South America.

A third and mighty fleet, belonging to a great company, and employed by the government, sails monthly from Southampton to the European peninsula, and by way of Gibraltar to Malta and Alexandria, with a branch to the Levant and Constantinople. The same company conveys the government mails and passengers by three of the most powerful steamships in the world, from Suez, down the Red sea to Ceylon, Madras, and Calcutta; and that company has contracted to extend the established chain between Southampton and India to Singapore and the Chinese empire, by the employment of several powerful steamships, nearly all constructed. This steam line between England and China, is now complete, by which we have received an English newspaper, printed at Hong Kong only 56 days before our having read it in London.

A British company has for some years established a line of steamers along the southern shores of South America; and the Hudson bay company have a steamship on the western coast of North America. The East India company employs one steamship in conveying mails between Suez and Bombay; and several steam vessels are employed in India, and

others in the Eastern or Chinese seas, by the British government, as vessels of war.—The following appears as the programme of the projected line of French steamships:

First great line—from Havre to New York. Four steamships are to be placed on this line; the departures are to take place once a fortnight. 15 days are allowed for each passage, and 10 days at New York—in all, 40 days. 20 days are to be allowed to each vessel at Cherbourg, between each voyage, to rest the crew, and repair the vessel and engines.

Three steamers are to be placed on this line; the departures are to take place once a month. Two days are allowed for the passage from Bordeaux to Corunna, and 10 hours' stay there; five days 12 hours for the passage from Corunna to Azores, and one day's there; 12 days 16 hours for the passage from the Azores to Martinique, the steamers to remain 10 days at Martinique—20 days allowed for the return passage from Martinique to Bordeaux—in all 40 days' sailing, and 11½ days stoppages. 37 days are allowed between every voyage, at Rochefort or Bordeaux, for repairs and stoppages.

Third great line—from Marseilles to Martinique. Three steamers are to be placed on this line; the departures are to take place once a month. From Marseilles to Barcelona, 1 day 4 hours' stay; from Barcelona to Cadiz, 3 days and 24 hours' stay; from Cadiz to Madeira, 3 days and 24 hours' stay; from Madeira to Martinique, 14 days. The steamer is to remain 10 days at Martinique. 21 days are allowed for the return voyage from Martinique to Marseilles—in all, 40 days' sailing, and 14½ days' stoppages. 33 days are to be allowed at Toulon or Marseilles, between every voyage, for repairs and repose.

Fourth great line—from St. Nazaire to Rio Janeiro. Four steamers are to be placed on this line; the departures are to take place once a month. From St. Nazaire to Lisbon, 3½ days, 24 hours' stay; from Lisbon to Goree, 8 days.—*Mining Journal.*

Production of Coal in the Different States of Europe.

After iron, there is certainly no produce of the mineral kingdom which exercises a greater influence on our commercial relations than coal.

The following is a statistical sketch of the produce of that article in the different countries of Europe.

England possesses the richest veins of coal, both as regards quality and quantity; they form a line from southwest to northeast. In Northumberland and Durham, from the Tweed to the Tees, coal abounds; at Whitehaven, in the hills of Cumberland, in Yorkshire, and in Lancashire. The most abundant mines are in Wales.

The consumption of coal in England and in exportation, is so great, that it has often been asked, if the mines would not be exhausted? but, according to calculations made in proportion to the present consumption, they could not be exhausted under 1500 years—the yearly consumption in Great

Britain is 20,000,000 to 21,000,000 of tons. The exportation increased in the following proportions: In 1830, 505,421 tons; in 1832, 588,450 tons; in 1834, 621,256 tons; in 1836, 1,401,000 tons; in 1838, 1,413,800 tons; in 1840, 1,621,300 tons; in 1842, 2,120,000 tons; and in 1844, 2,410,000 tons.

The number of miners exceed 500,000.

English coal is to be had in every part of the civilized world; there are deposits at Rio Janeiro, at Odessa, at Archangel, and at Constantinople.

France does not produce enough coal for her own consumption, and is obliged to import. She possesses 250 mines, of which 182 are worked, and which rendered in 1844, 72,000,000 cwts. of coal to the value of 21,000,000 fr. (£840,000.) The produce is increasing, as in 1815 they only rendered 17,000,000 cwts.; 40,000 men are employed in the mines, and traffic belonging to them. In 1842, the importation of coal into France, amounted to 16,718,328 cwts.

France imports her coal from Belgium, England, and the Prussian provinces on the Rhine.

Spain draws but slight profit from her abundant mines; the principal mine is the Sierra Morena, the produce is not known.—They import but little. In some of the principal Spanish ports, there are depots of English coal for the steamers.

In Portugal, there are depots at Figuières, at Coimbra, and near Oporto.

The principal mines of Italy, which produce annually from 140,000 to 150,000 cwts. are in the Savoy, and near Genoa. The others, scattered over the peninsula, are of little value, and there are depots of English coal in the principal ports.

Belgium possesses immense mineral riches; in this country production increases. In 1831 the produce amounted to 22,800,000 cwts., and in 1844 it reached 84,232,420.—In 1844, the exportation amounted to 1,050,000 tons, a value of about 6,000,000 florins (£600,000).

Holland has no coal mines. There is a single mine in the country of Limberg.—They import all their coal from England, Belgium, and the Prussian provinces.

Switzerland, though rich in metals, has very little coal, and imports a quantity from England. The only mine of any value in this country is at Hochefeld; in 1843, it produced 514,969 cwts.

Norway has no coal mines. In Russia the production of coal does not exceed 800,000 pounds. It seems that between the Don and the Dnieper, and in Siberia, there are rich coal mines, and the government are now taking measures to turn them to account.

Denmark has one insignificant mine at Bornholm, and imports nearly all her coal from England.

Austria is rich in coal mines, but the produce is not in proportion with the number of her mines. The annual produce of coal in Austria is at least 12,000,000 cwts.: in 1843, it did not exceed 9,000,000. Of this amount Bohemia produces about one-half; Moravia,

2,000,000; Austria, 1,500,000; Styria, 1,000,000; Carinthia and the districts of Ogragno, a little more than 500,000; Hungary, 600,000; the coast lands (Kusten-land), 60,000; Galicia, 3,000; Lombardy, a very small quantity.

Coal mines exist in nearly every province of the monarchy. In Bohemia there are veins of this mineral along the river Beraun, in the north of the districts of Klatan, Pisen, and Rakovits, to the neighborhood of Prague. There are coal mines in the Erzgebirge, in the valleys of the Eger and the Biela, and at the foot of the Riesengeberg, from Schatzlar to Landskron.

The principal mines of Moravia are in the district of Brunr, near Rossitz and Ofonov, and the coal near the mouth of the Oder is of a superior quality. In the Archduchy there are mines near Wiener, Neustadt, Klagenfurt, Gubach and Gloggnitz; in Styria, near Leoben, and Fohnsdorf; in Carinthia, in the valley of the Lavan, and in the neighborhood of Prevali; in Dalmatia; in Lombardy, in the districts of Oome and Pavia; in Tyrol, near Haring, and in Hungary, in the Carpathian mountains.

In 1844, Austria exported 773,065 cwts., of which 702,262 cwts. were sent from Bohemia by the Elbe to Saxony, 25,433 cwts. to Turkey, 23,210 cwts. to southern Germany, and 20,542 cwts. to Prussia.

Prussia possesses 540 coal mines, giving employment to 25,000 workmen. The produce in 1844 amounted to 53,000,000 cwts., or a value of 4,500,000 dollars (£675,000). In 1841, Prussia imported 3,864,944 cwts., principally imported England. Her exportation was 6,903,473 to Holland, France and Poland.

In Bavaria, the produce is not what it might be; there are 40 extensive coal mines, principally in her Rhenish provinces, the produce is about 1,200,000 cwts.

In Saxony, the mines are worked with zeal—the produce amounts to about 4,000,000 cwts.

There are extensive mines near the forest of Thuringen.

The Grand Duchy of Baden possesses some valuable coal mines.

In the Duchy of Brunswick there is scarcely a mine.

In the kingdom of Hanover there are coal mines which occupy more than 1,000 workmen.

Wurtemberg is poor in this respect. The Grand Duchy of Hesse, the Duchy of Nassau, the Grand Duchies of Mecklenbourg and Olenbourg do not possess coal mines.—In the Electorate of Hesse there are some valuable mines, producing annually about 900,000 cwts.

Generally speaking, the production of coal in Europe is susceptible of being greatly developed, especially in some parts of the Austrian dominions. It is true, that during the last few years, much has been done, but there is still much more to do.

The produce of coal in Europe amounts annually, on a rough calculation, to 120,000,000 fl, or £12,000,000 sterling.

English Iron Trade.
PER GREAT WESTERN.
FROM LONDON MINING JOURNAL,
MAY 22, 1846.

We learn from our letters of the 29th May that the iron trade feels the effects of the great demand for money. Rails were quoted at £9 10s. and merchant bars at £8 at Cardiff.

	£.	s.	£.	s.	d.
Bar a Wales—ton	8	0—8	5	0	0
“ London	9	0—9	5	0	0
Nail rods	0	0—10	0	0	0
Hoop (staf.)	11	0—11	5	0	0
Sheet	0	0—12	5	0	0
Bars	10	10—11	0	0	0
Welsh cold blast foundry pig	4	5—	5	0	0
Scotch pig b Clyde	0	0—3	10	0	0
Rails	9	10—9	15	0	0
Russian, CCND c	0	0—16	0	0	0
“ PSI	0	0—16	0	0	0
“ Gourleff	14	5—14	10	0	0
“ Archangel	0	0—13	12	6	0
Swedish z, on the spot	0	0—11	10	0	0
“ Steel, fagt	0	0—15	5	0	0
“ kegs e	14	5—14	10	0	0

From our correspondent.

We have no alterations to notice—prices remaining the same as quoted in last week's *Mining Journal*. The metal market generally is very dull, and the accounts just received from India will probably deter the principal buyers from making purchases at present.

From a correspondent.

English bar iron continues inactive, but for rails there are a few inquiries. Scotch pig has not been so active this week; sellers from 70s. to 72s. 6d. per ton at Glasgow, according to Nos. Swedish iron and steel continue dull of sale.

Glasgow Pig Iron.—May 15.—There have been few transactions in pig iron this week, from holders being very firm for higher prices, and which buyers are unwilling to give, unless necessitated to purchase. The principal sale during the week was 2,500 tons (3-5ths and 2-5ths.) at 72s. 6d. per ton, cash, for iron in store. We quote the price 69s. to 70s. for No. 3; 72s. 6d. for proportions of Nos.; and 73s. to 75s. for No. 1.

Iron Market-house.—The Glasgow papers describe an iron market-house for Honduras, that has just been completed by Messrs. Edgington, of Glasgow. It “measures 108 feet long and 60 feet wide, and is surrounded by a colonnade or verandah 12 feet wide, supported by handsome fluted columns. The interior or main building contains numerous stalls for the sale of the various market commodities, and is ventilated by means of jalousie blades, fixed in the manner of Venetian blinds. There is besides a ventilator on the top, that nothing may be wanting to encourage a delicious coolness in the hot climate for which it is intended.”

Reading (Official) Railroad.

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending

	June 8th, 1844.	June 7th, 1845.	June 6th, 1846.
Travel	\$1,777 70	\$1,968 89	\$3,115 59
Freight on goods..	700 23	1,466 91	3,882 83
Do. do. coal..	8,906 33	19,036 55	36,235 25
Miscell's receipts .....	.....	.....	.....
Transp. U.S. mail .....	.....	.....	.....
	\$11,384 26	\$22,472 35	\$42,233 67
Coal trans., tons..	9,065	19,241	29,237

New York and Erie Railroad.—The revenue of the eastern division of the New York and Erie railroad for the eight months ending May 31, 1845 and 1846, were as follows:

	1845.	1846.
From freight	\$64,352 12	\$69,150 37
“ passengers	35,332 53	42,098 43
Total	\$99,684 65	\$111,248 80
		99,684 65
Increase		\$11,564 15

On the 1st of April, the passenger fare was reduced

30 per cent. or to less than 2 cents a mile. This was followed in the two next months by an increase of more than 16 per cent. in the passenger receipts. The business of the road is steadily increasing, and the estimated receipts for the next 4 months will probably be considerably exceeded. About 35,000 quarts of milk are daily brought over the road, from Orange co. to this city—and just now, Rockland co. sends every night from 30 to 40,000 baskets of strawberries. An extra train is run to accommodate this trade.

✂ We learn that the New Jersey railroad company have reduced their fare on through passengers from Trenton, having commutation tickets from the Camden and Amboy company. The charge now is 75 cents instead of \$1 25. The Eastern company have thus followed promptly the reduction made by the Camden and Amboy company, and are entitled to their proper share of praise.

Any person who travels from Trenton to New York and back twice, will save money by buying a commutation ticket, which will enable him to cross the road eight times.

The first two trips will then cost us as follows:

Commutation ticket	\$5 00
Transit duty, 4 times	40
N. J. Railroad, 4 trips	3 00
	\$8 30

The best of a trip to New York and back, to persons purchasing a single ticket at the old rates, is \$5—and two trips costs \$10. Eight trips, at \$5 each, will cost \$40; but if made under a commutation ticket, they will cost \$11 80. The saving by them will be \$28 20, showing a reduction of more than two-thirds from the old rates.—*Trenton Gazette.*

New York and Boston Railway.—The charter reported to the Connecticut legislature by the committee on railroads, provides for a railway, with a single, double or treble track, from New Haven to the state line, through Middletown, by the name of the Boston and New York railroad. The capital stock is to be two millions of dollars, in shares of \$100 each, with liberty to increase it to three millions.—They have power to cross the Connecticut on a viaduct with a draw of at least 85 feet, to be constructed under the direction of three persons appointed by the superior court; the draw to be kept open at all times, except when trains are passing. In case of unnecessary detention, the company are to pay a fine of \$1000. The owners of vessels not liable for damage done to the viaduct unless it be negligent or malicious. If \$500,000 be not expended within three years, or the road constructed in six years, the charter to be forfeited.

The bill passed the house of representatives on Saturday, by a vote of 116 to 80—majority 36. It is believed that there will be no strenuous opposition to its passage in the senate.

Railway on the Canal Tow-path from New Haven to Collinsville.—The bill for chartering this road which passed the Connecticut senate a few days since, on Friday received an almost unanimous vote in the house in its favor, and only awaits the signature of the governor to become a law. This bill increases the stock of the company \$900,000, providing that \$200,000 shall be subscribed before the road is commenced, and \$100,000 expended in eighteen months—shares increased to \$100 each.

Reduction of Fare.—We understand the fare, on Monday next, from Springfield to New York, will be reduced to \$2 75; from Hartford to New York, \$2; and between New Haven and New York, \$1. These prices are reasonable enough, and we trust the travel will be largely increased on this justly popular route.—*Hartford Times, June 12.*

Connecticut Valley Railway.—The committee on railways in the Connecticut legislature, on Friday, reported a bill authorizing the construction of the Connecticut valley railway.

Pittsburg and Connelville Railroad.—we learn from the Pittsburg papers that the six thousand shares of stock which the commissioners were authorized to take, have been all subscribed.

Railroad Iron.—During the month of May, the rolling mill of the Montour iron company at Danville, Pa., made 796 tons of railroad iron.

Ogdensburg Railroad.—The Ogdensburg railroad company was organized on Tuesday, June 2nd, at Ogdensburg, by the choice of the following board of directors: George Parish, Anthony C. Brown of Ogdensburg, N. Y.; John L. Russell, Canton, N. Y.; Hiram Horton, Malone, N. Y.; Lawrence Myers, Plattsburg, N. Y.; Charles Paine, Northfield, Vt.; (president of the Vermont, Central railroad co.) S. S. Lewis, T. P. Chandler, Wm. F. Weld, Thomas Lamb, Benj. T. Read, Boston; Isaac Spaulding, Concord, N. H.; S. F. Belknap, Windsor, Vt. George Parish was elected president, and Sam'l H. Walley, Jr., treasurer of the company.

The following gentlemen were on Thursday last, elected directors of the N. J. railroad and Transportation company for the ensuing year; Stephen Whitney, Abraham G. Thompson, Wm. Sam'l Johnson, and J. Philips Phoenix, of N. Y. John S. Darcy, D. S. Gregory, Adam Lee, John Acken, and John P. Jackson, of New Jersey.

Improved Railway Whistle.—The *Censeur de Lyon* proposes as an improvement in railway whistles (which as now made, stun passengers with their frightful noise—while the driver of an approaching train cannot hear them when the wind is unfavorable,) to attach to them by a swivel connection, a kind of speaking trumpet, by the turning of which the sound can be conveyed in any direction, and to a much greater distance than by the present mode.

A Musical Bed.—The last novelty from Germany is a musical bed which receives the weary body and immediately “laps it in elysium.” It is an invention of a mechanic in Bohemia, and is so constructed that by means of hidden mechanism, a pressure upon the bed causes a soft and gentle air of Auber to be played, which continues long enough to lull the most wakeful to sleep. At the head is a clock, the hand of which being placed at the hour the sleeper wishes to rise, when the time arrives, the bed plays a march of Spontoni, with drums and cymbals, and in short, with noise enough to rouse the seven sleepers.

Connecticut River Railroad.—The following gentlemen were elected directors of this road at the annual meeting in Boston, on Wednesday: E. Hopkins, Northampton; E. H. Robins, J. K. Mills, S. Henshaw, Boston; John Chase, Cabotville; F. Ripley, Hartford; H. W. Clapp, Greenfield. Erastus Hopkins was re-elected president of the corporation and Sam'l F. Lyman, clerk and treasurer.

Shamokin Furnace.—The anthracite furnace at Shamokin, recently leased by Messrs. Bryant and Wood, was successfully blown in last week, by Mr. Bryant, and is now turning out iron of an excellent quality. Mr. Bryant is a practical man, and is the second American who has succeeded in blowing in anthracite furnaces in this country. Mr. Charles Henderson at the Valley furnace, was the first—*Miners' Journal.*

✂ The St. Louis New Era keeps up its fire at those who are opposed to internal improvements.—The west will now suffer, as it little expected to do, from the effects of war upon the sea ports.

“The present state of trade furnishes a powerful argument in favor of lines of railroad from the valley of the Mississippi to the Atlantic. A slight war with a feeble nation has thrown the commerce of the west in a state of ruinous confusion. This is owing to the fact that our heavy produce must pass through the Gulf of Mexico, and be subjected to the risks and hazards of war. If we had good railroads to the east, the commerce of the west would not be thus injured and prostrated. Internal lines of communication would render us more safe and independent. The alarm and panic of war would be stripped of a part of their terrors by the construction of railroads to the Atlantic.”

“The bill to authorize the construction of a railroad from Galena to Chicago is still before congress. It is charged that Mr. Hoge, the member of congress from Galena, is opposed to it, and that this will cause its defeat. This would be as blind an act on his part as was that of certain members of congress from Missouri, who voted against the bill to remove the snags from the Missouri and Mississippi rivers.”

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.

Saturday, June 20, 1846.

A CARD.

TO THE CITIZENS OF NEW YORK.

After a residence of over *twenty-one* years in this city, I find it for my interest to seek, in a neighboring city, a new home, where I hope to derive more ample reward for honest and unremitting industry; and enjoy the satisfaction of knowing that my past labors have contributed somewhat to the general prosperity, if not materially to my own.

Having, for so long a period, participated in the excitements and activity of this growing city, and witnessed its prosperity and rapid advancement—yet without sharing largely in its enjoyments—I cannot leave it without regret, nor without acknowledging my obligations, and gratitude, to the many kind friends, who have at all times cheered and encouraged me on; but more especially to those few who so generously sustained me at a period when all was lost, save a determination to succeed. Here I have catered and labored for the general prosperity; and have the vanity to believe that the great destiny that awaits you has not been retarded by my efforts; *there* I shall provide the comforts required by the body—and therefore solicit in my new habitation, and new vocation, a continuance of your approval, and an increase of your patronage. I shall feel, while I labor for the wants of the outer man—while I provide and supply, in a superior manner, the comforts and social enjoyments of life—that I am but "laboring in the vocation" that contributes "the greatest good to the greatest number."

In the "FRANKLIN HOUSE," Philadelphia—my new residence after the 1st of July—I hope to meet many of those faces which, during a long residence here, have become familiar to me, and grasp many an honest hand, and exchange many a kind salutation, with warm and sincere friends of my early days.

I have taken the well known FRANKLIN HOUSE, 105 Chestnut Street, Philadelphia, heretofore kept by Messrs. J. M. SANDERSON & SON, which is now undergoing a thorough renovation, and extensive improvements, by the addition of a convenient and well arranged *ladies ordinary*, a spacious new dining room for gentlemen, several new parlors, and many new and convenient lodging rooms. It will be entirely repainted, and mainly refurbished, and thus be placed on a footing with the best hotels in Philadelphia. I shall be aided in its management, by Mr. James M. Sanderson, long favorably known

as one of the gentlemanly proprietors of the FRANKLIN HOUSE, and as a caterer unsurpassed in the country; and also by the celebrated Chef de Cuisine PELLETIER, also connected with the house during the past four years, and whose superior, as an artiste, in his line, in this country, *is yet to be found.*

With such a house, and such aid in its management, I do not hesitate to say, to those friends and acquaintances who have known me during the past twenty years, and to others who have not, that they will find good accommodation, good fare, and all desirable attention to their wishes when they call at the FRANKLIN HOUSE, and upon their obedient servant,
 D. K. MINOR.

THE RAILROAD JOURNAL will hereafter be published *simultaneously* in New York and PHILADELPHIA. The editorial department will as heretofore, be under the direction of the subscriber, aided by his former associate Mr. George C. Schaeffer, and other gentlemen of ability connected with the profession—and renewed efforts will be made to render it *more* worthy of the rapidly increasing support which it is now receiving.

Engravings and illustrations will be more frequently given, and expensive maps will be occasionally prepared, showing the progress of the railway system, one of which, showing the proposed route of steam communication from China, across the isthmus, and through the United States, to England, by Edward McGeachy, Esq., of Jamaica, is now in the hands of the artist, and will be ready in a few weeks; and others will follow.

The office in New York will remain for the present, at 23 Chambers street, and be in charge of Mr. Egbert Hedge, long connected with the work—who is authorized to transact business for me.

The office in PHILADELPHIA will be at the FRANKLIN HOUSE, 105 Chestnut street, under the direction of the editor and proprietor, where all *letters*, and *communications* by mail, and all *exchange papers* and *periodicals* be hereafter addressed may to
 D. K. MINOR.

The editor of the Railroad Journal presents his compliments to his numerous subscribers and friends and assures them that he will be always gratified to see them at his new office and home, the FRANKLIN HOUSE, late SANDERSON'S, 105 Chestnut street, Philadelphia. He will be found *at home.*

Triger's Condensed Air Apparatus.

The new method of working under water, described in a late number of the Journal, has, in the hands of its inventor, Mr. Triger, been applied on a more extensive scale, with the best results. Mr. T. now suggests the very application proposed by us, viz: building of piers, etc., and particularly insists upon the reduced expense.

SOUTH CAROLINA RAILROAD.—A

Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily. \$26 50
 Fare through from Charleston to Huntsville, Decatur and Tuscumbia. 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent.

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers or fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.
 Office, No. 3 North 5th street, Philadelphia, Pa.

MARAMEC IRON WORKS FOR SALE.

By Authority of a power of Attorney from Messrs. Massey and James, I will sell at Public Auction, at the Court House in the city of St. Louis, on MONDAY, the 2nd day of November next, the above named valuable IRON WORKS—together with 8,000 ACRES OF LAND, more or less, on which there are several *valuable and productive Farms* open and in cultivation.

The Maramec Iron Works are situated at the Maramec Big Spring, in Crawford Co., Mo., and consist of 1 BLAST FURNACE; 1 AIR FURNACE; 1 REFINING FORGE, with large Hammer for making Blooms and Anchovies; 2 CHEFFERY FORGES for Drawing Bar Iron; 1 ROLLING MILL for Rolling Blooms into Bars and Plates;

1 SAW AND 1 GRIST MILL, All within 300 Yards of the head of the spring. There are 2 large frame Coal Houses, and all other Buildings necessary, such as Shops and Houses for the workmen.

This Spring is one of the largest in Missouri, discharging at the lowest time 7,000 cubic feet of water per minute. The Ore Bank from which the Ore has been heretofore taken is about 600 yards from the furnace; it is the *Spectacular Iron Ore*, the best for making Bar Iron, and the quantity inexhaustible.—It is an Iron Mountain, 400 feet above the level of the Maramec River; the ore is entirely uncovered, and there is an easy descent and a good road from it to the furnace.

The lands have been carefully selected by one of the owners with a view to the interest and convenience of the Works, and are situated principally on the Maramec River and its tributaries, embracing the best bottom lands and water powers. The following detached tracts, comprized in the above quantity, were selected for the advantages they possess;

183 1/2 ACRES in T. 40 N. of R. 8 W. in Sec. 3, near Wherry's Mill, in Osage Co.; entered to secure a very valuable Mill power on the Branch Spring and a good landing on the Gasconade River.

80 ACRES on Benton's Creek, 12 miles from the Works; entered to secure an extensive and valuable Ore Bank 2 1/2 miles from the Maramec, at a point where there is ample water power.

320 ACRES in T. 38 N. of R. 4 W. in Sec. 22 and 23, affording an extensive and valuable water power on the Maramec river.

160 ACRES in T. 37 N. of R. 3 W. in Sec. 4, embraces two inexhaustible and valuable Ore Banks and is 1 1/2 miles from Water power sufficient for a furnace and Grist Mill, and is distant 6 miles from the above site on the Maramec.

80 ACRES in T. 37 N. of R. 8 W. in Sec. 33, including an extensive bank of excellent Ore, and distant 1 1/2 miles from water power on the waters of the Gasconade River, in Pulaski Co., sufficient for Furnace and Mills. All those Banks are of the same kind as the one at the Works, and deemed inexhaustible.

1 LOT, containing nearly one Acre, on the South Bank of the Missouri River, 4 Miles above the town of Hermann, purchased for a warehouse and

landing, and is one of the best landings on the River.

The lands above described are well timbered, and have been selected with a view to have an ample supply of wood and coal, for fences, building, and other purposes. There are on the land valuable quarries of Limestone well adapted for Fluxes for the Ore, and also good quarries of Rock suitable for building. There are also on the land a great number the finest kind of Springs. A large portion of the lands are bottoms well adapted to the production of Corn and other crops. The Works are situated in a very pleasant and healthful part of the country. The Maramec ore is believed to be admirably adapted to the manufacture of steel.

A further description of the property at this time is considered unnecessary, as those wishing to purchase will no doubt view the property, which will be shown by the Agent, residing at the works.

The terms of payment required will be one-third of the purchase money in hand and the balance in three equal annual payments, secured by mortgage on all the property.

A more particular description of the property will be given, and further conditions of the sale made known, on the day of sale.

Jno. F. ARMSTRONG, Agent.

St. Louis, June 6, 1846.

The Louisville, (Ky.,) Journal, Cincinnati Gazette, Tribune (Portsmouth, O.,) Nashville Whig, Pittsburg Gazette, National Intelligencer, United States Gazette, (Phila.) Railroad Journal (N. Y.,) and Boston Atlas, will publish the above once a week until the 20th day of October next, and send bills to this office for settlement, and mark price on first paper. 18¢25

A Through Ticket Between New York and Washington at Five Dollars.

We some time since made a suggestion on this subject in our columns, and are surprised that a measure which would afford so great an accommodation to the public, and at the same time increase so much the profits of the railroad companies, has hitherto attracted so little attention on the part of those who conduct them. It appears to us obvious that with the present facilities for visiting Washington, a reduction of the rate on through tickets, to persons going direct from New York to Washington, would lead to an immense travel and consequent increase of receipt to the companies interested on this branch of their business. A traveller may now leave New York at 4½ P. M., be in Washington by 9 A. M. the next morning, attend to business at the departments, and afterwards attend a debate in the house of representatives or the senate, and leaving Washington at 5½ P. M., be in New York by 12 M. the next day, thus losing only one business day for the trip. But the expense of paying the full fare on each road is too great for persons to incur, unless for objects of great moment, and thus the companies lose the benefit of that much larger travel, which for slight considerations of business, or merely for pleasure or curiosity would take the journey. We would respectfully draw the attention of their directors and stockholders to this subject. We are convinced at the rate suggested by us, which would give \$2 to the road between this city and Philadelphia to that between Philadelphia and Baltimore, and \$1 to the Washington road, that an immense travel between the political and commercial metropolis of the union, would be put in motion; while on the other hand, should no such measure be adopted, we feel equally well satisfied that the growing use of the magnetic telegraph will eventually impair the present receipts of the companies from the travel in question.

We would not, in what we have above said, be understood as assenting to the expediency of the present rates on other travel. On the contrary, we believe that a charge of \$2.50 between New York and

Philadelphia, the same between Philadelphia and Baltimore, and \$1.25 between Baltimore and Washington, would be a more productive one to the companies than their present rates, but the case is much stronger with regard to the description of travel which would exist *Between New York and Washington*, which it will require low rates to set in motion, but which would, we are satisfied, be set in motion to an immense extent, if the suggestions we have ventured to make on the subject were adopted.

Railroad Locks.

The use of locks, or dry locks, as they are sometimes called, upon railways, is by no means a new thing. Still, as far as we can learn, this contrivance has been but little employed, although it dates back farther than almost every other railroad invention. Our object in noticing it at present, is to record its re-introduction in France, at the coal mines of Decize.

The advantages claimed for this mode of construction are as follows:

Great elevations can be overcome within a small space, sudden rises of ground are met at once, and the heavy excavation and embankment, usual at such points, are dispensed with. The long rope, signals, etc., of inclined planes, are not needed, and the risk of accident greatly decreased. The cost of construction and repairs are far less than on inclined planes.

It is not intended that these locks should be used on lines of quick travel, but rather for heavy trains moving at moderate rates. The application to coal and iron roads penetrating a mountainous region, is too obvious to need illustration.

New York and Erie Railroad.

Extract from a letter of a correspondent, dated June 7th, 1846:

"I am engaged now in making some surveys for the commissioners appointed by the last legislature to locate portions of the Erie railroad in the vicinity of Sullivan county. These surveys will extend over a section of country about 40 miles square, where are presented not only great obstacles to the construction of a railroad, but also to that rigid examination which the interests of the company and the interests of the inhabitants of this county alike require. Two parties are engaged at present in field operations, under the general supervision of Henry Tracy, Esq.; two parties on the interior route, and two on the Delaware or Pennsylvania route. A most commendable disposition is evinced on the part of the commissioners to have the question of location settled at the earliest practicable day, and it scarcely admits of a doubt but that immediately following their decision, preparations will be made by the Erie railroad company for placing the work under contract.

"Very respectfully, your obedient servant,"

"Herron Track."

FALLS OF NIAGARA,
June 2d, 1846.

D. K. MINOR, Esq.

Dear Sir: Having had repeated applications for copies of the president of the Reading railroads' letter, on the merits of the "Herron Track," which I find it very inconvenient to supply, it has been suggested that I could serve all who are interested in its perusal, more effectually, by sending you a copy at once for insertion in the Railroad Journal, which is now so universally read by all who are any way interested in the subject of railroads.

Mr. Tucker's letter, which you read as I passed through New York, and of which I enclose you a

literal copy, has been pronounced in State street, Boston, where the writer is well known, and the subject of railroads also well understood, to be full, circumstantial, and evincing close observation combined with an intimate knowledge of the subject upon which he wrote, which, it was remarked, accounted in a measure for his very successful management of the Reading railroad. Indeed it is pronounced excellent; and an engineer who has been opposed to my plan, remarked that more could not be said. Yet I know that Mr. Tucker, true to his well known character for caution and prudence, has kept far within the limits which the facts in the case would warrant. It should be borne in mind that this comparison of the "Herron Track" is not made with a track of inferior construction, but with one of the best tracks in the union. For such is the Reading railroad. Yet Mr. Tucker states, that during the transportation of 1,100,000 tons of coal, the cross-tie track, along side of it, used for taking back the empty coal cars, cost materially more for adjustment than the "Herron Track," which bore the same engines and cars loaded with eleven hundred thousand tons (of 2240 lbs.) of coal. The merchant freight and passengers being about equal on both tracks.—under such circumstances, the "Herron Track" did not actually cost one-half for adjustment. And I feel perfectly safe in asserting that the best railway track I have seen in New England, or elsewhere, costs more for repairs and adjustments in a single year than the "Herron Track" would in three years, and in some cases than it would in five years, laid on the same soil, and with the same actual trade.

At the date of this letter, the coal trade that has passed over the Herron track, of the Reading railroad, exceeds 1,220,800 tons.

It has been remarked that the heavy coal trains ran at much greater speed on the Herron track than elsewhere on the road, owing to the superior evenness of surface. Consequently, the engines would have drawn a proportionably greater load at the usual speed. Or the same work could be done with a much less consumption of fuel. Mr. Tucker informed me that he purposed noticing this fact, but omitted it accidentally. It is one of great importance, however, as I estimate the saving that would have resulted to that company last year, in fuel alone at \$29,741; and this year, at about \$44,630. Besides which there would have been a saving in the wear and tear of the cars, engines, and track, last year, of about \$100,000; which with the increased trade of the present year, would amount to \$150,000. To which add the saving in fuel, and from waste coal, and accidents, would in the aggregate amount to \$200,000.

I will close these remarks with the observation, that Mr. Tucker's doubts in regard to the facility with which the string-pieces can be replaced, are regarded by the ablest superintending engineers of the best managed railroads in New York and the eastern states, to be entirely unfounded. Yet they serve to show, in an eminent degree, the circumspection with which Mr. T. has examined this improvement in all its details, before giving it his sanction.

I have the pleasure to add that the "Herron Track" will shortly be introduced on several of the most important and best managed roads in the union, where everything which engineering skill, and the most efficient system of management has, evidently, been bestowed in maintaining the present track.

As I am much called on for estimates of the track, I beg leave to append one.

Very respectfully yours, etc.,
JAS. HERRON, Of Philadelphia.

Estimate of the quantity of materials, and probable cost of constructing one mile of "Herron Track," exclusive of the iron rails, but with all the fastenings and workmanship to secure them.

533 string pieces, 20½ ft.	
long, 5 x 7 inches = 36,080 feet	
2112 trellis sills, 14½ feet	
long, 3 x 8 inches = 61,248 feet	
Sound hemlock timber, 97,328 feet at \$5 =	\$486 64
4224 engine turned white oak tree-nails, 16 inches by 1½ inch, at 2½ cents.	105 60
6336 boat spikes, 7 in. long = 1500 lbs. at 4½ c.	63 75
Preservation of the timber with chloride of zinc.....	245 00

Cost of the materials in the frame work of track\$900 99

Fastenings for Iron Rails.

528 patent wrought iron joint chairs, at 5 lbs. = 2640 lbs. at 6 cents.....	158 40
8100 railway spikes 2700 lbs. at 4½ cents. . .	114 75
Workmanship, in which all charge for the use of the patent will be, for the present, merged	800 00

Cost of the track, exclusive of rails.....\$1,974 14

NOTE. Fifty pound rails laid on the Herron track will make a much better and more durable track than 75 pound rails laid on cross sills, and the difference of cost in the weight of iron alone, even supposing it to be bought at \$60 per ton, will more than pay for laying the Herron structure with preserved timber, without taking into account the chairs, spikes, sills, and workmanship required to lay the 75 lb. rails: thus

117.75 tons of rails, at 75 lbs. per yard, at \$60 per ton, is.....	\$7,065
78.5 tons of rails, at 50 lbs. per yard, at \$60 per ton, is.....	4,710

Difference in the cost of the rails alone.... \$2,255 J. H.

OFFICE OF THE PHILA. & READING R. R. Co. }
Philadelphia, May 2d, 1846. }

JAS. HERRON, Esq., C. E.

Dear Sir: In reply to your request that I should give an expression, in writing, of the views I have formed in relation to the merits of your patent railway track, which has now been in use for about a year and a half, for three miles, on the main line of the road, I will briefly state a few prominent facts.

1st. The part of the road which was selected for the experiment, with your concurrence, was such as would fully test the usefulness of your plan. Your track is laid, in part, on a soil of clay, and through a long, deep and wet cut, with much curvature of line.

2d. The track has had passed over it upwards of 1,100,000 tons of coal, besides all other down freight and passengers. It has maintained a more perfect level than the track laid with cross-ties on broken stone. It has cost less for adjustment than the average expense on the whole road, and materially less than the three adjoining miles of track laid on cross-ties, although the latter was used for the passing the empty coal cars and the merchandize and passengers from Philadelphia.

3d. You opened your track for the heavy trade of the road before the frame work was filled in throughout with earth, and while the road bed in the deep cut was in a bad condition, being frequently inundated with water. You were confident that no injurious consequences would ensue to the structure,

and the result has proved the correctness of your opinion.

It has frequently been suggested that the frost would throw your track out of line and level, and break the trellis pieces. This apprehension was not well founded, as such injurious consequences would have soon appeared in the deep cut to which I have alluded. On the contrary, the level of your rack has been particularly good, and I am not aware that a single piece of timber has been broken.

4th. The joints of the rails are more perfect than on any other plan of superstructure that I have noticed.

5th. The question arises as to the practicability of making repairs without interruption to the business on a road, when so many trains are constantly passing, when the resources of that section of the country are more fully developed. Thus far, with a business frequently of more than 4500 tons per day, not the slightest interruption has been known. It is probable, however, that the business will soon be nearly doubled. I am satisfied that the trellis pieces can be removed and replaced with facility, but I have doubts in regard to the rapidity with which the string pieces can be removed. In theory, your plan of replacing the latter seems to be very feasible, but as the track must *always* be ready for the passage of trains which may arrive five minutes apart, I think you would encounter practical difficulties if the removal of the string pieces cannot be avoided by kyanizing the timber. I believe, however, that a string piece can be taken out and replaced with another in fifteen or twenty minutes in such a manner that trains could pass over it with safety. Therefore, on most roads this would be a matter of but little importance. Of course I cannot now express an opinion, founded on any experience, as to your success in attempting to preserve the timber by kyanizing it. As the timber used in your structure is more expensive than in most others, the question of its durability becomes one of importance.

I think there is sufficient evidence to warrant the conclusion, that your process for rendering the wood very durable will be quite successful. This can only be tested by time, and if the result is such as I hope and expect, I shall feel confident that the repairs to railroads and railroad machinery may be materially diminished by adopting your plan of track.

In conclusion, I have the pleasure to repeat the assurance I have verbally made to you, that your track, thus far, has been fully equal to your representations at the time we decided to test it.

I remain, dear sir, very respectfully, your obedient servant,
JOHN TUCKER, *President.*

Magnetic Water Gauge.

The invention recorded below is not new, in principle at least—a similar contrivance was proposed to the U. S. commissioner, appointed several years since, for the purpose of examining into the means of preventing the rupture of boilers. It was then determined that the action of heat upon magnets, the presence of large quantities of iron in their immediate vicinity and the extreme delicacy of construction required for the free action of the needle, would prevent all reliance upon methods in themselves ingenious.

We make this criticism with a view to prevent useless experiment and cost. The inventor might have saved himself the expense of patents in Europe, as he will probably never make of his invention an amount equal to the moderate charge for a patent in this country.

Magnetic Water Gauge.—This is the name of a new instrument, invented and patented by Mr. George Faber, of Canton, O., for the purpose of showing the exact height of water in the boiler or boilers of a steam engine. It is undoubtedly one of the simplest applications of a scientific principle we have ever noticed. The instrument itself is of the simplest construction, calculated to endure a great deal of service without getting out of order. We cannot give a technical description of it, we will endeavor to write a popular one.

The principle is, that a magnet will effect substances through a solid body. The instrument is composed of a flat cylindrical brass box, in two pieces, united by a screw. On the face of the box there is painted a dial, resembling a clock face; with numbers from 1 to 18. A needle is suspended on this. In the inside of the box, but in no way connected with the needle, there is a magnet, itself fitted on the end of a brass rod extending into the boiler. On the end of the rod in the boiler, there is a copper pulley wheel, with grooves on the edge, around which a brass chain traverses, with a brass and copper ball—one at each end. The latter is about six inches in diameter, hollow, and floats upon the water. It is by the rising or sinking of this latter that the instrument operates. As the water falls the grooved wheel turns, and with it the rod, its axle, and with the rod, the magnet in the box. There is no connection between the magnet and needle, but the former operates upon the latter through the solid brass, and causes it to indicate the exact number of inches of water in the boilers.

The whole affair is a simple and beautiful application of a well known principle to a new purpose. So far as we can see, it will answer every expectation. A child that can tell the hours by the hands of a clock, can also tell the quantity of water in a boiler by this instrument. It is a most ingenious piece of mechanism, and can be afforded cheap.—Mr. Lewis Vail, the sole agent of the patentee exhibited one of them to us, and we also saw one in operation upon the boilers of Messrs. E. & F. Faber, fifth ward. The inventor is a brother of these gentlemen. We advise all who are interested or curious in such matters to call at their works and see it.

We understand that patents have been taken out in Europe for it. A patent was granted for it by our government November 26th, 1845. Gentlemen of the highest scientific attainments have spoken very favorably of it. If we are not much mistaken, it will come into universal use.

The Real Railway King.—A gentleman in the Queens Bench has papered his room with nothing but railway shares. The effect is very rich. It is calculated that not less than three millions of capital has been sent in this way to the wall. Every county in the United Kingdom is there represented. The whole railway world is compressed into the space of eight feet by six. The gentleman breakfasts in England,

takes his tiffin in India, dines at Paris, and sleeps in Switzerland, just according as he moves his chair. We must not forget to mention that every share has been made to run in the direction of the fire-place. In this way the flue ingeniously represents the grand central terminus of all the lines in the world.—

Punch.

A Hindoo Gentleman's Opinion of Railway Travelling.

"You doubtless have heard and read of railways, though perhaps you cannot form any conception of them. It was on this occasion that I, for the first time, travelled by one, a distance of two hundred miles. But how shall I describe it to you? If I had the words, I have not the knowledge—I scarcely know what happened to myself, much less could I take any observations of the mechanism of this wonderful piece of machinery. As soon as I got to the starting place, I found myself amongst a crowd of persons of all kinds, talking, hallooing, pushing; and all seeming in the utmost state of confusion and excitement; I thought some serious accident had happened, and whilst I was vainly trying to gain information, my luggage was seized by some men whom I at first imagined to be robbers, but afterwards found to be only porters, and I was forced into a carriage, the door of which was instantly fastened upon me; before I could remonstrate upon this violence, the train started off, and I therefore resigned myself quietly to my fate. Soon we were rushing along like the wind in its fury; as I looked out upon the road, my head grew dizzy, my eyes dim, my senses were utterly bewildered, and I hid my face in my hands to recover myself. When I again looked up, we were flying onward at a still greater speed; the birds in their swiftest flight, the scud in the heavens, the comet shooting amidst boundless space, seemed sluggish in comparison with our furious, headlong travelling. The sun was shining brightly upon a beautiful soft landscape peculiar to this country, my nerves were beginning to get reconciled to the unusual circumstances, and I even felt a sort of pleasurable excitement, a species of madness, a reckless desire for greater and still greater speed; when suddenly, as if by magic, we were cast into utter darkness, not a ray of light was perceptible; I felt, however, that we were still rushing through the air at the same furious pace as before—whither, I knew not, unless into the very bowels of the earth; on, on we sped; minutes, hours, seemed to pass, and yet no change; I thought I was doomed to be whisked through dark space for ever and ever, when we were again suddenly thrown into the bright light of the sun. In answer to my bewildered inquiries, I was told that we had merely passed through a tunnel or passage of three or four miles in length, cut through a hill, which was too high for the trains to surmount; and that, instead of having been hours in the transit, we had been but a few minutes. What a wonderful people are these English! Here was a stupendous work, a combination of science and labor, performed at immense

cost—and for what purpose? I asked a fellow-passenger, who sat near me, whether the road could not have been taken round the foot of the hill, at much less labor and expense. Certainly it could, he replied, and for about one-half the money, but then we should have lost full ten minutes on the journey. All this science, this labor, this money, expended to save ten minutes in a journey of two hundred miles!! Truly, the English are a wonderful people: they have a proverb that time is money, and, certainly, although they are very fond of money, they seem to think quite as much of time. It is a sort of phantom that they are always pursuing; they talk of *saving time* as if they could lock it up in a strong box, and keep it there for use on some future occasion; want of time is as general a complaint as want of money; and to cheat a person of one is looked upon as as great a crime as cheating him of the other, as may be seen by the constant complaints in their newspapers against railways and steam vessels which have been a little longer on their passage than the regulated time. We stopped at various stations to put down and take up passengers; and at one place everybody got out of the carriages in order to eat and drink. There was here quite a rush into a large handsome room, where tables were covered with a profusion of various kinds of food, which everybody scrambled at, and began to devour as if they were in a starving condition. While I was gazing in wonder at this scene, and just as I was endeavoring to find something that I could myself eat, there was a loud announcement that the train was again ready to start; and, accordingly out everybody rushed, carrying me along with them. I was obliged to pay the same as the others, although I had eaten nothing; but I could not remonstrate, or the carriages would have gone without me. I understood that not long since, fifteen minutes time was permitted for this meal, but upon many of the passengers complaining of the loss of time, it was reduced to eight minutes. We soon arrived at our destination, after having performed the journey at the rate of 35 miles per hour, which I heard a fellow passenger complain of as being very slow, saying that he had lost 20 minutes, and threatening to write to the newspapers about it. As to myself, I was thankful to arrive safe, as I was in constant fear, from the excessive speed, that we should be all dashed to pieces. My kind host having sent a carriage to meet me at the end of the railroad, I was soon comfortably at rest in his magnificent mansion."—*Letter in the Union Magazine.*

Description of a water-wheel with Vertical Axle, on the plan of the Turbine of Fourneyron, erected at Balgonie Mills, Fifeshire. By JOSEPH GORDON STUART, Esq. The paper gave an interesting description of a wheel on this principle recently erected by him at his flax-spinning works at Balgonie, in Fife, and a summary of its general advantages. The Turbine is, in general appearance like an overshot wheel, laid on its side, and

wrought at the bottom of the fall. The water enters it from the inner circumference of the crown, and quits it at the outer circumference, impinging on every bucket of the one, and flowing from every part of the other, at the same instant of time. The water is supplied from a reservoir rising above the wheel, in which it stands to the full height of the fall, and is discharged from the bottom of this reservoir through a cylindrical sluice, so as to be delivered not only on every bucket or curve of the wheel at the same time, but also with the full velocity due to its head. The problem sought to be solved in the construction of the curves is, that the water, which has entered without shock, should quit without velocity. On the nicety of this construction will depend the economy of power, cut in general the useful effect obtained will be equal to that of the best constructed overshot wheel. The turbine has the advantage of the overshot wheel in being adaptable to any height of fall (such wheels are working on the continent on falls from 332 feet to 13 inches), in being generally cheaper in construction, and always much cheaper in maintenance,—in being little disturbed in its economical arrangement either by changes in the quality of water supplied, or by being thrown in back water—and in going at such speed as greatly to economize the necessary connecting gearing for factory work. Mr. Stuart's paper, with the illustrative drawings and model, was remitted to a committee of the Society that they may report fully on the merits of that (in this country) novel mode of economising water power. When that committee have made their report it may be expected that the result will be laid more fully before the public, especially if it be such as to justify the expectations entertained by Mr. Stuart, of this being a most valuable improvement upon any water wheel hitherto in use.

On the Combination of Steam and Canvass Power in Steam Vessels.

Sir:—I send you a few remarks upon a paper in the *Mechanics' Magazine*, No. 1164, page 307, by Lieutenant Ward of the U. S. navy, upon the construction of steam vessels an article which seems to be an attempt to prove the universal superiority of the screw over the paddle wheel in sea-going steamers under canvass. He says, "If the wind be on the side, sails heel the vessel, bury the lee wheel and lift the weather one; under which circumstances both act disadvantageously and produce less speed, or certainly no more than would result from sails alone, or from steam alone." That this is sometimes the case I agree with him. In the trial of the *royal yacht* and the *Rattler*, as stated in another part of your valuable publication, the former gained upon the latter in proportion as she shortened sail; but then, is she not well known to be a very crank vessel? Last summer I was crossing from Ramsgate to Calais in a small vessel of 60 horse power with a very strong side wind, and her speed on setting her canvass was augmented nearly a knot an hour. I must not omit to mention, there was a very heavy sea at the time.

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846. Spring Arrangement... 1846 Commencing April 1st.

Passenger trains leave daily, Sundays excepted—
 Boston 7½ p. m. and 4 p. m. for Albany.
 Albany 6½ " and 2½ " for Boston.
 Springfield 7 " and 1 " for Albany.
 Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
 Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Boston and New York, via Springfield: Passengers leaving Boston at 4 p. m., arrive in Springfield at 8 p. m., proceed directly to Hartford and New Haven, and thence by steamers to New York, arriving at 5 o'clock a. m.

For Buffalo: the trains for Buffalo leave Albany at 7½ a. m. and 7 p. m., arriving at Buffalo at 8 a. m. and 8 p. m. next day. Returning, arrive at Albany at 4 a. m. and 4 p. m.

New York and Boston, via Albany: the trains from Boston arrive at Albany in season for the 7 o'clock boats to New York. Returning, the boats, leaving New York at 5 and 7 p. m., reach Albany at 5 a. m., in ample season for the morning trains to Boston.—Steamboats also leave Albany at 7 a. m. and 5 p. m. and stop at the usual landing places upon the river.

The trains of the Springfield, Hartford and New Haven railroad, connect at Springfield, and passengers from Albany or Boston proceed directly on to Hartford and New Haven.

Montreal: through-tickets to Montreal may be obtained in Boston, by which passengers may proceed to Troy, and thence by stage via Chester, Elizabeth, etc., and in the season of navigation by canal to Whitehall, and thence by the splendid steamers of Lake Champlain to St. John, via Burlington, and thence by railroad and steamers to Montreal.

The trains of the Hudson and Berkshire railroad connect at Chatham and State Line.

The Housatonic railroad connects at State Line. The trains of the Connecticut River railroad connect at Springfield, and passengers may proceed without delay to Northampton, and thence by stage to Greenfield, Brattleboro, Bellows Falls, Hanover, Haverhill, etc.

Stages leave West Brookfield for Ware, Endfield, New Baintree and Hardwick; also leave Palmer, for Three Rivers, Belchertown, Amherst, Ware and Monson; Pittsfield for North and South Adams, Williamstown, Lebanon Springs, etc.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES, Superintendent and Engineer.
 Western Railroad Office, Springfield, April 1, 1846. } 14 1y

MANUFACTURE OF PATENT WIRE
 Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,
 75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	Tons.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4½	13 5	10	24 -	50	15-16	20	
13	3½	8 3	8½	16 -	27	11-16	13½	
14	3½	6 11	7½	12 8	17	9-16	10½	
15	2½	5 2	6½	9 4	13½	1-2	7½	
16	2½	4 3	6	8 8	10½	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.

PETER COOPER, 17 Burling Slip.
 New York, January 23d, 1846. 1y 10

RAILROAD IRON—500 TONS OF 67 LBS.
 per yard—5 inches high—of the double headed pattern, which is now wholly used in England—now on the passage, and a further quantity will be contracted for. Also 500 tons T pattern, 56 lbs. per yard, for sale by

BOORMAN, JOHNSTON & CO.
 119 Greenwich street. 4t24

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods and all Masonry exposed to dampness, is well known as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

A. & G. RALSTON & CO., NO. 4
 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ¼ inch Flat Punched Rails, 20 ft. long. 25 " 2½ x ¼ " Flange Iron Rails. 75 " 1 x ¼ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES,
 Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,
 Albany Iron and Nail Works, 1y

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER,
 Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut, 1y10 near Third, Philadelphia.

ATLANTIC AND ST. LAWRENCE RAILROAD.—Notice to Contractors.—Proposals will be received at the office of the Atlantic and St. Lawrence railroad

company in this city, from the 17th to the 27th day of June next, for the grading, masonry and bridging of a division of the road, extending from a point at or near Portland to Royall's river in North Yarmouth—a distance of about eleven miles.

Plans, profiles and specifications will be exhibited, and the requisite information given at the engineer's office in Portland on and after the 17th day of June.

Persons offering to contract for the work, or any part of it, who are unknown to the undersigned or the directors of the company, will be required to accompany their proposals with references as to character and ability.

A further extension of the road, embracing a distance of some fifteen or more additional miles, will be prepared for and put under contract about the first of August next.

By order of the Board of Directors.
 WM. P. PREBLE, President.
 A. C. MORTON, Chief Engineer.
 Portland, Me., May 18, 1846. 1m22

THE WESTERN AND ATLANTIC
 Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars: on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculmbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
 Chief Engineer.
 Atlanta, Georgia, April 16th, 1846. 1y17

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. **JOHN F. WINSLOW, Agent.**

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eiting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved **SPARK ARRESTER**, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

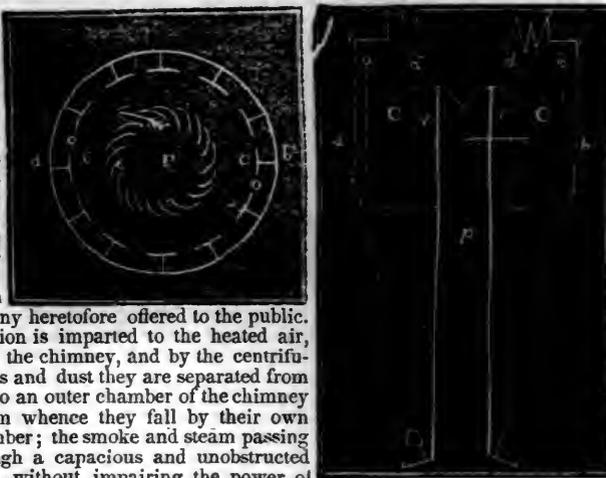
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. **FRENCH & BAIRD.**

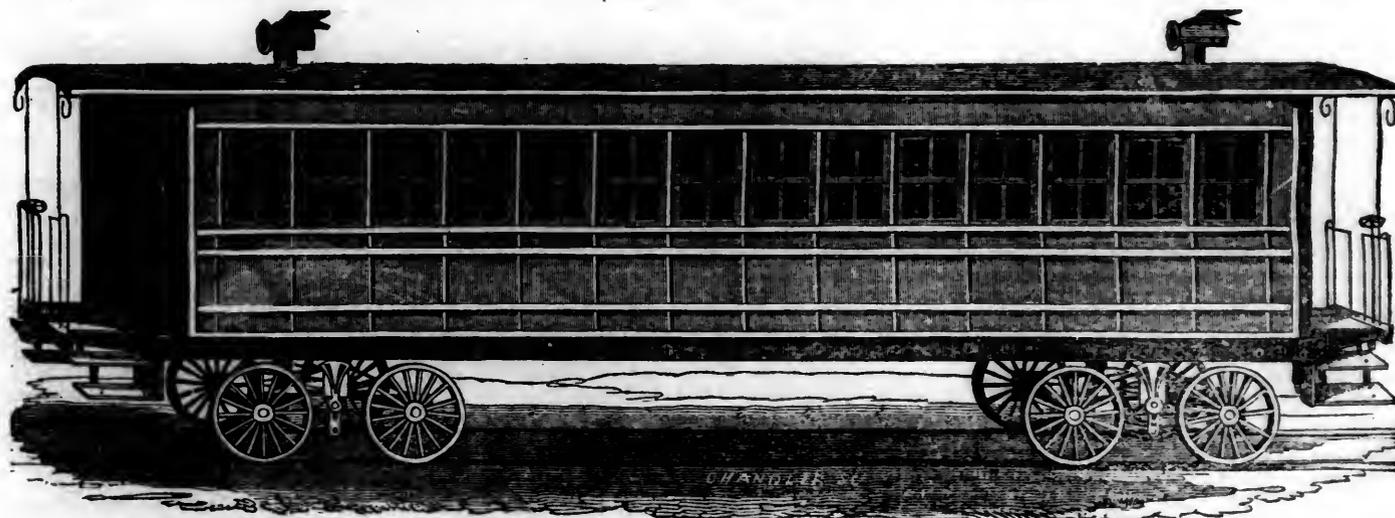
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the *Journal* of June, 1844. ja45



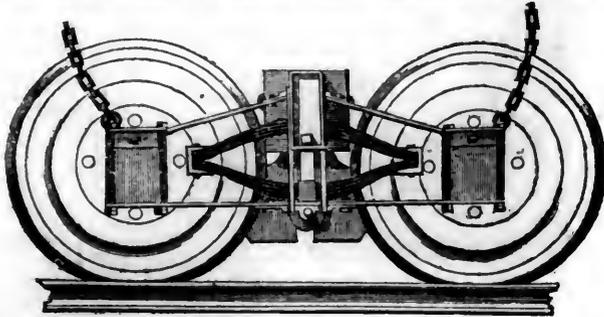
BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco Pressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes. 1y1

RAY'S EQUALIZING RAILWAY TRUCK--THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Supt, Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

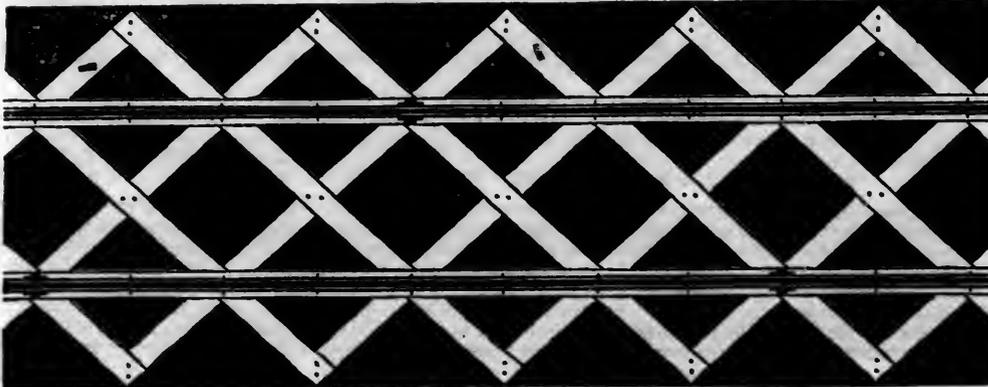
This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, Jamaica November 12, 1845.

[Signed,] JOHN LEACH, Supt Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

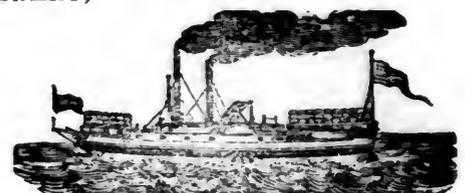
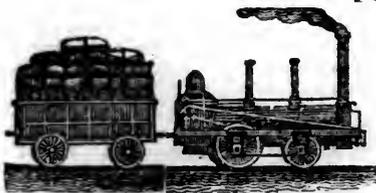
One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
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One square ".....	1 00
Professional notices per annum...	5 00

ENGINEERS and MACHINISTS.

- THOMAS PROSSER, 23 Platt St. N. Y. (See Adv.)
- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- PHENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 26.

SATURDAY, JUNE 27, 1846.

[WHOLE No. 523, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3½ p.m.

All baggage at the risk of the owners thereof.

W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD AND STAGES Connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich. New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars.

J. W. STOWELL, *Sup't.*

321y

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted), as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.

Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m.

Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m.

Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, *Super't.*

TROY AND GREENBUSH RAILROAD. Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at 6½ A.M. Leave Albany at 7 A.M.

" " 7½ " " " 8 "

" " 8½ " " " 9 "

" " 9½ " " " 10 "

" " 10½ " " " 11 "

" " 11½ " " " 12 M.

" " 1 P.M. " " 1½ P.M.

" " 2 " " " 2½ "

" " 3 " " " 3½ "

" " 4 " " " 4½ "

" " 5 " " " 5½ "

" " 5½ " " " 6 "

" " 6½ " " " 7 "

The 6½ a.m. and 2 o'clock p.m. runs from Troy, to Boston runs.

The 12 m. and 6 o'clock p.m. trains from Boston runs.

Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT, Superintendent.

Troy, April 1st, 1846.

14 y

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A.M. and 4 P.M.

" Middletown at 6½ A.M. and 5½ P.M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P.M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P.M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts.

H. C. SEYMOUR, *Sup't.*

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board.

13 tf

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 4, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams' Bridge trains will be regulated according to the state of the weather.

18

LITTLE MIAMI RAILROAD.--1846.--
Summer Arrangement.

Two passenger trains daily. On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1 1/2 p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m.

On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m. Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.

Tickets may be procured at the depot on East Front street.

The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount.

W. H. CLEMENT,
Superintendent.

ATLANTIC AND ST. LAWRENCE RAILROAD.—Notice to Contractors.—Proposals will

be received at the office of the Atlantic and St. Lawrence railroad company in this city, from the 17th to the 27th day of June next, for the grading, masonry and bridging of a division of the road, extending from a point at or near Portland to Royall's river in North Yarmouth—a distance of about eleven miles.

Plans, profiles and specifications will be exhibited, and the requisite information given at the engineer's office in Portland on and after the 17th day of June.

Persons offering to contract for the work, or any part of it, who are unknown to the undersigned or the directors of the company, will be required to accompany their proposals with references as to character and ability.

A further extension of the road, embracing a distance of some fifteen or more additional miles, will be prepared for and put under contract about the first of August next.

By order of the Board of Directors.
WM. P. PREBLE, President.
A. C. MORTON, Chief Engineer.

Portland, Me., May 18, 1846. 1m22

ENGINEERS' AND SURVEYERS'
INSTRUMENTS MADE BY
EDMUND DRAPER,
Surviving partner of
STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut,
1y10 near Third, Philadelphia.

MACHINE WORKS OF ROGERS,

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
a45 Paterson, N. J., or 60 Wall street, N. York.

WILLIAM R. CASEY, Civil Engineer,
New York. Address Box 1078, Post-office,
New York. 21

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers or fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,
Philadelphia, Pa.

1y25

MARAMEC IRON WORKS FOR SALE.

By Authority of a power of Attorney from Messrs. Massey and James, I will sell at Public Auction, at the Court House in the city of St. Louis, on **MONDAY, the 2nd day of November next**, the above named valuable **IRON WORKS**—together with **8,000 ACRES OF LAND**, more or less, on which there are several valuable and productive Farms open and in cultivation.

- The Maramec Iron Works are situated at the Maramec Big Spring, in Crawford Co., Mo., and consist of
- 1 **BLAST FURNACE**; 1 **AIR FURNACE**;
- 1 **REFINING FORGE**, with large Hammer for making Blooms and Anchovies;
- 2 **CHEFFERY FORGES** for Drawing Bar Iron;
- 1 **ROLLING MILL** for Rolling Blooms into Bars and Plates;
- 1 **SAW AND 1 GRIST MILL**,

All within 300 Yards of the head of the spring. There are 2 large frame Coal Houses, and all other Buildings necessary, such as Shops and Houses for the workmen.

This Spring is one of the largest in Missouri, discharging at the lowest time 7,000 cubic feet of water per minute. The Ore Bank from which the Ore has been heretofore taken is about 600 yards from the furnace; it is the *Specular Iron Ore*, the best for making Bar Iron, and the quantity inexhaustible.—It is an Iron Mountain, 400 feet above the level of the Maramec River; the ore is entirely uncovered, and there is an easy descent and a good road from it to the furnace.

The lands have been carefully selected by one of the owners with a view to the interest and convenience of the Works, and are situated principally on the Maramec River and its tributaries, embracing the best bottom lands and water powers. The following detached tracts, comprized in the above quantity, were selected for the advantages they possess;

183 1/2 ACRES in T. 40 N. of R. 8 W. in Sec. 3, near Wherry's Mill, in Osage Co.; entered to secure a very valuable Mill power on the Branch Spring and a good landing on the Gasconade River.

80 ACRES on Benton's Creek, 12 miles from the Works; entered to secure an extensive and valuable Ore Bank 2 1/2 miles from the Maramec, at a point where there is ample water power.

320 ACRES in T. 38 N. of R. 4 W. in Sec. 22 and 28, affording an extensive and valuable water power on the Maramec river.

160 ACRES in T. 37 N. of R. 3 W. in Sec. 4, embraces two inexhaustible and valuable Ore Banks and is 1 1/2 miles from Water power sufficient for a furnace and Grist Mill, and is distant 6 miles from the above site on the Maramec.

80 ACRES in T. 37 N. of R. 8 W. in Sec. 33, including an extensive bank of excellent Ore, and distant 1 1/2 miles from water power on the waters of the Gasconade River, in Pulaski Co., sufficient for Furnace and Mills. All these Banks are of the same kind as the one at the Works, and deemed inexhaustible.

1 LOT, containing nearly one Acre, on the South Bank of the Missouri River, 4 Miles above the town of Hermann, purchased for a warehouse and

landing, and is one of the best landings on the River.

The lands above described are well timbered, and have been selected with a view to have an ample supply of wood and coal, for fences, building and other purposes. There are on the land valuable quarries of Limestone well adapted for Fluxes for the Ore, and also good quarries of Rock suitable for building. There are also on the land a great number the finest kind of Springs. A large portion of the lands are bottoms well adapted to the production of Corn and other crops. The Works are situated in a very pleasant and healthful part of the country. The Maramec ore is believed to be admirably adapted to the manufacture of steel.

A further description of the property at this time is considered unnecessary, as those wishing to purchase will no doubt view the property, which will be shown by the Agent, residing at the works.

The terms of payment required will be one-third of the purchase money in hand and the balance in three equal annual payments, secured by mortgage on all the property.

A more particular description of the property will be given, and further conditions of the sale made known, on the day of sale.

Jno. F. ARMSTRONG, Agent.

St. Louis, June 6, 1846.

The Louisville, (Ky.) Journal, Cincinnati Gazette, Tribune (Portsmouth, O.) Nashville Whig, Pittsburg Gazette, National Intelligencer, United States Gazette, (Phila.) Railroad Journal (N. Y.) and Boston Atlas, will publish the above once a week until the 20th day of October next, and send bills to this office for settlement, and mark price on first paper. 18r25

THE SUBSCRIBERS, AGENTS FOR

the sale of
Codorus,
Glendon,
Spring Mill and } Pig Iron.
Valley,

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L. KIMBER, & CO.,
59 North Wharves,

Jan. 14, 1846. [1y4] Philadelphia, Pa.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them on inside.

THOMAS & EDMUND GEORGE,
ja45 N. E. cor. 12th and Market sts., Philad., Pa.

KEARNEY FIRE BRICK. F. W.

BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Allaire, } New York.
- Peter Cooper, }
- Murdock, Leavitt & Co. }
- J. Triplett & Son, Richmond, Va.
- J. R. Anderson, Tredegar Iron Works, Richmond, Va.

- J. Patton, Jr. } Philadelphia, Pa.
- Colwell & Co. }
- J. M. L. & W. H. Scovill, Waterbury, Con.
- N. E. Screw Co. } Providence, R. I.
- Eagle Screw Co. }

William Parker, Supt. Bost. and Worc. R. R.
New Jersey Malleable Iron Co., Newark, N. J.
Gardiner, Harrison & Co. Newark, N. J.
25,000 to 30,000 made weekly. 25 1y

RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATAILÉ.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

(Signed.)

RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138½ Water st., N. Y.

Also by Isaac Bridge, 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street, Charleston, S. C.

CUSHMAN'S COMPOUND IRON RAILS.
etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of *letters patent* to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of *improving* their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having *use* flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
Albany, N. Y.

Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

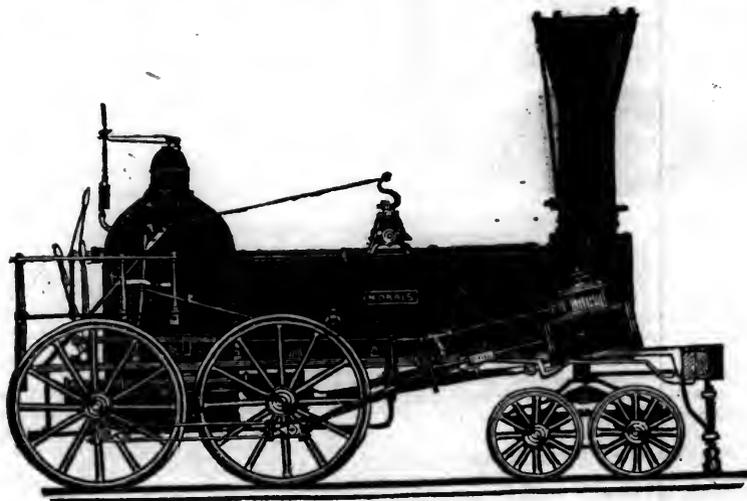
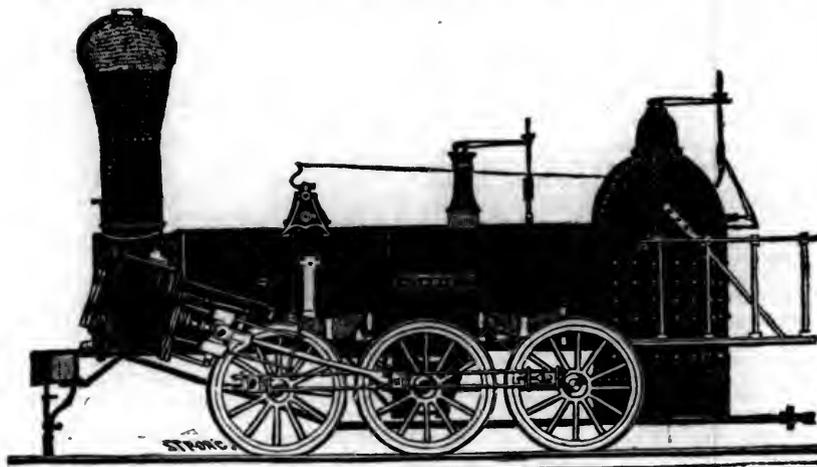
RAILROAD IRON AND LOCOMOTIVE
Tyres imported to order and constantly on hand by
A. & G. RALSTON
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of	Cylinder,	× 20 inches	Stroke.
" 2,	14	"	"	× 24	"
" 3,	14½	"	"	× 20	"
" 4,	12½	"	"	× 20	"
" 5,	11½	"	"	× 20	"
" 6,	10½	"	"	× 18	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

Atlantic and St. Lawrence Railroad.

This company has advertised for proposals for 11 miles of road from Portland. Proposals to be received from June 17th to 27th, at Portland.

We cut a notice of this work from an eastern paper with the remarks; as to the unusual gauge we entirely agree, a gauge of five feet and a half is in use on no other road and is not likely to be used on any road connecting with them, it must therefore be intended to limit the whole traffic of the road to the through business and that immediately on the line.

"The Maine papers give us the substance of an agreement which has been entered into by the two companies established at Portland and at Montreal for connecting the two places by means of a railroad. The terms of the agreement appear to be judicious, and they indicate a spirit of mutual accommodation which augurs favorably for the success of the enterprise. The Atlantic termination is to be upon a wharf on the navigable waters of Portland harbor, and the St. Lawrence termination on a wharf on the St. Lawrence river opposite, or nearly opposite to the city of Montreal. The point of junction of the two roads is to be established at the boundary between the United States and Canada, by a commission to consist of three members to be appointed by each company. This point is not to be further west than Coaticook river, and it is to be determined after full explorations and surveys shall have been made.

It is agreed that the railroad shall be constructed on a uniform plan throughout, of rails of uniform pattern and weight, and on a gauge of five and a half feet in the clear between the rails. This last article of agreement strikes us as an injudicious one, on account of the gauge adopted differing from that of nearly all, if not of all existing railroads, and the importance of uniformity.

The railroad may not immediately come into contract with any other work of the kind, but it is to be presumed that if it be accomplished, there will ultimately be occasion to connect it with other railroads both in Maine and in Canada.

It is agreed that the railroad shall be laid out six rods in width, and that the bed shall be formed, and the first track laid with a view of laying a second track, when the business shall be such as to require it.

Principles of Railway Management.

As we have never intentionally omitted an opportunity of furnishing to our readers accurate and useful information, in relation to "railroad management," and especially in relation to what we feel assured will promote immensely the utility of railroads to the masses, and increase their income to the shareholders, we will not now do so, and therefore devote a portion of this, and the two next numbers of the Journal to the subject of "railway management," as we are enabled to do by our esteemed friend in London, Mr. Gerard Ralston, who has so often favored us with important information, and whose philanthropy, is only surpassed by his devotion to the best interests of his countrymen.

We received by the Great Western, through the kindness of Mr. Ralston, a short treatise "on the principles of railway management, and on the profitable increase in the traffic produced by great reductions in the charges," by J. Butler Williams, Esq., F. S. S.,

F. G. S., read before the Statistical society of London, on the 16th of March last," which we shall lay before our readers in extenso, in the hope that it may be instrumental in producing the desirable result so confidently reported in the Trenton Gazette, as having already become matter of history. We merely give, in this number, the preliminary part of the authors remarks, but shall continue them in our next, and succeeding numbers.

The author says:

"When the first projects for railways to be worked with locomotive power were discussed and brought under public notice, it was anticipated that the chief source of profit would be found in the conveyance of goods and merchandize.

The unexpected and extraordinary increase in the number of passengers, however, produced by the combined economy of time and money, rendered the passenger traffic more immediately and evidently profitable; hence it naturally engrossed the attention of the managers whose entire energies were required to provide great accommodation, combined with speed, safety and regularity.

"So rapid has been the increase in the number of the passengers, increasing with every extension of the railway system, that a corresponding demand on the resources of companies, and the skill and energy of their managers, has caused the conveyance of goods to receive a less share of their attention than it merits, considering its importance in a commercial point of view, and as a source of profit to the capitalist.

"Of late the old established lines have increased the facilities for the carriage of goods, and provided accommodation apparently more nearly commensurate with the demand. So far as the experiment has been carried, it has shown generally that the net revenue from the goods traffic has been increasing in a quicker ratio than the net revenue from passengers.

"On the London and Birmingham, Grand Junction, and Great Western railways, the income from the goods traffic now ranges from 25 to 40 per cent., of that derived from passengers, the increase in the revenue from the goods traffic having been within twelve months about 30 per cent. on each of these great trunk lines.

"On the York and North Midland, the Paris and Rouen, the Paris and Orleans, and similar lines, the goods traffic now produces a revenue about equal to half of that derived from passengers, the increase having been in the same period about 30 per cent.

"Late arrangements made by the South Eastern company for the more economical and regular carriage of goods have caused an increase of revenue from that source of upwards of 100 per cent.

"Important as these facts are to show the advantages of a movement in the right direction, I am convinced that they do not represent even approximately, the vast increase in the goods traffic which must follow upon a liberal management and more extended accommodation.

"The inland transit of colonial produce, manufactured articles, and generally of valu-

able goods of small bulk, the relative value of which is but little enhanced by the expense of carriage, may be deemed to be secured for railroads, provided they offer the requisite accommodation.

"By a speedy and economical conveyance of small parcels, another field of enterprise and source of profit is opened to railways, without the possibility of competition by other modes of conveyance. I shall again refer to this branch of traffic, which I believe to have been too much neglected and effectually discouraged by irregular and high charges, either on the supposition that the returns would scarcely be commensurate with the additional trouble entailed, or from an erroneous view of its capabilities of expansion.

"But the most important field of all, because the most exhaustless, remains to this time greatly unoccupied by railways. I refer to the conveyance of agricultural produce and bulky materials, which are either conveyed by canals or common roads, or too frequently remain confined in districts where their value cannot be turned to the best public or private advantage.

"Coals and cattle are, it is true, carried to some extent by railway—but that this extent is insignificant as compared with the population to be supplied, although demonstrated by the returns of various railways, might be assumed upon simple reference to the tariffs which, except under peculiar circumstances, are too high, not only to encourage but actually to admit of their conveyance by railway with any benefit to the producers.

"Timber, marble, slate, building stone, lime, manure, minerals—also agricultural produce flour, etc., will follow the channel of railway transit only when the cost by this mode of conveyance shall have been brought to very low limits, corresponding in fact with, or lower than the charges of conveyance by canal.

"I propose in investigating the problem of a highly economical carriage of goods, chiefly in relation to the profitable return that it is calculated to offer to the capitalist, by rendering much more productive the existing channels of railway communication. But although confining myself to that view of the question, I cannot be insensible to the great improvement that such a measure would effect in the commercial prosperity of districts, rich in natural and agricultural produce, but kept comparatively poor and unproductive from want of a cheap outlet. With diminution in the cost of conveyance, the producer derives in the first instance a corresponding increase in the net profit; afterwards this increase in the profit is shared, in varying proportions, between him and the consumer. The existence or non-existence of ready and economical outlets at once establishes a broad distinction between separate localities which individual energy and enterprise cannot obliterate. As regards the price of labor, the perfection of machinery, and even the skill of the workmen, the conditions of production may in most manufactures be made to assimilate.—But individual enterprise cannot obtain at will an expeditious and economical means of transit; and districts otherwise favored,

may from its want remain barren and profitless.

"The interests of the public and the railway companies are fortunately identical; for the only way in which railways can return profits from the conveyance of heavy goods and bulky materials is by carrying them in great quantities; and quantity can be secured by no other means than an exceedingly low scale of charges. This I hope to succeed in establishing.

"A railway, with its complete establishment, may be likened to a great machine or engine adapted to purposes of transit. The original cost is considerable, and its object is to economize labor.

"The interest on the original cost is a most serious item which must be provided for.—The produce is costly, if but little work is performed; the produce is cheap, if the machine is fully and constantly employed. To allow the machine to be idle, or to work with incompetent action, is to incur an accumulating loss for interest on the unproductive capital.

"The cost of all conveyance on railways admits of being separated into two distinct elements:

"1st. The interest on the capital—together with certain fixed charges which are independent of the greater or less use made of the railway.

"2dly. The working expenses resulting directly from the work done.

"The first of these elements, viz: that consisting of the fixed charges, is not composed solely of the interest on the capital expended, but embraces also the cost of repairs of stations, goods, sheds fencing, slopes of embankments and cuttings, drainage, renewal of sleepers, (in part) and generally such works as are essential to prevent the deterioration of the property, and are not influenced by the greater or less traffic of the line.

"It embraces also a certain proportion of the expenses of management, salaries to secretaries, officers, police, and others, who, although they may be increased in number with an increase in the traffic, are not increased in proportion to the extension of the traffic.

"The second element embraces the cost of haulage, properly speaking, that is, repair and maintenance of engines, trucks, carriages, etc.; consumption of fuel, oil, grease, etc.; wages of engine driver, stokers, guards, porters, etc.; maintenance of the permanent way in so far as it is affected by the traffic; and proportionate increase in the number of managing officers, superintendents and workmen, in as far as that increase is required by additional traffic.

"The first element varies with every railway according to the character of the country traversed, the traffic to be provided for, the views of the directors, the skill of the engineer, etc.

"The average cost of railways has been:

	Per mile.
In England about.....	£31,000
In Scotland ".....	22,000
In Ireland ".....	22,000

(Vide Porter's 'traffic returns,' Statistical journal, vol. vii, p. 176.)

In Belgium about..... 18,000
(Vide 'report of the statistical bureau,' Delaveye, Brussels, 1844.)

In France about..... 41,000
(Vide Claudel's 'Aide-Memoire des Ingenieurs,' p. 455. Average of 5 Metropolitan lines.)

"The great difference to be noticed in the above statement of the average cost of railways in different countries, is not greater than the difference which will be found to exist between the cost of different lines in the same country. The causes of such differences can easily be traced, but they need not be considered in connection with the subject under examination.

"It is manifest, however, that the fixed charge which must enter as so influential an element in the cost of conveyance, will, in any comparison which we may institute, be greatly modified according to the cost per mile taken as the basis of the calculation, and greatly so likewise according to the rate of interest which may be attributed as due to the capital risked.

"As variable opinions must necessarily prevail on both points, I propose to offer tabular statements of the effect of the fixed charge on the cost of conveyance, prepared on varied assumptions.

"In the first instance, however, I shall confine my attention to the lowest of these estimates, because the opinions of engineers and of statisticians agree in establishing that the lines to be henceforth constructed will on the average approach more nearly to the lower than the higher standard. 'The board of trade in their report on the Southwestern district, in 1845, state that the lines proposed to be made in that part of the country might be constructed for about £12,000 per mile—and the estimated cost of the mass of new railways, projected during the last two years, ranges, with few exceptions, between £25,000 and £10,000 per mile.*"

"Perfectly responsible contractors are ready to undertake contracts for the works on the engineers' estimates. I believe therefore that illustrations, taking the Belgian average as the standard of cost, will be applicable to lines proposed to be made.†

"I propose taking the rate of interest at 5 per cent. per annum, and at 10 per cent.

"Upon the original cost of \$18,000 per mile, a first demand, if the rate of 5 per cent. interest be selected, of £900 per mile per annum must be provided for out of the revenue from the traffic, being in no wise modified by the extent of the latter.

"To this must be added the aggregate annual outlay for those items which have been enumerated above, as being independent of the traffic, such as the maintenance of the boundary walls and fences, the repairs

* 'Defects of the English system of railway legislation,' by Jas. Morrison, Esq., M. P., Longman, 1846, p. 13.

† This assumption as to the cost of construction will not probably be applicable, if the numerous projects now before parliament be carried into execution in the next three or four years. The great demand for labor and materials would, in such a case greatly raise their prices above the existing averages, and certainly cause a departure from the estimates of even the most experienced and skillful engineers.

of the buildings, maintenance of the slopes of cuttings and embankments, drainage, etc.

"I have not been able to obtain for the English railways a return of these items sufficiently comprehensive for general deductions, but for the Belgian railways, an examination of nine years' working has enabled the statistical bureau to determine the average as amounting to £130 per mile per annum, to be added therefore to the interest, and producing (at 5 per cent.) a fixed charge of £1030 per mile per annum, to be defrayed by tolls on the carriage of passengers and goods.

"At 10 per cent. interest this fixed charge will be:

Interest on £18,000.....	£1,800
Other fixed charges.....	130
Total.....	£1,930

"This fixed charge is to be provided for as a whole by the revenue from the goods and passenger traffic. As I am at present considering only the conveyance of goods, I must strike a proportion to determine the share to be allotted to each branch. In determining this ratio, the proportion of the average returns from goods and passengers might be taken, thus making the charge to be given to the goods' branch comparatively smaller than that apportioned to the passenger branch; but inasmuch as the aim of this essay is to show that the carriage of goods is destined to have an importance little, if at all inferior to that now belonging to the conveyance of passengers, I propose, in the investigation, dividing this fixed charge equally between the two classes of traffic.

"The tolls on goods must return therefore over and above the actual cost of haulage, an annual revenue per mile of £515 at 5 per cent, and £965 at 10 per cent. Distributing this over the tonnage throughout the year, if the mean amount of goods traffic be on the average per mile per annum 20,000 tons, the charge per ton per mile must be:

At 5 per cent. $\frac{£515}{20,000}$ or 6-18d.

At 10 per cent. $\frac{965}{20,000}$ or 11-58d.

"If the traffic be increased to 40,000 tons per mile per annum, the charge per ton per mile becomes:

At 5 per cent. $\frac{£515}{40,000}$ or 3-09d.

At 10 per cent. $\frac{965}{40,000}$ or 5-79d.

"If the traffic be raised to 200,000 tons per mile per annum, the charge per ton per mile would then be:

At 5 per cent. $\frac{£515}{200,000}$ or 0-618d.

At 10 per cent. $\frac{965}{200,000}$ or 1-158d.

In short, this constant charge of £515, at 5 per cent., or £965, at 10 per cent., becomes a charge on the carriage of each article, varying in the inverse ratio of the amount of traffic.

"The second element, however, the cost of haulage or working expenses, must be added to obtain the total charge per ton per mile.

"In endeavoring to ascertain the general average cost of the actual haulage, and other expenses dependent on the working of the lines, I have found very great variations in different lines, due in a great measure, no doubt, to the returns embracing different items of expenditure, as well as to the difference in the cost of fuel and other materials. The most complete returns to which I have had access, are those published by the statistical bureau of Belgium, for upwards of two years previous to January, 1844.

"If it be found, as I believe it will, when access is had to more complete information, that the English scale of working expenses is less per ton per mile than that of Belgium, the reasoning which follows will not be thereby vitiated, the conclusion will only become more manifest.

"The average working cost in Belgium has been on goods trains 45d. per ton net per mile.

"The fixed and variable charges combined will then give the total cost, according to the amount of tonnage, as follows, viz:

"If the traffic be 20,000 tons per mile per annum,

1. At 5 per cent. interest } £515
on capital charge vary- } 20,000 = 6-18d.
ing with the traffic, }
+ Haulage charge (fixed) = 45d.

Total per ton per mile, 6-63d.

2. At 10 per cent. per annum, charge varying } £965
with the traffic, } 20,000 = 11-58d.
+ Haulage charge (fixed) = 45d.

Total per ton per mile, 12-03d.

"With a traffic of 200,000 tons per mile per annum,

1. At 5 per cent. interest } £515
rest, charge varying } 200,000 = 6-18d.
with the traffic, }
+ Haulage charge (fixed) = 45d.

Total per ton per mile, 1-068d.

2. At 10 per cent. interest } £965
rest, charge varying } 200,000 = 1-158d.
with the traffic, }
+ Haulage charge (fixed) = 45d.

Total per ton per mile, 1-608d.

"The comparison is carried out more in detail in the annexed table.

"In Belgium, at the time to which the returns determining the working expenses had been brought, viz: the end of 1843, the quantity of goods carried on the government lines averaged 40,000 tons per mile per annum. —At that time the actual average charge throughout the Belgian railways was 2½d. per ton per mile. But a reference to the table shows that with the average traffic of 40,000 tons per mile per annum, the charge required to produce 5 per cent. interest on the capital would be 3-54d. Hence, on every ton of merchandize, which was then conveyed on the Belgian railways (assuming that half the interest on the capital should be borne by the passenger and half by the goods

traffic) there was a positive loss of upwards of 1d. per ton per mile.

"This conclusion deduced from the table, is borne out by the returns officially issued from the statistical bureau, which show the Belgian government railways to have been worked at a loss since their establishment. — (Delaveleye's report, Brussels, p. 25.)

"The yearly loss may be calculated thus:

Table showing the diminution in the cost of carriage per ton per mile, dependent on the increase in the traffic. (Original cost of construction, £18,000 per mile.)

Allowing interest at the rate of 5 per cent. per annum on the capital.

Average traffic per mile per annum. Tons net.	Fixed charge per ton per mile for interest, etc.	Actual working expenses per ton per mile.	Total Charge.
	d.	d.	d.
20,000	6-18	.....	6-63
30,000	4-12	.....	4-57
40,000	3-09	.....	3-54
50,000	2-47	.....	2-92
60,000	2-06	.....	2-51
70,000	1-76	.....	2-21
80,000	1-51	.....	1-99
90,000	1-37	45	1-82
100,000	1-21	.....	1-69
150,000	82	.....	1-27
200,000	62	.....	1-07
300,000	41	.....	86
400,000	31	.....	76
500,000	25	.....	70
1,000,000	12	.....	57

Allowing interest at the rate of 10 per cent. per annum on the capital.

	d.	d.	d.
20,000	11-58	.....	12-03
30,000	7-72	.....	8-17
40,000	5-79	.....	6-24
50,000	4-63	.....	5-08
60,000	3-86	.....	4-31
70,000	3-31	.....	3-76
80,000	2-89	.....	3-34
90,000	2-56	45	3-01
100,000	2-32	.....	2-77
150,000	1-54	.....	1-99
200,000	1-16	.....	1-61
300,000	77	.....	1-22
400,000	58	.....	1-03
500,000	46	.....	91
1,000,000	23	.....	68

"At per mile, 40,000 times the excess of 3-54d. above the actual charge of 2-5d. per ton per mile (40,000 being the annual tonnage per mile.)

"Or 40,000 × 1-04d. = £173.

"To be multiplied by 350 miles of road then at work, £173 × 350 = £60,000 yearly loss.

"Such a result, viz: the loss which has been thus deduced by the theoretical investigations is not more unfavorable than that which (up to the date of the report referred to) had attended the working of the Belgian government railways, viz:

"That after defraying the expenses, a surplus was left only sufficient to pay interest on the capital at the rate of 2½ per cent. And as the money for the construction of the Belgian railways has been borrowed by the state at 5 per cent. interest,* the country must provide by an annual tax for the deficiency of 2½ per cent. shown in the working.

"It is true that this 2½ per cent. cannot al-

*The interest is exactly 4-86 per cent. per annum, being the mean on various loans raised at different rates.

together be considered as a money loss, inasmuch as the railways afford free transit for government despatches, for the post-office, for military stores and ammunitions, soldiers on duty, and other demands for the public service. But all these form in the aggregate but a small part of the per centage to be provided for to meet the deficit arising from the working of the lines.

"There is no doubt that Belgium has indirectly been benefited by the introduction of railways to an extent which can scarcely be over estimated, but I believe that a difference made in the principle of working the lines and the system of their management would have the effect of giving profits where loss is now incurred.

"The inspection of the above table in which is shown so rapid a diminution in the remunerating charge consequent on the increase of traffic, points to the guiding principle in the management of a railway.

"I have stated that the average tonnage of merchandize had been only 40,000 tons per mile per annum on the Belgian railways. — Now at that very time (Delaveleye, Brussels, 1844,) the average tonnage per mile per annum was, on the canals of Belgium, 400,000 tons, or ten times the quantity carried by railway. It is impossible that so marked a disproportion as this can be due to any actual inferiority in railways for the carriage of goods. The chief cause of the disproportion is the difference in the charge, which on the canals averaged 1½d. per ton per mile, or one-half of those by railway. On the contrary I believe, on the side of railways, the advantages of a speedy and certain delivery, uninterrupted by frost or by drought, are so great, in a commercial point of view, that not only can they compete with canals, but that they must ultimately supersede them, if they offer, in addition to the above advantages, that of an equal degree of economy. There can be little doubt that the railways of Belgium could by a system of low fares and proper accom-

modation to commercial men, have divided with the canals that traffic of 400,000 tons; but without even encroaching upon the canal traffic, new traffic would have been created by a system of low fares.

"Assuming however, that by holding out every legitimate encouragement to commercial men to send their goods by railway, the traffic had been per mile per annum 200,000 tons instead of 400,000, charged at the canal rates of 1½d., this branch of the railway traffic would have been a source of profit instead of loss.

"The table gives as the charge required to pay 5 per cent. interest with a traffic of 200,000 tons, - - - 1-07d. per ton per mile. Assumed toll, - - - 1-25d. "

Profit, - - - 18d. "

"Which on 200,000 per mile per annum, produces £150.

"And for 350 miles of road then at work, £52,500.

While the public would thus have been benefited by the more economical carriage of their goods,

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N.Y.

Saturday, June 27, 1846.

THE RAILROAD JOURNAL will hereafter be published *simultaneously* in NEW YORK and PHILADELPHIA. The editorial department will as heretofore, be under the direction of the subscriber, aided by his former associate Mr. George C. Schaeffer, and other gentlemen of ability connected with the profession—and renewed efforts will be made to render it *more* worthy of the rapidly increasing support which it is now receiving.

Engravings and illustrations will be more frequently given, and expensive maps will be occasionally prepared, showing the progress of the railway system, one of which, showing the proposed route of steam communication from China, across the isthmus, and through the United States, to England, by Edward McGeachy, Esq., of Jamaica, is now in the hands of the artist, and will be ready in a few weeks; and others will follow.

The office in NEW YORK will remain for the present, at 23 Chambers street, and be in charge of Mr. Egbert Hedge, long connected with the work—who is authorized to transact business for me.

The office in PHILADELPHIA will be at the FRANKLIN HOUSE, 105 Chestnut street, under the direction of the editor and proprietor, where all letters and communications by mail, and all exchange papers and periodicals may be hereafter addressed to

D. K. MINOR.

The editor of the Railroad Journal presents his compliments to his numerous subscribers and friends and assures them that he will be always gratified to see them at his new office and home, the FRANKLIN HOUSE, late SANDERSON'S, 105 Chestnut street, Philadelphia. He will be found at home.

Maramec Iron Works for Sale.

By the advertisement in the Journal, it will be seen that these extensive works, in Crawford co. Mo., are for sale. They are situated about ninety miles in a southwesterly direction from St. Louis, and from the accounts we have of them, they are well worthy of the attention of those who desire to invest capital in the iron trade in that region.

Investigation of M. Boutigny on the Explosion of Steam Boilers.

So much has been said upon this subject, and men of so great ability have investigated it, that it would seem that but little remained to be said or done in regard to it. There are some points, however, which have always appeared unexplained, and it is precisely these which have received new light from the investigations of M. Boutigny on what he calls the spheroidal state of water.

Every one is familiar with the common test of the

heat of smoothing irons, and most persons too have noticed the singular behavior of water when thrown in drops upon a very highly heated stove. Philosophers had ascertained that under these circumstances the evaporation of water was less than when boiling at a lower temperature, and something like the true cause assigned—but no determination of the laws of water in this peculiar condition had ever been made until the thorough examination of M. Boutigny. Before giving the general results obtained by him, we shall state a few of the more important circumstances attendant upon this condition of water; and such as may be simply and readily verified by experiment.

If we heat sharply a small metallic vessel, either a silver or platinum crucible, or even a silver spoon, over a lamp, and throw into it a drop of water, the drop instead of boiling, instantly assumes a spherical form, and sometimes flies about the vessel rapidly, at others, whirls around an axis with extreme velocity, or appears to remain perfectly quiet. If the heat has been great, or if the vessel is kept over the lamp, the drop retaining its spherical figure gradually diminishes in size or finally disappears—but if the vessel cools rapidly, or is withdrawn from the source of heat—the water suddenly flattens down, boils with violence, and is almost immediately converted into steam. If we compare the time taken by the evaporation of water in this last, its ordinary condition, and that consumed in the disappearance of the sphere, we shall find that at the very high temperature the evaporation of water is vastly slower than at 212°, the ordinary boiling point.

It is evident that water in the spheroidal state does not wet the vessel, and if by raising the latter to a red heat we bring a considerable quantity of water to the peculiar condition, we readily ascertain the fact by the rounded surface of the water and by the reflection of the light of a candle from the bottom of the mass.

These are a few of the more obvious appearances. The results of the whole investigation are the following:

I. The lowest temperature at which any notable quantity of water can assume this condition is 288 degrees Fahrenheit.

II. That water, in the spheroidal state, evaporates more rapidly as the temperature of the vessel is increased, but at 392 deg. is fifty times slower than by boiling in its ordinary condition.

III. That the temperature of water [as well as any other body,] in the spheroidal state, no matter how high that of the containing vessel may be, is invariably and always less than its boiling point, being in the case of water, a little under 206 deg.

IV. That in this condition, the vapor given off is equal in temperature to the containing vessel—or, in other words—the equilibrium of heat between the vapor and vessel is maintained, but not between the vessel and the water.

V. That water, and all other bodies in the spheroidal state, possess the power of totally reflecting heat.

VI. That there is no contact between the liquid and the vessel.

M. Boutigny is of opinion that the class of explosions denominated *fulminating*, may be referred to this cause, and among other examples cites those of the Butterfly on the Delaware in 1839, and of the Mohican on the Mississippi in 1842. He has proved that large quantities of water can assume this condition at temperatures by no means high—that a portion of the water in a vessel can be thus influenced, and communicate the condition gradually to the

whole mass if the temperature is sustained. Here, then, we have the very elements of destruction—a large body of water giving off but little steam, and deceiving one into the belief that there is little or no water in the boiler. Cold water is admitted—the temperature of the boiler reduced until the water is brought to its ordinary condition, when it instantly is converted into steam, and no boiler can withstand the pressure suddenly reached. The very opening of a safety valve may, by throwing the water into violent ebullition, cause a momentary separation between the liquid and the highly heated sides of the boiler, and however short this interval may be, it may be long enough to produce the degree of heat at which water enters the spheroidal state; the instant the water returns, the equilibrium between the boiler and the water is no longer maintained, and the whole mass may be thrown into this peculiar condition.

The "jumping" of the water in a boiler by suddenly opening a valve is known to all; and in tubular boilers it is not very rare that the water should be entirely driven out of the lower part of the space between the tubes. The heeling of a steamboat may cause a portion of the boiler to become heated to such a degree, that when the boat rights, the water, coming in contact with a highly heated surface, assumes the spheroidal condition, and the explosion, although already prepared, may be deferred until the introduction of cold water, or the cooling of the boiler.

It would be useless to attempt to specify the great number of cases in which this state of things might occur, as any person conversant with the subject could easily make the application of the principles laid down.

It is curious that in this condition of water, if the iron be heated to about a red heat, decomposition takes place, and hydrogen gas is formed in considerable quantities, and this, on coming in contact with the air, must undoubtedly increase the violence of the explosion.

The remedy for the evil in this, as in everything else, consists rather in prevention than in cure. A rough surface is found unfavorable to the spheroidal state, as also salts contained in the water. As any artificial roughening, or the fastening of points, etc., would prevent the cleaning of the boilers, M. Boutigny proposes the insertion of loose spirals or coils of iron. These would be more effectual if made of angular, than of round wire. The boilers heated from beneath are considered the most liable to this sort of accident. We may add that in tubular boilers the space between the tubes should never be so small as to allow the bubbles of steam to drive the water from any considerable portion of highly heated surface.

If the water has already reached the spheroidal state, the only remedy is to urge the fire, stop the engine, empty the boiler as rapidly as possible, and then extinguish the fire—a proceeding which must undoubtedly injure any boiler, but far preferable to an explosion. Should it be necessary to keep in motion, as in a vessel in currents or near rocks, M. Boutigny advises to urge the fire, and allow only small quantities of water to enter at a time, gradually feeding until the water returns to its proper state.

We trust that the interest of the subject will be an excuse for trespassing so long upon the patience of our readers, and that our endeavors to make the matter comprehensible may have proved successful, as the original memoirs are far too long to be either translated, or even formally abridged.

Kyanizing Timber.

We have received from Mr. Herron, the following statement of D. Chaloner, in relation to his examination of specimens of timber, prepared with mercury—or as it is more frequently termed "Kyanized," which had been used as a cross-tie, or sill, on the Baltimore and Susquehanna railroad for several years.

We have now in our possession a specimen of the stick, upon which the experiment was made, by Dr. C., in a state of as perfect preservation as if cut only six months ago, which may be seen at all times.

PHILADELPHIA, January 18th, 1843.

JAS. HERRON, Esq., Civil Engineer.

Dear sir: At your request I examined a small portion (say five grains,) of wood taken from the heart of a "Kyanized sleeper laid in August, 1838, and taken up in August, 1843," and detected by chemical agents the presence of corrosive sublimate, (bichloride of mercury,) in large quantities in the specimen exhibited. Five grains of the wood were boiled in a weak solution of muriatic acid and water, until the wood was taken up, a portion of the solution thus obtained was placed in a vessel into which the poles of a small galvanic battery entered, in a few moments, bubbles of gas were disengaged from the solution and the mercury appeared at the positive pole of the battery.

The presence of the mercury being so easily shown in so minute a quantity as five grains, proves that it exists in excess in the "mineralized wood."

The sleeper externally is of a whitish color, hard and firm in its texture, and difficult to cut with a knife.

I have thus hastily given you the results as you are pleased to call them, of my experiments on the "mineralized sleeper"—and when you receive more specimens, will be pleased to make further examinations in this important subject. Very respectfully yours,
A. D. CHALONER, M. D.,

Canal in New Grenada, and Railroad across the Isthmus of Darien.

The following letter, from our esteemed London correspondent, breathes the right spirit. It gives the views of an enlightened and liberal American, residing long among, and associating freely with, intelligent foreigners; and directs the attention of his countrymen to a subject of vast and absorbing interest—a subject, indeed, which has attracted the attention of several of the European governments. We concur fully with the writer, that the work can be done more speedily, and much cheaper, by our American, than by foreign engineers; and we know none more competent to undertake it, or more likely to carry it through if undertaken, than the gentleman named by the writer, because they are familiar with the language, manners, and customs, and possess the confidence of the people, of New Grenada, and have become in a measure acclimated to those regions.

We are very desirous to obtain the information referred to, and therefore much regret that we did not meet with Mr. Totten before he left this city.—We shall however endeavor to see him, and thus be able to furnish our readers with many interesting facts in relation, not only to the proposed work, but also to that on which he and Mr. Trautwine are engaged.

NO. 21 TOKEN HOUSE YARD, LONDON. }
May 27th, 1846. }

D. K. MINOR, Esq.,

My dear sir: I take advantage of our countryman, Mr. Totten's, return from South America to North America, via London, to write you a few

lines. This gentleman is engaged in a most important work in New Grenada, viz: the construction of a navigable communication between the port of Carthage and the river Magdalena, the particulars of which I strongly urge you to procure from him, as I am convinced you will feel a deep interest in his enterprise. After the completion of the important work in which he is engaged, I hope he and his associate, Mr. Trautwine, of Philadelphia, will have established so good a reputation for integrity of character, as well as for skill and efficiency as engineers, that the government of New Grenada will give them the vastly important work to do, of making a cheap American railway across the Isthmus of Darien, between Porto Bello and Panama, so as to carry merchandize and passengers from the Atlantic to the Pacific in two or three hours. I want Americans to have the honor of making this vastly important work—indeed they are far more competent than English or French engineers, to make, in a rapid and economical manner, a railway sufficiently good and suitable for all practical purposes for the next 20 years' use. An English or a French engineer would spend four or five times as much as he ought in making a road across this wild country, while these practical American engineers, Messrs. Totten & Trautwine, would make a suitable road in the American fashion, without ornaments or embellishments, or superfluity of any kind, with a single track, for \$20,000 or \$25,000 per mile, which would answer all the purposes required, until by having established the channel of trade and travel by its route, it would enable the proprietors to give additional extension to its accommodations and facilities for transit. There are not so many difficulties to overcome as have been successfully surmounted by the railway between Philadelphia and Columbia, with which road both these gentlemen are quite familiar. I hope you will use all your influence to promote this vastly important work.

I send by Mr. Totten a pamphlet, by J. Butler Williams "on the principles of railway management, and on the profitable increase in the traffic, produced by great reductions in the charges," which I doubt not will please you much. I have read it with deep interest. It is well worthy of being reviewed by you for the benefit of your numerous readers, doubled [I hope] since the commencement of this year. I refer you particularly to pages 28, 29, 30, 31 and 32, for admirable facts in reference to the increasing prosperity of railways, by giving a pecuniary interest to all the employees, or servants of the companies, in promoting the success of the work. The whole pamphlet is excellent, but I would again urge upon you the importance of amalgamation of companies in our country, for the purpose of having economy in administration, cheap traffic, unity of action, and much greater accommodation to the public, as well as great prosperity to the proprietors.—For example, the whole line of railway from Boston to Buffalo ought to be but one concern—one administration or directory. So between Philadelphia and Chambersburg there ought to be one board of directors only. The clashing and jarring of several boards of directors is very unwise and unprofitable. A very large concern can be infinitely better managed for self-interest as well as the accommodation of the public than several small concerns. This pamphlet treats ably on this subject, as well as upon all that it touches.

I have nothing of importance to tell you about railway matters—everything interesting you can get better from the excellent railway papers you receive from this country than I can tell you.

I am sorry to say the atmospheric system has not advanced as rapidly as I hoped it would; but my confidence in it is not yet shaken. All the difficulties which prevent complete success will no doubt be overcome, as more practice and experience are applied to its development. The community generally are much disappointed that the great majority of the new railway schemes have not taken advantage of the facilities granted by government, "to wind up." Of those that have met and decided upon the course to be pursued, only about 5 per cent. have agreed to wind up, while it was fully thought that nearly the whole would have been willing to do so. From the perseverance of so many, it is thought too much of the capital of the country will be devoted to this species of enterprise; and the consequence is, money is expected to continue at a very high rate of interest, for a long time to come. It is now fully 5 per cent., and it is not expected to be lower.

The gauge question is not yet decided, but public opinion has settled down in favor of the narrow gauge; not because it is better than a little wider one, but because of the extraordinary inconvenience of a change from one to another. I hope our countrymen will adopt the five feet [the seven feet is found to be too expensive and unnecessarily wide] gauge, or some other, and agree that it shall become universal. But above all things, I hope the existing railroads will make such arrangements by amalgamation with others in extension, as to enable them to carry merchandize, passengers and agricultural produce—but particularly cattle of all kinds—so cheaply, as to increase two or three fold their existing traffic. Low fares suited to the accommodation afforded, [having three class passenger carriages] greater speed, and more punctuality, and our American roads will be very much benefitted. Peace is altogether essential for the development of the mighty resources and wealth of our country. I very much fear it will not be maintained with Mexico, and that hostilities in the Gulf of Mexico will embroil us with Great Britain and other countries.—Nothing is so utterly absurd and wicked as war!

May 29th, 1846.—The Cambria has just arrived, and brings the melancholy account of war between Mexico and our country. Now a stop to all improvements in our country—all railroads, canals, and schemes of all kinds must be abandoned, and the whole resources, and energy and talent of our country must be devoted to carrying on this contemptible war, from which neither party will derive a particle of advantage. How melancholy it is, that nations will be so unwise as to waste their blood and their energies in war! I am distressed beyond measure. I hope Mr. Totten will call upon you.

I am, dear sir, with great regard, yours truly,
GERARD RALSTON.

Camden, S. C., Branch Railroad.

The following extract from a letter dated Camden May 30th, gives cheering intelligence in relation to this work. It says,

"We have at length decided upon the route of the Camden Branch and the whole of the grade, I may say, to within 4 or 5 miles of Camden let. The shortest route has been adopted and the length of road as stated to you before is about 39 miles. If we have good luck this summer in getting out timber, and can procure an efficient contractor (as I have no doubt we will,) for the pile work, through the 4 miles of the Wateree swamp, I have no doubt that the first 10 miles extending into Sumter district, will be in use by the beginning of next summer, and there will then be no difficulty in completing the remaining 27 miles to Camden, in six months; the

grading will all be done and nothing to do but to lay the track.

"The spirit is strong. On Monday, 1 o'clock, we are to have a grand railroad convention, to take into consideration the practicability, feasibility and necessity of constructing a railroad from Wilmington, N. C., to some point on the South Carolina railroad.

"The route which this road would take is a rival of that from Raleigh to Camden, and would probably intersect the South Carolina railroad low down. It would have some advantages particularly in the probability of its passing over a more level country than the other. but I doubt whether it would make the main route as short, and it would cross all the river swamps where they are no doubt very wide. This route would afford a good opportunity of displaying the power of the 'pile driver.' (And the way the panting of the iron monster—schew! schew!! schew!!! schew!!!—as he worked his way through the heavy Cypruss forests, would scare such small fry as owls, alligators, and tadpoles would be a caution.) If the friends of the Raleigh route take up the question as they ought, we may expect to have a spirited contest for the next year."

The following extract from another letter from the same source, of the 10th inst., gives an inkling of what may be anticipated in the south, towards "filling up gaps" in, and removing "eye sores," from the railroad system in that region.

We care not a "farthing candle" which state has the strongest claims to the title of "Rip Van Winkle," if they will only unite in the construction of the deficient links in the chain by which the north and the south are to be bound together in a manner not easily to be separated by fanatics or politicians.

The writer says,

"On the 1st of June a large and very respectable delegation of the stockholders of the Wilmington and Weldon railroad co., met the citizens of Sumter and Darling districts, at Sumter, with the view of urging an immediate connection between the North and South Carolina railroads. The objects of the visit of the North Carolina gentlemen were very lucidly explained by Gov. Dudley, president of the Wilmington and Weldon railroad, in a speech in which he endeavored to show that South Carolina was better entitled to the appellation of "Rip Van Winkle," than North Carolina. He was replied to by Col. Moses, on the part of Sumter, Col. Moses was glad to hear that 'Rip Van Winkle' had waked up from his lengthened slumbers, but he hoped that he would not catch the 'game cock' of Sumter napping.

"A committee was appointed to petition the legislature for a charter, and to rouse the people to the importance of the undertaking, etc.

"The meeting which was quite a numerous one, then adjourned, and the North Carolina gentlemen went home determined to commence the work at their end immediately. So you see there is some prospect of this gap being filled up, this 'eye sore' removed. This meeting, I am told has had the effect of waking up Charleston to the injury which an interior route would inflict upon her by throwing her off the main thoroughfare between the north and south, and I have no doubt that an effort will be made to revive the 'All Saints railroad co.' which was intended to connect Wilmington, [N. C.] with Charleston.

"There are three routes by which this gap may be closed: 1st, from Wilmington to Charleston; 2d, from Wilmington by Sumterville to the Camden road; 3rd, from Raleigh to Camden.

"At the present time the contest appears to be be-

tween Charleston and Sumterville, but in my opinion the route which would suit the travelling public [I mean the travel between the north and southwest] would be best accommodated by the route from Raleigh to Camden. This route passes through a healthy country, is 80 miles shorter than the present steamboat route by Wilmington and Charleston, and would be probably 60 miles shorter than the railroad route through Wilmington and Charleston.

"I wonder some of your northern capitalists do not take this matter in hand. The Raleigh and Gaston road, which cost originally \$1,600,000 was sold last winter for less than \$400,000—less than one-fourth its original cost, surely if it is worth anything it is worth this. Yours truly."

Mr. Hodgkinson's Report.

Summary of Results offered, in conjunction with one by Wm. Fairbairn, Esq., M. Inst. C. E., to Robert Stephenson, M. Inst. C. E., etc., etc., for the Directors of the Chester and Holyhead Railway, on the subject of a proposed Bridge across the Menai near to Bangor—By Eaton Hodgkinson, F. R. S.

Having in the month of August last year been requested to render assistance, principally in a scientific point of view, with respect to the experiments to ascertain the practicability of erecting a tubular bridge across the Menai straits, of sufficient strength for railway trains to pass through it with safety, I attended twice in London for that purpose: and as the experiments made there were on tubes of various forms of section, including several elliptical and circular ones, I investigated formula for reducing the strength of the leading ones. It appeared evident to me however, that any conclusions deduced from received principles, with respect to the strength of thin tubes, could only be approximations; for these tubes usually give way by the top or compressed side becoming wrinkled, and unable to offer resistance, long before the parts subjected to tension are strained to the utmost they would bear. To ascertain how far this defect which had not been contemplated in the theory, would affect the truth of computations on the strength of the tubes proposed to be used in the bridge,—and also to show whether the principles generally received could be applied with certainty in reasoning as to the strength of the bridge from that of models comparatively very small,—for these two purposes I urged the necessity of a number of fundamental experiments, which, besides supplying the wants above mentioned, might enable me to obtain additional information to that from Mr. Fairbairn's experiments, with respect to the proportions that the different parts of the section of such a bridge ought to have, as well as what form it should be of, in order to bear the most.

Feeling that there might be objections against allowing me to follow the courses I proposed, however necessary it might appear to myself, I suggested a much more limited series of experiments than now appear to me to be necessary; and as the time consumed in getting the plates rolled and the tubes prepared, caused the experiments to be delayed till the beginning of the year, the time given me has been too limited to obtain all the facts which the few experiments proposed would have afforded.

I will now give the results, so far as they have been obtained and seem worthy of reliance, subject to correction from future exper-

iments, beginning with the reduction of Mr. Fairbairn's experiments on the strength of tubes of wrought iron made of plates rivetted together.

Cylindrical Tubes.—The strength of a cylindrical tube, supported at the ends, and loaded in the middle, is expressed by the formula

$$w = \frac{p f}{a l} (a^4 - a'^4)$$

Where l is the distance between the supports; a, a' the external and internal radii; w the breaking weight; f the strain upon a unity of section, as a square inch, at the top and bottom of the tube, in consequence of the weight w ; $p = 3:14159$.

From this formula we obtain,

$$f = \frac{w l a}{p (a^4 - a'^4)}$$

As it will be convenient to know the strain f per square inch, which the metal at the top and bottom of the tube is bearing when rupture takes place, this value will be obtained from each of Mr. Fairbairn's experiments; the value w being made to include, besides the weight laid on at the time of fracture, the pressure from the weight of the tube between the supports, this last being equal to half that weight. Computing the results, we have, from

Experiment 1, $f = 33456$	} Mean 29887 lb. = 13.34 tons.
" 2, $f = 32426$	
" 3, $f = 35462$	
" 4, $f = 32415$	
" 5, $f = 30078$	
" 6, $f = 33869$	
" 7, $f = 22528$	
" 8, $f = 22655$	
" 9, $f = 25095$	

Fracture in all cases took place either by the tube failing at the top, or tearing across at the rivet holes; this happened on the average, as appears from above, when the metal was strained 13 1-3 tons per square inch, or little more than half of its full tensile strength.

Elliptical Tubes.—The value of f in an elliptical tube broken as before, (the transverse axis being vertical,) is expressed by the formula,

$$f = \frac{w l a}{p (b a^3 - b' a'^3)}$$

Where a, a' are the semitransverse external and internal diameters; b, b' the semi-conjugate external and internal diameters; and the rest as before w including in all cases the pressure from the weight of the beam.

Computing the results from Mr. Fairbairn's experiments we have from

Experiment 20, $f = 36938$	} Mean 37089 lb. = 16.55 tons.
" 21, $f = 29144$	
" 24, $f = 45185$	

Rectangular Tubes.—If in a rectangular tube, employed as a beam, the thickness of the top and bottom be equal, and the sides are of any thickness at pleasure, then we have

$$f = \frac{3 w l d}{2 (b d^3 - b' d'^3)}$$

in which d, d' are the external and internal depths respectively; b, b' the external and internal breadths; and the rest as before.

Mr. Fairbairn's experiment No. 14 gives by reduction $f = 18495$ lb. = 8.2566 tons.

This is, however, much below the value which some of my own experiments give, as will be seen further on.

The value of f , which represents the strain

upon the top or bottom of the tube when it gives way, is the quantity per square inch which the material will bear either before it becomes crushed at the top side or torn assunder at the bottom. But it has been mentioned before, that thin sheets of iron take a corrugated form with a much less pressure than would be required to tear them assunder; and therefore the value of *f*, as obtained from the preceding experiments, is generally the resistance of the material to crushing, and would have been so in every instance if the plates on the bottom side (subjected to tension) had not been rendered weaker by rivetting.

The experiments made by myself were directed principally to two objects:

I. To ascertain how far this value of *f* would be affected by changing the thickness of the metal, the other dimensions of the tube being the same.

II. To obtain the strength of tubes, precisely similar to other tubes fixed on,—but proportionately less than the former in all their dimensions, as length, breadth, depth and thickness,—in order to enable us to reason as to strength from one size to another, with more certainty than hitherto, as mentioned before. Another object not far pursued, was to seek for the proper proportion of metal in the top and bottom of the tube. Much more is required in this direction.

In the three series of experiments made, the tubes were *rectangular*, and the dimensions and other values are given below.

Length.	Depth.	Breadth.	Distance between supports.	Weight.	Thickness of plates.	Last observed deflection.	Corresponding weight.	Break'g weight.	Value of <i>f</i> , for crushing strain.
ft. in.	in.	in.	ft. in.	cwt. qr.	in.	in.	tons.	tons.	tons.
31 6	24 16	30 0	44 3	.525	3.03	56.3	57.5	19.17	
31 6	24 16	30 0	24 1	.272	1.53	20.3	22.75	14.49	
31 6	24 16	30 0	10 1	.124	1.20	5.01	5.53	7.74	
				lb. oz.		lb.	lb.		
8 2	6 4	7 6	78 13	.132	.66	9,416	9,976	23.17	
8 2	6 4	7 6	38 11	.065	.32	2,696	3,156	15.31	
8 2	6 4	7 6							
4 2 1/2	3 2	3 9	10 12	.061	.435	2,464	2,464	24.56	
4 3 1/2	3 2	3 9	4 15	.03	.13	560	672	13.42	

The tube placed first in each series, is intended to be proportional in every leading dimension, as distance between supports, breadth, depth, and thickness of metal,—and any variations are allowed for in the computation.—Thus the three first tubes of each series are intended to be similar; and in the same manner of the other tubes, etc.

Looking at the breaking weights of the tubes varying only in thickness, we find a great falling off in the strength of the thinner ones; and the values of *f* show that in these—the thickness of the plates being .525, .272, .124 inch—the resistance, per square inch, will be 19.17, 14.47, and 7.74 tons respectively. The breaking weights here employed, do not include the pressure from the weight of the beam.

The value of *f* is usually constant in questions on the strength of bodies of the same nature, and represents the tensile strength of the material, but it appears from these experiments that it is variable in tubes, and represents their power to resist crippling. It depends upon the thickness of the matter in the tubes, when the depth or diameter is the same; or upon the thickness divided by the depth when that varies. The determination of the value of *f*, which can only be obtained by experiment, forms the chief obstacle to obtaining a formu-

la for the strength of tubes of every form.—When *f* is known the rest appears to depend upon received principles, and the computation of the strength may be made as in the Application de la Mecanique of Navier, part 1st, article IV.; or as in papers of my own in the Memoirs of the Literary and Philosophical Society of Manchester, vols. 4 and 5, second series. I have however, made for the present purpose, further investigations on this subject but defer giving them till additional information is obtained on the different points alluded to in this report; and this may account for other omissions.

In the last table of experiments the tubes were devised to lessen or to avoid the anomalies which rivetting introduces, in order to render the properties sought for more obvious.—Hence, the results are somewhat higher than those which would be obtained by rivetting as generally applied.

The tube 31 feet 6 inches long, 24 cwt. 1 qr. weight, and .272 inch in thickness of plates, was broken by crushing at the top with 22.75 tons. This tube was afterwards rendered straight, and had its weak top replaced by one of a given thickness, which I had obtained from computation; and the result was, that by a small addition of metal, applied in its proper proportion to the weakest part, the tube was increased in strength from 22.75 tons to 32.53 tons; and the top and bottom gave way together.

If it be determined to erect a bridge of tubes I would beg to recommend that suspension chains be employed as an auxilliary, otherwise great thickness of metal would be required to produce adequate stiffness and strength.
EATON HODKINSON.

Railroad Convention.

Waynesboro', Burke Co., May 19.

Pursuant to previous notice, the respective delegation of the cities of Savannah and Augusta, and of this county, with a large number of the citizens of the latter, convened today in the court house, when, on motion of Mulford Marsh, Esq., the Hon. JOHN WHITEHEAD was called to the chair, and JOSEPH B. JONES appointed secretary. The following delegates were in attendance, to wit:

From Savannah.—Messrs. George Jones, W. B. Hodgson, R. R. Cuyler, S. T. Chapman, Robt. A. Allen, T. C. Nesbitt, M. Marsh, and L. O. Reynolds.

From Augusta.—Messrs. Andrew J. Miller, John Schley, George Schley, C. R. Holt, John C. Sneed, Eben. Starnes, J. J. R. Flournoy, John George, E. Y. Harris, Jas. Gardner, and Chas. J. Jenkins.

From Burke County.—J. W. Carswell, A. Wiggins, J. H. Hines, Edmond Palmer, Wm. Sapp, Wm. Hughes, Henry Hargroves, Wm. Byne, Jas. Rayals, J. P. C. Whitehead, Edward Tabb, Robert Gray, J. J. Heath, Chas. Burton, John Gordon, James Grubbs, S. J. Cox, Allen Inman, Moses Green, Jas. W. Jones, Jas. McGruder, Henry Lewis, Wright Murphy, Benj. Lewis, John C. Poythress, C. W. West, John Whitehead, Job Gresham, S. W. Blount, Abell Lewis, Benj. E. Gilatrop, Joseph B. Jones, and Geo. W. Evans.

In reply to a request by the chair, R. R. Cuyler, Esq., of Savannah, stated the object of the present convention to be, a consultation as to the propriety of, and the measures proper to be taken, with a view to the construc-

tion of a branch railroad from the city of Augusta, by the way of Waynesboro', to the 80 mile station, or some other point upon the Central railroad; and briefly remarked the vast importance of the completion of the proposed road to the communities more immediately interested, but more especially its influence as a part of the great chain of railways in Georgia, in binding more strongly the near as well as most distant parts of our state, in social and intimate intercourse; and in conclusion, Mr. C. expressed gratification at the evidences around him of the interest felt by the citizens of Burke in the proposed undertaking, assured them that if they would begin the work with energy and determination, they might certainly calculate upon liberal pecuniary aid from the citizens of Savannah.

Dr. C. W. West then proposed the following preamble and resolutions:

Whereas, it is believed to be highly expedient and proper that a continuous railroad communication between the cities of Savannah and Augusta, by the way of Waynesboro', in Burke co., should be completed at the earliest practicable period, and that the commissioners named in the act of incorporation passed by the legislature in the year 1838, should take measures for the organization of the company chartered for the afore-mentioned purpose.

Resolved, That a committee of nine members be appointed by the president of this convention for the purpose of conferring with the corporate authorities of Savannah and Augusta, as well as with the Georgia and Central railroad companies, in order to ascertain what facilities and encouragement said corporations are willing to afford in the accomplishment of this desirable object, and that said committee be requested to report the result of the said conference to an adjourned meeting of this convention to be held in Waynesboro', on the first Tuesday of November next.

Resolved, That said committee be authorized to report at the same time upon the practicability and importance of the proposed work, as well as its probable cost and income when completed; the best means of raising the necessary funds for its construction, and the manner in which it could most profitably be controlled and operated; together with such other suggestions as said committee may deem proper and expedient.

Which resolutions were, after discussion, adopted.

Chas. J. J. Jenkins, Esq., of Augusta, being called upon, responded heartily to the sentiments and feelings of the gentleman from Savannah, Mr. Cuyler, concurring too in the suggestions made as to the advantages, local and general, of the proposed work, but thought that final action should not now be taken, but further time allowed for enquiry, and the expression of opinion by those who were to bear the burden of its construction, and recommending the adoption of the resolutions offered as pointing out the proper course.

Andrew J. Miller, Esq., of Augusta, answering the call of the house, addressed the

convention to the same purpose as his colleague. Viewing this convention as advisory altogether, he thought it unwise to adopt final measures, but was a warm friend to the road.

Mr. Hodgson, of Savannah, briefly stated his anxiety to see the work undertaken, and would be found ready at the proper time to engage in it.

Mulford Marsh, Esq., of the same place, offered resolutions as amendments of the preceding—and looking to more speedy action upon the matter that had brought them together, and after reviewing hastily the facilities and advantages for the transportation of the planter's produce to market afforded to almost every section of the state, by the roads now in operation, urged the undertaking of the present work, by noticing the particular benefit to the planters of this county, of the Central railroad. The amendment was, however, withdrawn at the suggestion of Mr. Chapman, of Savannah, who thought that in the present uninformed state of the public mind upon the subject before the convention, if matters were pressed too hastily, many might commit themselves, who, after better examination and conviction of the vast importance of the work, would render valuable assistance.

Ed. J. Black, Esq. of Scriven, though not a delegate, was invited to address the convention, and replied in effect, that looking upon Augusta, and Savannah in their corporate capacities only, he felt little gratification or concern at the prospect of any local advantage which they might receive from the road, but viewing them as part and parcel of the great domain of Georgia, containing a large number of the citizens thereof, he could rejoice with others in the adoption of any plan, or the completion of any work, which might advance their interests. And looking upon the road, when completed, as an instrument for breaking down the obstacles heretofore interposed to the ready and free interchange of commercial advantages of these two important points of the state, and more especially where he could see in its operation an active agency in advancing the great cause of free trade, he would give them his hearty co-operation, and wished the convention a God-speed towards its completion.

It was on motion of Mr. Gardner, of Augusta,

Resolved, That the counties of the state which may feel interested in the work, be invited to appoint delegates to the convention, to participate in its deliberations.

Resolved further, That the counties now represented in this convention be requested to add to the present number of their delegates as many as they may think proper, with a view to the promotion of the objects of this convention.

It was then on motion,

Resolved, That the proceedings of this convention be published in the Augusta and Savannah papers.

The convention then adjourned until the first Tuesday in November next.

JOHN WHITEHEAD, Chairman.

Jos. B. Jones, Secretary.

Elephant and Locomotive.—The union related in the following, being none other than an elephant with a locomotive, may be recorded for its eccentricity. At Morpeth, according to the *Gateshead Observer*, a north British locomotive engine arrived drawn by 15 horses. The manager of Wombwell's menagerie made an offer of the service of the elephant to assist the horses in surmounting the hill, which was at once accepted; the elephant cheerfully undertook the task, and tugged, never once pausing, until he reached the summit of the hill. This, we should think, is the first instance of an elephant trying his powers against an iron horse.

The Peace Mission of Railways.—For once establish railroads and abolish preventive duties through Europe, and what is there left to fight for? It will matter very little then under what flag people live, and foreign ministers and ambassadors may enjoy a dignified sinecure; the army will rise to the rank of peaceful constables, not having any more use for their bayonets than those worthy people have for their weapons now, who accompany the law at assizes under the name of javelin-men. The apparatus of bombs and 84 pounders may disappear from the Alameda, and the crops of cannon balls which now grow there, may give place to other plants more pleasant to the eye; and the great key of Gibraltar may be left in the gate for anybody to turn at will, and Sir Robert Wilson may sleep in quiet.—*Titmarsh's Cairo.*

A CARD.

TO THE CITIZENS OF NEW YORK.

After a residence of over twenty-one years in this city, I find it for my interest to seek, in a neighboring city, a new home, where I hope to derive more ample reward for honest and unremitting industry and enjoy the satisfaction of knowing that my past labors have contributed somewhat to the general prosperity, if not materially to my own.

Having, for so long a period, participated in the excitements and activity of this growing city, and witnessed its prosperity and rapid advancement—yet without sharing largely in its enjoyments—I cannot leave it without regret, nor without acknowledging my obligations, and gratitude, to the many kind friends, who have at all times cheered and encouraged me on; but more especially to those few who so generously sustained me at a period when all was lost, save a determination to succeed.—Here I have labored for the general prosperity; and have the vanity to believe that the great destiny that awaits you has not been retarded by my efforts; there I shall provide the comforts required by the body—and therefore solicit in my new habitation, and new vocation, a continuance of your approval, and an increase of your patronage. I shall feel, while I labor for the wants of the outer man—while I provide and supply, in a superior manner, the comforts and social enjoyments of life—that I am but "laboring in the vocation" that contributes "the greatest good to the greatest number."

In the "FRANKLIN HOUSE," 105 Chestnut street, Philadelphia, heretofore kept by Messrs. J. M. SANDERSON & SON—my future residence after the 1st of July—I hope to meet many of those faces which, during a long residence here, have become familiar to me, and grasp many an honest hand,

and exchange many a kind salutation, with warm and sincere friends.

The house is now undergoing a thorough renovation, and extensive improvements are to be made, by the addition of a convenient and well arranged *ladies ordinary*, a spacious new dining room for gentlemen, several new parlors, and many new and convenient lodging rooms. It will be newly painted throughout, and mainly refurnished, and thus be placed on a footing with the best Hotels in Philadelphia. I shall be aided in its management, by Mr. JAMES M. SANDERSON, long favorably known as one of the gentlemanly proprietors of the FRANKLIN HOUSE, and as a caterer unsurpassed in the country; and also by the celebrated *Chef de Cuisine* PELLETER, who has also been connected with the house during the past four years, and whose superior, as an *artiste* in his line, in this country, is yet to be found.

With such a house, and such aid in its management, I do not hesitate to say, to those friends and acquaintances who have known me during the past twenty years, and to others who have not, that they will find good accommodation, good fare, and all desirable attention to their wishes when they call at the FRANKLIN HOUSE, and upon their obedient servant,
D. K. MINOR.

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee.
G. A. NICOLLS,

ja45

Reading, Pa.

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions.
ja45ly

RAILROAD IRON—1700 TONS VERY Best English Rails, ready to be delivered.—These Rails weigh 60 lbs., the lineal Yard, are 3½ inches deep; 4 inches deep at base; 2½ inches wide at top; 17½ feet long, except one-tenth of 15 and 12½ feet in length.

A first rate Steam Pile Driver built by "Dunham & Co.," has never been in use, is in perfect order, and for sale a bargain; also 12 Railway Passenger Cars that have never been used, which will be sold very low.
DAVIS, BROOKS & CO.,

June 1.

30 Wall Street.

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 fe. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

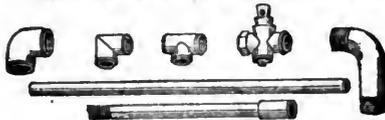
Blacksmith shop, 49 feet long by 20 feet wide
For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja47

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ½ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by MORRIS, TASKER & MORRIS. Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS, Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 11f

LAP-WELDED WROUGHT IRON TUBES

FOR TUBULAR BOILERS, FROM 1 1-2 TO 5 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee.

25 28 Platt street, New York.

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

For sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP, 75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH-Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.		
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4½	13 5	10	24 -	50	15-16	20	
13	3½	8 3	8½	16 -	27	11-16	13½	
14	3¼	6 11	7½	12 8	17	9-16	10½	
15	2½	5 2	6½	9 4	13½	1-2	7½	
16	2¼	4 3	6	8 8	10½	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 360 lbs., and so on in proportion. 1y24

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.

PETER COOPER, 17 Burling Slip. New York, January 23d, 1846. 1y 10

RAILROAD IRON—500 TONS OF 67 LBS. per yard—5 inches high—of the double headed pattern, which is now wholly used in England—now on the passage, and a further quantity will be contracted for. Also

500 tons T pattern, 56 lbs. per yard, for sale by BOORMAN, JOHNSTON & CO. 119 Greenwich street. 4t24

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long. 25 " 2½ x ½ " Flange Iron Rails. 75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, Albany Iron and Nail Works,

CALIGRAPHIC BLACK LEAD PENCIL, MANUFACTURED BY E. WOLFF AND SON, 23 Church Street, Spitalfields, London.

The Caligraphic Pencils have been invented by E. Wolff and Son, after the expenditure of much time and labor. They are the result of many experiments; and every effort that ingenuity and experience could suggest, has been made to insure the highest degree of excellence, and the profession may rely upon their being all that can be desired.

They are perfectly free from grit; and for richness of tone, depth of color, delicacy of tint, and evenness of texture, they are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use.

The Caligraphic Pencils will also recommend themselves to all who use the Black Lead Pencils as an instrument of professional importance or recreation, by their being little more than half the price of other pencils.

An allowance will be made on every groce purchased by Artists or Teachers.

May be had of all Artists, Colourmen, Stationers, Booksellers, etc.

A single pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

Caution.—To prevent imposition, a highly finished and embossed protection wrapper, difficult of imitation, is put around each dozen of Pencils. Each Pencil will be stamped on both sides, "Caligraphic Black Lead, E. Wolff and Son, London."

The subscriber has on hand a full supply of Wolff and Sons celebrated Creta Loevis, or Colored Drawing Chalks, also their pure Cumberland Lead and extra prepared Lead Pencils, and Mathematical Lead Pencils.

P. A. MESIER, Stationer and Sole Agent, No. 49 Wall Street.

N. B.—A complete assortment of Steven's Genuine Inks, Fluids, Imitating Wood stains, and Graining Colours at the Manufacturers prices. 191f

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janvier, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

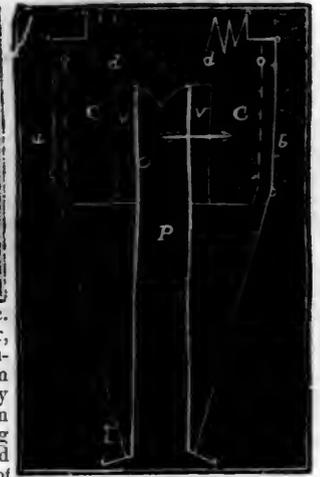
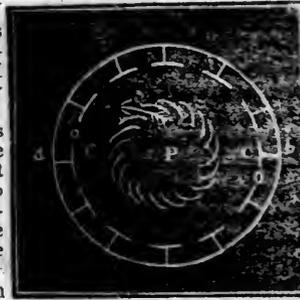
These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

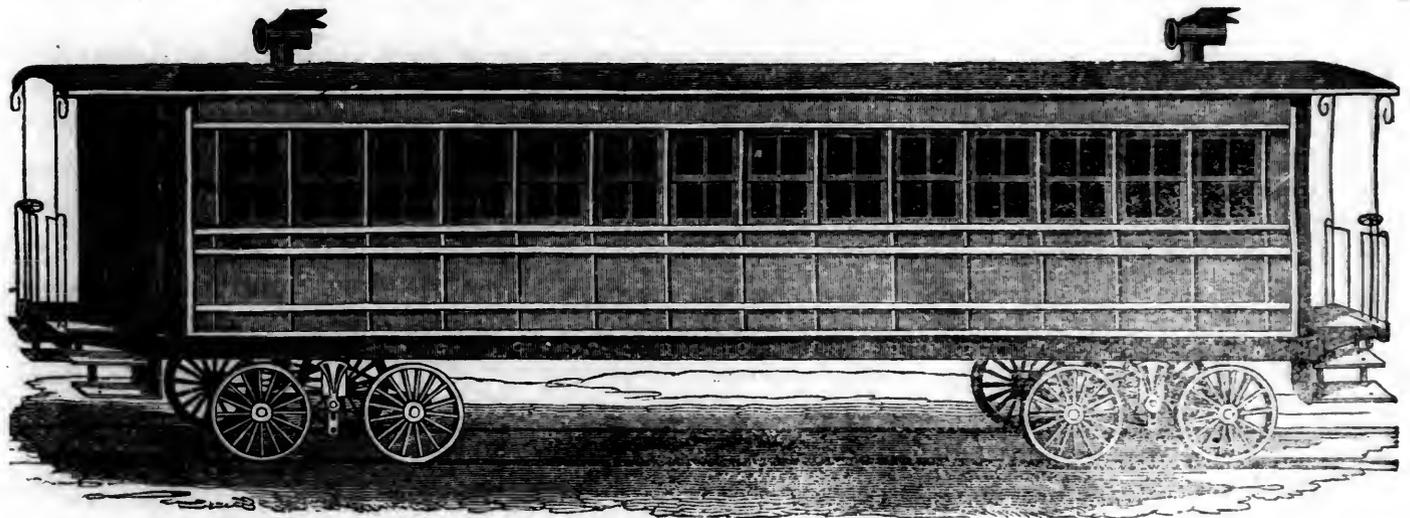
Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844. ja45



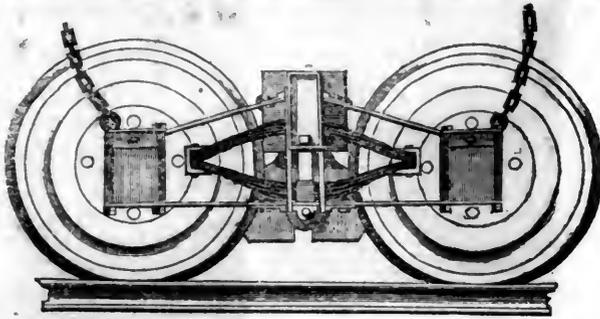
BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco Pressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes. 1yl

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

Jersey City, November 4, 1845.

[Signed,] T. L. SMITH,

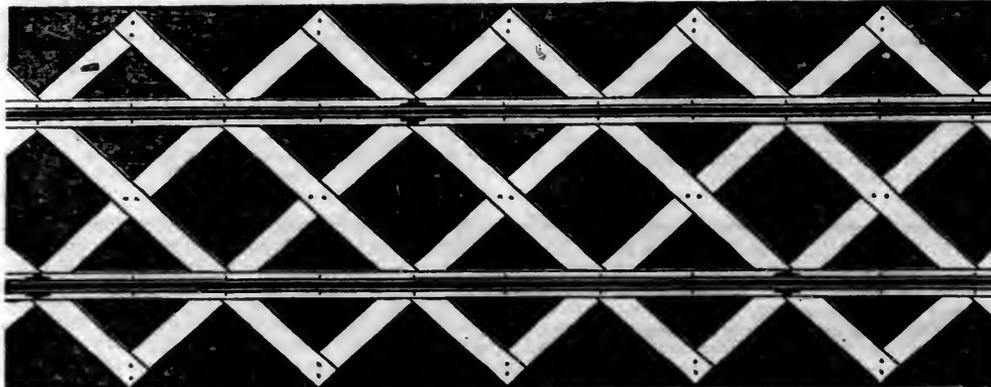
N. Jersey Railroad and Transp. Co. This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, Jamaica November 12, 1845.

[Signed,] JOHN LEACH, 1y19 Sup't Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. (It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.)

RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum...	5 00

ENGINEERS and MACHINISTS.

- THOMAS PROSSER, 23 Platt St. N.Y. (See Adv.)
- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- PHENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for *Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

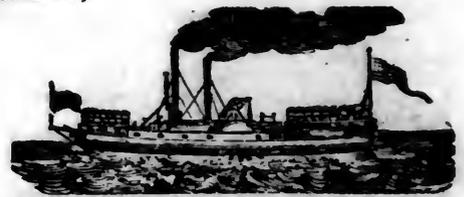
JAMES HERRON, Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made. 1y1

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.
SECOND QUARTO SERIES, VOL. II, No. 27.] SATURDAY, JULY 4, 1846. [WHOLE No. 524, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD.

Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:
For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.
Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.
Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.
Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3½ p.m.
All baggage at the risk of the owners thereof.
31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD AND STAGES

Connecting with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD.

Summer Arrangement, commencing Monday, April 6, 1846.
Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.
The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.
New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.
Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.
New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 32 ly J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD.

Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846.
On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:
Boston for Portland at 7½ a.m. and 2½ p.m.
Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m.
Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m.
Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m.
Portland for Boston at 7½ a.m., and 3 p.m.
Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m.
Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.
The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, *Sup't.*

TROY AND GREENBUSH RAILROAD.

Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at	6½ A.M.	Leave Albany at	7 A.M.
"	" 7½ "	"	" 8 "
"	" 8½ "	"	" 9 "
"	" 9½ "	"	" 10 "
"	" 10½ "	"	" 11 "
"	" 11½ "	"	" 12 M.
"	" 1 P.M.	"	" 1½ P.M.
"	" 2 "	"	" 2½ "
"	" 3 "	"	" 3½ "
"	" 4 "	"	" 4½ "
"	" 5 "	"	" 5½ "
"	" 5½ "	"	" 6 "
"	" 6½ "	"	" 7 "

The 6½ a.m. and 2 o'clock p.m. runs from Troy, to Boston runs.

The 12 m. and 6 o'clock p.m. trains from Boston runs.

Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT, *Superintendent.*
Troy, April 1st, 1846. 14 ly

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE,

from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A. M. and 4 P. M.
" Middletown at 6½ A. M. and 5½ P. M.
FARE REDUCED to \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P. M.
" Middletown at 12 M.
The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts.

H. C. SEYMOUR, *Sup't.*
March 25th, 1846.
Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 tf

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7, 10, 8, 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3, 10, 5, 10, 5, 30, 6, 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams' Bridge trains will be regulated according to the state of the weather. 18

LITTLE MIAMI RAILROAD.--1846.--
Summer Arrangement.

Two passenger trains daily. On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1 1/2 p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m.

On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m.

Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.

Tickets may be procured at the depot on East Front street.

The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount.

W. H. CLEMENT,
Superintendent.

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
a45 Paterson, N. J., or 60 Wall street, N. York.

GEORGE VAIL & CO. SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions.

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee.

G. A. NICOLLS,
ja45 Reading, Pa.

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers or fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schnykill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
Philadelphia, Pa.

MARAMEC IRON WORKS FOR SALE.

By Authority of a power of Attorney from Messrs. Massey and James, I will sell at Public Auction, at the Court House in the city of St. Louis, on *MONDAY, the 2nd day of November next*, the above named valuable IRON WORKS—together with 8,000 ACRES OF LAND, more or less, on which there are several valuable and productive Farms open and in cultivation.

The Maramec Iron Works are situated at the Maramec Big Spring, in Crawford Co., Mo., and consist of 1 BLAST FURNACE; 1 AIR FURNACE; 1 REFINING FORGE, with large Hammer for making Blooms and Anchovies; 2 CHEFFERY FORGES for Drawing Bar Iron; 1 ROLLING MILL for Rolling Blooms into Bars and Plates;

1 SAW AND 1 GRIST MILL,

All within 300 Yards of the head of the spring. There are 2 large frame Coal Houses, and all other Buildings necessary, such as Shops and Houses for the workmen.

This Spring is one of the largest in Missouri, discharging at the lowest time 7,000 cubic feet of water per minute. The Ore Bank from which the Ore has been heretofore taken is about 600 yards from the furnace; it is the *Specular Iron Ore*, the best for making Bar Iron, and the quantity inexhaustible.—It is an Iron Mountain, 400 feet above the level of the Maramec River; the ore is entirely uncovered, and there is an easy descent and a good road from it to the furnace.

The lands have been carefully selected by one of the owners with a view to the interest and convenience of the Works, and are situated principally on the Maramec River and its tributaries, embracing the best bottom lands and water powers. The following detached tracts, comprized in the above quantity, were selected for the advantages they possess;

18 1/2 ACRES in T. 40 N. of R. 8 W. in Sec. 3, near Wherry's Mill, in Osage Co.; entered to secure a very valuable Mill power on the Branch Spring and a good landing on the Gasconade River.

80 ACRES on Benton's Creek, 12 miles from the Works; entered to secure an extensive and valuable Ore Bank 2 1/2 miles from the Maramec, at a point where there is ample water power.

320 ACRES in T. 38 N. of R. 4 W. in Sec. 22 and 23, affording an extensive and valuable water power on the Maramec river.

160 ACRES in T. 37 N. of R. 3 W. in Sec. 4, embraces two inexhaustible and valuable Ore Banks and is 1 1/2 miles from Water power sufficient for a furnace and Grist Mill, and is distant 6 miles from the above site on the Maramec.

80 ACRES in T. 37 N. of R. 8 W. in Sec. 33, including an extensive bank of excellent Ore, and distant 1 1/2 miles from water power on the waters of the Gasconade River, in Pulaski Co., sufficient for Furnace and Mills. All those Banks are of the same kind as the one at the Works, and deemed inexhaustible.

1 LOT, containing nearly one Acre, on the South Bank of the Missouri River, 4 Miles above the town of Hermann, purchased for a warehouse and

landing, and is one of the best landings on the River.

The lands above described are well timbered, and have been selected with a view to have an ample supply of wood and coal, for fences, building and other purposes. There are on the land valuable quarries of Limestone well adapted for Fluxes for the Ore, and also good quarries of Rock suitable for building. There are also on the land a great number the finest kind of Springs. A large portion of the lands are bottoms well adapted to the production of Corn and other crops. The Works are situated in a very pleasant and healthful part of the country. The Maramec ore is believed to be admirably adapted to the manufacture of steel.

A further description of the property at this time is considered unnecessary, as those wishing to purchase will no doubt view the property, which will be shown by the Agent, residing at the works.

The terms of payment required will be one-third of the purchase money in hand and the balance in three equal annual payments, secured by mortgage on all the property.

A more particular description of the property will be given, and further conditions of the sale made known, on the day of sale.

Jno. F. ARMSTRONG, Agent.

St. Louis, June 6, 1846.

The Louisville, (Ky.,) Journal, Cincinnati Gazette, Tribune (Portsmouth, O.,) Nashville Whig, Pittsburg Gazette, National Intelligencer, United States Gazette, (Phila.) Railroad Journal (N. Y.,) and Boston Atlas, will publish the above once a week until the 20th day of October next, and send bills to this office for settlement, and mark price on first paper. 1845

THE SUBSCRIBERS, AGENTS FOR

the sale of Codorus, Glendon, Spring Mill and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L. KIMBER, & CO.,
59 North Wharves,

Jan. 14, 1846. [1y4] Philadelphia, Pa.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,
ja45 N. E. cor. 12th and Market sts., Philad., Pa.

KEARNEY FIRE BRICK. F. W.

BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to James P. Allaire, Peter Cooper, } New York; Murdock, Leavitt & Co. J. Triplett & Son, Richmond, Va. J. R. Anderson, Tredegar Iron Works, Richmond, Va.

J. Patton, Jr. } Philadelphia, Pa. Colwell & Co. J. M. L. & W. H. Scovill, Waterbury, Con. N. E. Screw Co. } Providence, R. I. Eagle Screw Co. William Parker, Supt. Bost. and Worc. R. R. New Jersey Malleable Iron Co., Newark, N. J. Gardiner, Harrison & Co. Newark, N. J. 25,000 to 30,000 made weekly. 35 1y

RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATAILLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

(Signed.)

RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
133½ Water st., N. Y.

Also by Isaac Bridge, 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street, Charleston, S. C.

16 1/2

CUSHMAN'S COMPOUND IRON RAILS.

etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
Albany, N. Y.

Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

RAILROAD IRON AND LOCOMOTIVE

Tyres imported to order and constantly on hand by
A. & G. RALSTON
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING

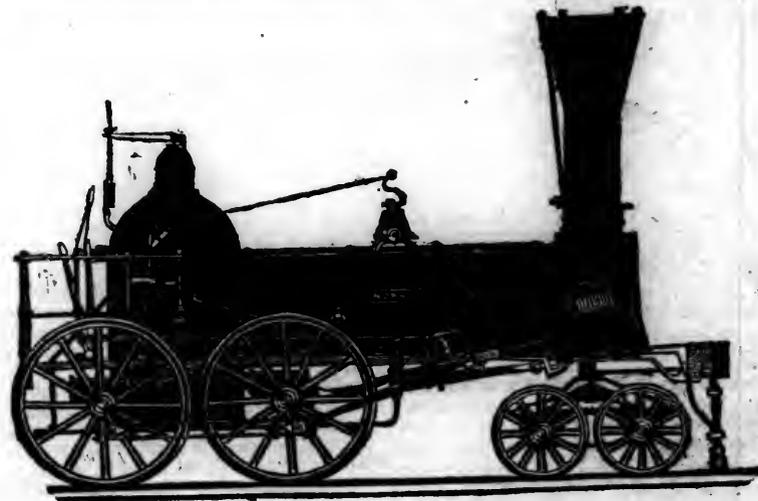
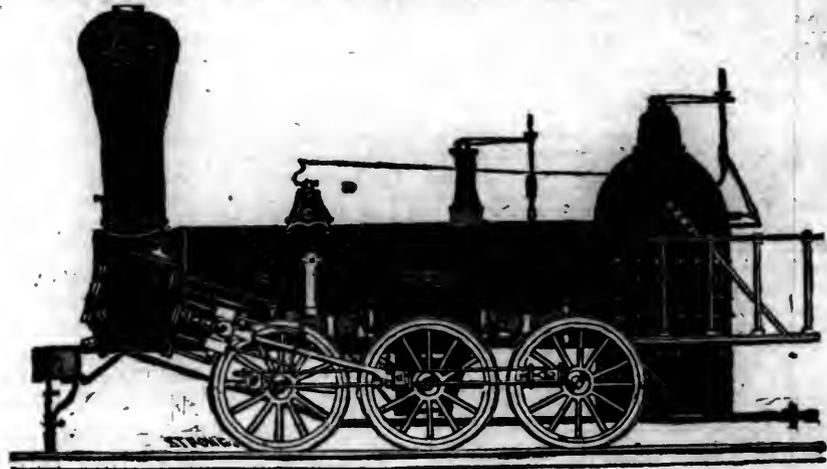
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following description, viz:

Class	1	15 inches	Diameter of	Cylinder,	×	20 inches	Stroke.
"	2,	14	"	"	×	24	" "
"	3,	14½	"	"	×	20	" "
"	4,	12½	"	"	×	20	" "
"	5,	11½	"	"	×	20	" "
"	6,	10½	"	"	×	18	" "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS

Mathematics as a Branch of Professional Study.

(Continued from page 390.)

Geometry Studied as a Rational Science.

We shall now presume that the reader is prepared to enter upon a course of *geometrical investigation*, in the strict sense of the term; and though possibly in some respects, other works (on the same *model*, however,) besides that of Euclid, might be with advantage consulted, yet we know of no one, not even that of Legendre, which, taken as a whole, would be so safe a guide to him.

There can be no doubt that some degree of familiarity with the terms, and with the visual appearances of the figures of geometry, which every one whom we now address possesses, will place our student in a more advantageous position for the commencement of a course of rational geometry, than if he were entirely ignorant of them. In fact, in ordinary courses of general instruction, the greatest difficulty of which we have heard teachers of mathematics complain, is, the inadequate knowledge of the ordinary terms of geometry, which is furnished from the preliminary books in use for children—nay, in most cases, the *erroneous* notions which such books convey to the young mind. Considerable time is thus lost in acquiring correct notions of the very objects with which geometry is conversant, in all general schools; as these are only collected by repeated efforts of the mind, and after considerable recapitulation on the part of the teacher. All this inconvenience is escaped by the preliminary mechanical practice in geometrical construction, and by the suggestions which that practice inevitably forces upon the mind. Neither architecture or engineering are professions selected by young men of inferior capacity: we abate, of course, the railway mania of the past year. On the contrary, they are selected rather for the taste and talent which they are calculated to open an opportunity for cultivating with distinguished success. We assume, and we consider that we assume it on good grounds, that the profession is stocked with students whose talents considerably exceed the average amount of that which exists in the middle classes of society. We have made our appeal to them; and we feel convinced that they will pay that deference to the long experience and observation which has dictated our present series of notes, so far as to give our proposed course of study a fair trial. All we ask of them is, that they shall hold abeyance for a few short weeks of study those notions which their reflections upon the mere mechanical practice of geometrical construction, as regards *proof*, has tended to produce. We feel an entire confidence that, if this condition be complied with, that abeyance will terminate in something akin to self-reproach for the absurd imaginations of former days.

The student's first business must be to acquire a clear view of the conditions which essentially constitute a *perfect argument*, or in technical language, the *categorical syllogism*. We are happy in being able to avoid entering into any details concerning the formal logic, by referring the student at once to

Prof. De Morgan's tract, entitled, "First Notions of Logic;" in which the fundamental principles of the "art of reasoning" are laid down with much clearness and precision, and with direct reference to the use of logic in the exact sciences.

The general object of geometrical reasoning is to compare two magnitudes, or two ratios, with each other, by means of some third magnitude of the same species, to which each of them has a known, a given, or a determinable relation. The comparison is simply as to equality or inequality, double or half, etc. The general term *agreement* in formal logic is, in its mathematical application, reduced simply to *equality*, and *disagreement* to *inequality*; and nearly all the quibbles of the scholastic ages, which tended to bring the Aristotelian logic into contempt, have turned upon the substitution of verbal agreement for agreement in fact and essence. Under the simple forms of geometrical reasoning these quibbles found no place; and we would strenuously urge that the student should no further "dabble in the mysteries of the Oxford logic," than as it strictly applies in geometry.

We quote, however, one brief passage from Pott's Euclid, page 46-7—a work to which we have already referred in a review a few weeks ago.

(a.) "Every *sylogism* consists of three propositions, of which two are called the *premisses*, and the third the *conclusion*.

(b.) "These propositions [among them] contain three items [each proposition containing two items] the *subject* and *predicate of the conclusion*, and the *middle term* which connects the predicate and conclusion together.

(c.) "The subject of the conclusion is called the *minor*, and the predicate of the conclusion is called the *major term*, of the *sylogism*.

(d.) "The major term appears in one premiss, and the minor term in the other, with the middle term which is in both premisses.

(e.) "That premiss which contains the middle term and major term, is called the *major premiss*; and that which contains the middle term and minor term, is called the *minor premiss* of the *sylogism*.

(f.) "As an example we may take the first *sylogism* in the demonstration of prop. 1, book I, wherein it will be seen that the middle term is the subject of the major premiss and the predicate of the minor.

"*Major premiss*.—Because the straight line AB is equal to the straight line AC.

"*Minor premiss*—and because the straight line BC is equal to the straight line AB.

"*Conclusion*—therefore the straight line BC is equal to the straight line AC.

(g.) "Here BC is the *subject*, and AC the *predicate* of the *CONCLUSION*; BC is the *subject*, and AB the *predicate* of the *MINOR PREMIS*; AB is the *subject*, and AC the *predicate* of the *MAJOR PREMIS*:

(h.) "Also AC is the *major term*, BC the *minor term*, and AB the *middle term*."

We do by no means insist upon the *absolute necessity* of "getting up" even this amount of formal logic, in the terms which are here employed; yet as a clear conception of the

formal and essential reasonings of pure geometry is greatly facilitated by means of it, we urge its adoption as a matter of ultimate advantage, since this will confer *precision* upon their reasonings. To the student who can seize the *spirit* of geometrical investigation this will be unnecessary; and we know that many of our most able self-educated geometers have never taken the trouble to formally analyze and classify the parts of which a demonstration is composed—they perceiving, as it were intuitively, the cases where the *sylogism* is imperfect or inconclusive. Yet, though some confident boys may "dash out," and swim with a facility approaching to instinctive, the great majority of our species must commence with the "nautilus," "the bladders," or "the corks," or else be doomed to a progress so slow in their aquatic feats, as to disgust or dishearten them with the attempt. So it is in respect of mind.

In all cases, however, it must be kept in view that every geometrical truth is deduced by a comparison between two others, which agree, one in one particular part, and the other in another, with the conclusion so deduced. One of these *may be* (and in one step of every demonstration *must be*) the hypothesis admitted of the existence of the figure spoken of; the other must be some previously acknowledged, or admitted or demonstrated truth. From this cause there must be certain *first truths* (one at least) *admitted*, as independent of all formal reasoning. This gives rise to the *axioms*; which, however, beyond the more "common notions" which constitute Euclid's first seven, and his ninth, have been reduced by the Greek geometers to the smallest possible number. Attempts, indeed, have been often made to repose the superstructure of geometry on *definitions alone*; and to effect this the eighth and tenth of Euclid's axioms have been treated as disguised definitions of *equality* and of the *straight line*—while almost as many essays have been made to give a demonstration of the twelfth axiom as to "square the circle," or "double the cube." For men of learned leisure, such amusements may be very suitable; with us "practical men," they would be preposterous trifling. We have to act as well as to think; and all our thoughts must be given to the most efficient modes of acting. Moreover, while all ingenious speculation of this kind has signally failed in either simplifying the principles, or rendering the reasoning more concise, we may safely take the "Elements," though composed more than two thousand years ago, as our guide in geometry, without the slightest fear as to the result.

Another source of difficulty often felt is the definitions of the point, line and plane, as given by Euclid, and to which we have before alluded. Let us make a passing remark upon this.

The Greeks had no "classic language" from which to borrow their scientific terms. They took the ordinary terms of their language, which generally signified something more than they wished to express, or more than it was convenient to them to mean by

those terms. The forms of their definitions were therefore, in many cases, *merely restrictive* from the general idea which was attached to the words of the accidental qualities which did not enter into the geometrical conception then under view. This *negative* form of definition, therefore, in respect of familiar terms, greatly prevailed over the *descriptive* form of definition; and we have found ourselves in exactly the same predicament respecting many of the terms which we have translated instead of having adopted as technicals. For instance, the word *tonia* (which has, as its perfect Latin, the word *angulus*), signifies the corner of anything, as of a room, or of a field; but in order fully to restrict the term to its geometrical sense, Euclid excludes all other considerations by limiting it to signify the inclination of two lines to one another—or the “opening between them,” as it is sometimes familiarly expressed among ourselves.

It is just thus with respect to the definitions of space itself. We acquire, by the use of our organs of sensation, (sight and touch) the conception of magnitude. In magnitudes actually seen or actually felt we really become conversant only with surface. The idea of volume, or space of three dimensions, is, in truth, the result of inference made by ourselves; but so inevitably is this inference made, that our minds are more intensely impressed with this idea of figured space, than with any more abstract one, even than with the ideas from which the inference was itself made. This probably arises in a degree from the added suggestions of the sensible qualities of the matter which occupy space; but it is of no importance, on this occasion, to pursue the investigation of such a question further.

It is sufficient for us to remark, that however the idea of space may be gained we have yet the power of abstracting our thoughts from one set of its qualities, and of confining our attention to any other of its qualities.—It is thus that we can think of, and reason concerning, length without breadth, and of both without thickness, and of position without either length, breadth or thickness. We do not in such cases allege that there can actually exist in a *sensible condition* a surface which is not the surface of some body, or a line which is not the boundary of some surface, or a point which is not the extremity of some line; nor do we allege that the surfaces, lines or points which we exhibit to the senses for the purposes of illustration, are really free from the other qualities of magnitude. We merely restrict our meaning, by those definitions, to be such as we describe; and to the ideas so restricted our reasonings and their conclusions alone apply. Nor, after all, is this peculiar to science; for it perpetually, and almost as perpetually, occurs in our ordinary descriptions of things. When we speak of the height of a man, or of a column, we quite as completely leave out of our thoughts the corpulence of the man, or the diameter of the column, as we drop the consideration of the breadth of a line in pure geometry.*

The only subject in relation to first principles yet to be spoken of, is the system of postulations. These, instead of describing the ruler and compasses, and the uses which may be made of them singly and successively, or in combination, merely state, that the special problems soluble by means of them, (or indeed by any means) which we shall be required to use, are three. These are, to draw a line through two given points; to prolong a given line; and to describe a circle having any given centre and any given radius. The same principle runs through this system as through the system of definitions, viz: the abstraction of the mind from all considerations beyond that of the particular use to which we may apply those instruments. Euclid also employs the smallest possible number of these postulates; which, in some case does indeed add slightly to the complexity of a construction and its demonstration. Unfortunately, too, this is felt in the very outset; for the addition which it makes in the second and third propositions is greater than occurs in any future case throughout the entire elements. By this, however, is avoided the use of a fourth axiom, such as—let it be granted, that from a given point in a given straight line, a part may be cut off which is equal to a given straight line. In fact, instead of constructing and proving the construction of the third proposition, assuming it as a thing which can be done. As the student proceeds, however, he will see the systematic advantage that results from the greatest possible reduction in the number of our first principles, whether constructive or demonstrative, much more clearly than any statement of ours could render them at present to his mind.

A few remarks on the “indirect proof,” as it is called, or speaking (technically) the *reductio ad absurdum*, appears to us to be necessary; as well as on one or two other collateral topics. We hope to be able to dispose of these points in our next number; after which we shall devote a few pages to the exposition of our views of the classes of geometrical subjects which have the most direct reference to professional utility.

To be continued.

St. Lawrence and Atlantic Railway.

We had thought that the St. Lawrence and Atlantic railroad co. had been fully organized, and commenced operations; from the following account of the proceedings of the English stockholders, this seems to be far from true. The Atlantic and St. Lawrence co., which is to build the portion of the road lying within the United States, has certainly commenced operations, but how far this refusal will effect them we cannot say. Can any one give us information?

A meeting of scripholders in this undertaking was held on Monday last, at the George and Vulture tavern, Cornhill, for the purpose of considering the expediency of adopting measures to obtain a return of the deposits; Mr. Aggis in the chair.

We quote from notes of a lecture delivered at our *alma mater* by the celebrated Playfair. “You have all heard, gentlemen, I dare say, how many miles it is to London; but has it ever occurred to any of you to ask how broad they are?”

Previous to the commencement of the business of the meeting, Mr. Bishop, of the firm of Bishop and Coxe, the English solicitors of the company, begged to state that he attended the meeting, not as a scripholder, but as the solicitor of the company, both for the purpose of affording to the gentlemen any information in his power, and of ascertaining what resolutions the meeting might come to, and duly reporting the same to the committee in Canada.

The chairman then said, the meeting had been called in consequence of a correspondence he had recently had in connection with the affairs of this company. The correspondence was in itself very short, and if the meeting desired it, he should be happy to read it; but since the time of those present was valuable, perhaps it would be better to detail only the substance of that correspondence. There being no prospect of the undertaking being carried out by the payment up of the requisite capital, he had written to the directors in London recommending a dissolution of the company, the winding up of its affairs, and a return of the deposits. To this communication he had received a reply that the directors had no power to return the deposits, except with the concurrence of the directors in Canada. The capital originally contemplated by the co. was 500,000*l.*, which it was proposed to raise by an issue of 10,000 shares in England and 2,000 in Canada, which amount was afterwards altered to 7,000 in England and 5,000 in Canada. All these shares, as he understood, were allotted when there was a railway fever in the money market; but notwithstanding, out of the whole, only 2,633 were paid upon—leaving 4,367 not responded to. From a report of the directors on the 6th January last, it appeared that 2,367 shares had been subscribed for in Canada, but how many of these had been paid upon was not stated, as the deposits were represented as being only in course of payment; but by the latest accounts, it appeared that the deed had been signed by English holders for only 530 shares. By another report of December last, the directors assured the public that their confidence in the undertaking was strengthened, and again, “that they had every reason to be gratified with the prospects of the company's affairs.” Now, in the opinion of the majority of the English holders, there was no prospect of any further number of shares being taken up, nor was there even any disposition to pay a second call on those which had already been taken up; and therefore they desired to receive back their deposits. The proceedings of the present meeting would be very simple. He believed all the scripholders were of one mind; at any rate, out of 530 shares held by those who had signed the deed, the holders of 365 were anxious that the affairs of the company should be wound up.

A gentleman present asked Mr. Bishop whether he could inform them how many shares were held by the directors.

Mr. Bishop said he was not able to reply to that question, but not one of the provisional committee in England had signed the deed

* Take perhaps a still better illustration, which

--yet the directors generally were interested collaterally to a very great extent in the company. They were also united with the British American land company, which company held a large interest in the present railway undertaking. Perhaps it would be satisfactory if he were to state a few particulars bearing on the object of the present meeting. So early as December he had received an application from a large holder of shares in the company, urging a return of the deposit money; and in consequence of that application, a case was drawn up and submitted for the opinion of the solicitor general and Mr. Crompton, and these gentlemen were decidedly of opinion that the provisional committee here had no authority or power to return the deposits, and that in fact they were acting strictly and simply as the agents of the board in Canada; in fact, they were acting under a power of attorney. He, Mr. Bishop, had had a correspondence with the Canadian board on the subject. He thought he need scarcely read that correspondence, but wished the meeting to understand that he had made every representation—a very strong representation indeed—of the altered state of the money market in England, and of the improbability of any further shares being taken up in this country. In a letter which he had received, he was informed that the total number of shares taken up exceeded 6,126. As far as the question before the meeting was concerned, he believed that it was impossible for the directors in England to comply with the wishes expressed in the advertisement. He might state, for the satisfaction of the English holders, that the money raised in England was safe in England, and that it was the intention of the directors here to hold it safe. (Hear, hear.)

The chairman would like to know what number of shares was paid upon in Canada. By the terms of the act of incorporation, it was provided that, if a given number of shares were not paid upon by a certain time, the act should die a natural death. The prospectus was issued in June last, and it was herein stated that 2000 shares had been subscribed for in Canada; and it had since been stated that on the 6th January last 2367 shares had been subscribed for—only 367 shares between June and January. But just as the term expired, they found Canada taking up shares just to save the powers of the act. He assumed that there was no chance of the capital being raised in Canada.

Mr. Bishop thought the chairman would be very wrong in assuming any such thing. From a private letter which he had received from Mr. Galt, who had just returned from the States, he received a very different account of the prospects of the company.

The chairman remarked that the expenses if spread over the English shares, would amount to 6s. a share; but if over 7000 shares, would only amount to 2s. 6d. a share. It appeared that a very large number of shares had been cancelled, which was an injustice to the holders who had paid up; but even new the scripholders would be glad to receive

back their deposits, minus the expenses. It was true the expenses were small.

Mr. Bishop thought the expenses were so small, that if the parties would put themselves in the first place in "a legal position," the payment of those expenses would form no serious question.

The subject of the propriety of the cancelling of the shares was then renewed. It was also further objected, that the question of the simple agency of the provisional committee in England was not put fairly in the prospectus of the company. It was true that Mr. Galt was therein represented as the agent of the Canadian board, but the form of the application for shares was addressed to the "provisional committee." The public naturally considered they were dealing with provisional committeemen, having a joint authority, and not acting as attorney or agents only. After some short discussion, on the merits of the line, which it was obviously too late to discuss,

Mr. Bishop advised the scripholders, as the best and only course which they could adopt, to send out their proxy papers to Canada, if they desired to have an influence with the board. Whatever resolutions the present meeting might come to, he should be perfectly ready to transmit to Canada, together with any representations they might consider desirable, to make; and he might here state the willingness of the English board of directors to carry out the wishes of the English proprietary.

A resolution was at length come to that the directors were bound to return the deposits on the English portion of the shares.

The meeting then separated.

Steam and Romance.—Wherever the steam-boat touches the shore adventure retreats into the interior, and what is called romance vanishes. It won't bear the vulgar gaze; or rather, the light of common day puts it out, and it is only in the dark that it shines at all.—There is no cursing and insulting of Giauours now. If a cockney looks or behaves in a particular ridiculous way, the little Turks come out and laugh at him. A Londoner is no longer spittoon for true believers: and now that dark Hassan sits in a divan and drinks champagne, and Selim has a French watch, and Zuleikha perhaps takes Morrison's pills, Byronism becomes absurd instead of sublime, and is only a foolish expression of cockney wonder. They still occasionally beat a man for going into a mosque, but this is almost the only sign of ferocious vitality left in the Turk of the Mediterranean coast, strangers may enter scores of mosques without molestation. The paddle wheel is the great conqueror. Wherever the captain cries "stop her!" civilization stops and lands in the ship's boat, and makes a permanent acquaintance with the savages on shore. Whole hosts of crusaders have passed and died, and butchered here in vain. But to manufacture European iron into pikes and helmets was a waste of metal: in the shape of piston-rods and furnace poker it is irresistible; and I think an allegory might be made showing

how much stronger commerce is than chivalry, and finishing with a grand image of Mahomet's crescent being extinguished in Fulton's boiler.—*Timmarsh's Cairo.*

Miscellaneous Items.

Harlem Railroad.—This company has at last adopted the plan of commutation to White Plains, with a view to build up a permanent population along the whole line of the road. The experience of the English, but more especially of our eastern roads, proves conclusively the advantage of that system, and of the policy of low fares. We learn that the charge to White Plains is \$90 per annum, though somewhat more in proportion for part of the year, and for places this side. New facilities of access to a fine region of country for a residence during the summer, are thus opened to our citizens.—*Jour. Com.*

Mohawk and Hudson Railroad.—The receipts of the Mohawk and Hudson railroad continue to show an increase over any year since 1841. Since 1844 the gain has been considerable, and uniform. The earnings for the week ending 21st June were:

Passengers, - - - -	\$2,008 13
Freight, - - - -	121 28

Total, - - - -	\$2,129 41
Same week last year, - - -	1,803 66

Increase in 1846, - - - -	225 75
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The wharves of Philadelphia have seldom been so densely crowded with vessels as during the past week.

Boston and Worcester Railroad.—The receipts of income of the Boston and Worcester railroad in the six months ending May 31, amounted to \$247,785. The directors have ordered a dividend of 4 per cent., payable July 1.

The earnings of the Concord railroad, for the last year were \$228,000—being \$46,000 more than the year before. The expenses were \$135,000 and the net earnings \$93,000 giving a dividend of 12 per cent. upon a capital of \$800,000. We see it stated that the iron for its second track is being procured from the Mount Savage iron works in Maryland, and that it is considered superior to the English.

Vermont and Massachusetts Railroad.—We learn that a contract has been made by the directors of this corporation for iron sufficient to lay 14 miles of their track, between Fitchburgh and Athol, at the low rate of \$76 1-2 per ton.—*Boston Post.*

2,500 laborers are at work on the line of the Vermont Central railroad, and 1,000 more are wanted. The Boston Courier says the entire road from Windsor to Burlington will be completed in less than two years.

Central Railroad.—The receipts of this road for the month of May, 1846, are as follows:

For freight, - - -	\$18,572 42
From passengers - -	14,346 42—\$32,918 85

Received in the corresponding May, 1845:

For freight, - - -	\$6,736 00
From passengers, - -	8,888 55—\$15,624 55

This road has received since last report (December 1st, 1845, to May 31st, 1846,) - - - - 131,979 41

Amount received in the corresponding time, ending May 31st, 1845, - - - - 56,552 24

Our railroad still continues to speak for it-

self. The receipts of the last month are more than double those in the corresponding month last year! Will our Boston friends look at this statement?—*Detroit Adv.*

The Railroad.—We are requested to say that a meeting of the Nashville and Chattanooga railroad commissioners will be held on Saturday evening next, at 4 o'clock, P. M.—The members of the board are specially desired to be in attendance.

It gives us pleasure to state that Mr. Stevenson has returned from his visit to Georgia and South Carolina, having succeeded in procuring the services of Mr. Thompson, an engineer of high character, in the proposed survey of the route. Mr. Thompson has been engaged for many years in constructing railroads in the south, and is in every respect qualified to make a reliable survey and estimate. We understand that he is now on his way to Nashville, making a horseback examination of the country, preparatory to entering regularly on the work. He is expected to reach Nashville in a few days.

Mr. Stevenson informs us that the Western and Atlantic road has been put under contract to Cross Plains, which is within 25 miles of Chattanooga, and that the road will be completed to that point during the present year. This insures the construction of the road to the Tennessee river at Chattanooga and makes it important that the work from Nashville to Chattanooga should be prosecuted with vigor. The people in Georgia and South Carolina feel a lively interest in our enterprize, and will be found co-operating in the proper spirit.—*Nashville Union.*

Erie Canal and Western Railroad.—The great state work of Massachusetts has frequently been compared to that of New York state, as a means of developing the resources and improving the property of the commonwealth. The analogy of the receipts in the two cases for the first five years, is rather impressive:

Erie Canal.	Erie Canal.	Western Railroad.
1825.. \$566,000	1842.. \$1,743,000	1842.. \$512,688
1826.. 793,000	1843.. 2,087,000	1843.. 573,881
1827.. 860,500	1844.. 2,432,000	1844.. 753,752
1828.. 838,000	1845.. 2,620,000	1845.. 913,478
1829.. 818,000	1846.. 2,976,000	1846.. 976,000

Canal Tolls.—The amount received for tolls on all the New York state canals, during the third week in June, is, - - - \$83,547
Same period in 1845, - - - 63,222

Difference, - - - - \$25,325

The aggregate amount received for tolls from the commencement of navigation to the third week in June inclusive, is \$859,393
Same period in 1845, - - - 799,261

Difference, - - - - \$60,132

The receipts during the month of April of the present year, compared with 1845, show a diminution of \$80,871, and from the 1st of May to the third week in June, compared with the same period of the past year, show an excess of \$141,002, the average increase being over \$20,000 per week.—*Albany, Evening, Journal.*

Canal Tolls.—We have procured from the canal department, a statement of the tolls collected on the canals of the state to the 14th

* The increase on the Western road thus far, in 1846, is over 20 per cent., giving \$70,000 for the first six months, and being at the rate of \$163,000 for the year, making the total, as above \$976,000. The expenses to the present time have not increased.—*Boston Courier.*

June in each of the years 1845 and 1846.—They are as follows:—*Albany Argus.*

	1845.	1846.	increase.	decrease.
April 3d week..	\$146,235	\$113,713		\$32,522
" 4th " ..	114,614	66,265		48,349
May 1st " ..	85,988	97,511	\$11,523	
" 2d " ..	79,730	100,184	20,454	
" 3d " ..	89,276	105,070	15,794	
" 4th " ..	92,220	116,016	23,796	
June 1st " ..	65,209	88,556	23,347	
" 2d " ..	62,767	83,530	20,763	
	\$736,039	\$770,845	\$115,677	\$80,871
		736,039	80,671	

Increase in 1846..... \$34,806 \$34,806

First Cast Iron in Michigan.—A correspondent of the Jackson Patriot, writing from Union city, under date of June 4, says that the first cast iron ever manufactured in Michigan, was made at the Union furnace lately erected in Union city, on the Friday preceding. The company it is said, are now casting from two to three tons pig iron per day, and the iron is believed by judges to be of excellent quality, and the ore, the product of that state, abundant.

Another large iron iron furnace has been erected at Danville, in this state, by Sam'l R. Wood, Esq., and it was blown in on the 11th inst., by Mr. Jas. Ralston. The furnace is located at Red Point, on the North Branch canal, about three miles below Danville, and it is said to be constructed in the most approved manner, with 15 feet boshes, and will produce from 100 to 120 tons of pig iron every week.

The Frederick Herald says—

We learn that the wealthy and enterprising proprietors of "THE FALL RIVER IRON WORKS," Massachusetts, are about to transfer a portion of their wealth and enterprize within the borders of our own state, they having, as we learn, recently purchased a large and valuable property near Frostburg, Allegheny co., where they contemplate extensive mining operations forthwith.

The same individuals, or company, we were informed when recently in the District of Columbia, had also purchased a valuable site and water power on the canal in Georgetown intending there to erect extensive works for the manufacture of iron in some of its branches.

Copper Boat.—At the national fair there is a specimen of a copper boat from the Novelty works at New York. This boat is 23 feet long, 5 feet wide, and made of four sheets of copper, stamped in 40 minutes to its present shape by powerful machinery. It is impossible for any number of persons to sink her—her strength is four-fold greater than wood boats. It requires one-third less power to propel to the same speed as wood. The copper after any number of years' wear, will sell for three-fourths the first cost. The weight is one-third less than wood, and the water is not absorbed—no caulking, trenailing, or painting is needed.—Gigs, cutters, barges, quarter, race, row, club, and ducking boats, from 10 feet to 60 feet, made of copper or iron, without seams; they are made in four pieces. The strength has been fully tested by dashing them on the rocks, and running against stone piers. They cannot leak or sink.

Paris correspondence of the Boston Atlas.

The railway from Paris to Belgium is to be inaugurated on the 14th June, with great pomp. A large party of invited guests will leave Paris in the morning, breakfast at Amiens, dine

at Lille, and return in the evening, if necessary. Those who have more time at their disposal, will proceed the next day to Brussels, where an entertainment will be provided by the city. The railway from Paris to Sceaux is to be opened on Wednesday next.

Great Capacity of Railroads for Business.—The Reading railroad, which is 92 miles in length, transported in the year 1845, 800,000 tons of coal; and in the single month of July last, 104,000 tons. The business for the year 1846 is estimated at 1,220,000 tons, which is equivalent to 7,500,000 bales of cotton, more than three times the entire crop of the United States.—If a like amount of up freight is performed, and which might have been done, as the cars returned empty—we have an example of a railroad nearly 100 miles in length, capable of doing a transportation within the year, equivalent in weight to 6 times the cotton crop of the United States, or 12,000,000 of bales—and which would be equal to 5,000 ships of 500 tons each, performing two voyages to Europe.

This business on the Reading road was performed at the rate of 1 cent per ton per mile, or \$1 for 100 miles—one-half of which is shown to be profit. At the same freight, a bale of cotton may be brought from the Tennessee valley, north Alabama, at 50 cents a bale. Who can with this exhibit, doubt the capacity of railways competing successfully with river navigation, or the ability to transport, at remunerating prices, western produce to our south Atlantic markets. Enterprize and confidence is all that is necessary; and if our southern cities, with all the lights before them, are resolved to remain in slumbering inactivity, others acting up to the spirit of the age, will enjoy the harvest.—*Charleston Mer.*

Lexington Railroad.—The grading of this road is nearly completed, and every thing is now ready for laying the rails. In fact, a large portion of the road has been ready for the iron for some weeks.—*Bunker Hill Aurora.*

Macon and Western Railroad.—The Macon (Ga.) Advertiser of the 15th inst., says—"We learn that this road is nearly completed to Forsyth, and it is in contemplation to run the 'Ker Boyce,' (a new car which arrived here a few days since from Savannah,) from this city to Griffin, on the 4th of July next. Several other cars for this road have recently arrived at Savannah from the north; and the freight cars are being constructed here with dispatch. We also understand that this road will be completed to Atlanta about the 1st of September, or sooner if possible, in order to secure the fall trade and travel. Success to the enterprize."

We announced on Saturday, that by the recent action of the Connecticut legislature, the route for the New York and Boston railroad is completed, so far as legislation is concerned, from the city of New York to the Rhode Island line, within fifteen miles of Woonsocket. We are informed that the advocates of said route have adopted the Pettee route, from Woonsocket to Boston, as the Massachusetts section of their line.—*Boston Atlas.*

The Cumberland Civilian says that the Chesapeake and Ohio canal company have obtained funds sufficient to complete their work, and that operations will be speedily resumed on the entire length of the unfinished portion.

Dividend.—The Paterson and Hudson river railroad company have declared a dividend of three and a half per cent. for the last six months, payable on the 1st of July.

Western Railroad.—The receipts of last week, being the first under the new arrangement of the trains exhibited a gain of \$7,000 over the corresponding week in 1845, being within a thousand dollars of the largest amount in any one week since the opening of the road, viz: in August, 1844, the week of the great whig convention at Springfield.—*Springfield Gazette.*

The Ogdensburg Railroad.—At a meeting of the directors of the Ogdensburg railroad, held in this city on Tuesday, Col. Chas. L. Schlatter was chosen chief engineer. Col. Schlatter was for several years chief engineer of the state of Pennsylvania.—*Boston Adv.*

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.

Saturday, July 4, 1846.

NOTICE TO CONTRACTORS—SEALED proposals will be received at the office of the South Carolina Railroad Company until the 15th July, 1846, for the construction of the PILE or TRESTLE WORK, on the CAMDEN BRANCH RAILROAD across the Wateree River Swamp, distance to be piled three and three-quarter miles.

Plans and profiles will be exhibited on and after the 1st July, at the Engineer's Office, Camden, S. Carolina, where the requisite information may be procured; and an Assistant Engineer will be at Stateburg, to show the line to those interested.

For the convenience of those who cannot visit S. Carolina at this season, a profile may be seen at the office of the Railroad Journal, New York.

The timber will be furnished by the company at one end of the work, or at different points along the line.

The work to be commenced at latest on 1st November, and to be completed ready for the rails in six months.

The piles are expected to be driven by a steam engine, and the company may take one machine off the contractor's hands on the completion of the work.

Persons desirous of undertaking the above work, who may be unknown to the Engineer or Directors of the company, will be required to accompany their proposals with reference as to character and ability to perform the work, and if necessary to give good security.

Proposals will also be received at the same time, for the construction of a bridge across the Wateree River, upon "Burr's" plan, 300 feet in length, and spans not exceeding 100 feet in length, with a sliding draw of fifty feet opening. JOHN M'RAE, Engineer Camden Road.

THE RAILROAD JOURNAL will hereafter be published *simultaneously* in NEW YORK and PHILADELPHIA. The editorial department will as heretofore, be under the direction of the subscriber, aided by his former associate Mr. George C. Schaeffer, and other gentlemen of ability connected with the profession—and renewed efforts will be made to render it *more* worthy of the rapidly increasing support which it is now receiving.

Engravings and illustrations will be more frequently given, and expensive maps will be occasionally prepared, showing the progress of the railway system, one of which, showing the proposed route of steam communication from China, across the isthmus, and through the United States, to England, by Edward McGeachy, Esq., of Jamaica, is now in the hands of the artist, and will be ready in a few weeks; and others will follow.

The office in New York will remain for the present, at 23 Chambers street, and be in charge of Mr. Egbert Hedge, long connected with the work—who is authorized to transact business for me.

The office in PHILADELPHIA will be at the FRANKLIN HOUSE, 105 Chestnut street, under the di-

rection of the editor and proprietor, where all letters and communications by mail, and all exchange papers and periodicals may be hereafter addressed to

D. K. MINOR.

The editor of the Railroad Journal presents his compliments to his numerous subscribers and friends and assures them that he will be always gratified to see them at his new office and home, the FRANKLIN HOUSE, late SANDERSON'S, 105 Chestnut street, Philadelphia. He will be found at home.

Taste in Depots and Railway Structures.

The rapid spread of the railway system—the *obtrusiveness* with which the railroad insinuates itself—into villages and cities—moving through, or by, church yards, public squares, gentlemen's country seats, etc.—renders it needful that some attention should be paid to the taste, or rather want of taste, displayed in many instances, in the most conspicuous situations which could have been chosen.

Now we hear some economical directors exclaim, "you want us to lay out money upon ornament, *gingerbread-work*, do you? we cannot afford it: we are not bound to make decent looking buildings: it is all nonsense to pretend to exhibit *taste* in railroads." We state the objection at once, because we know many will make it, and it is our object to show the absurdity of this very argument—if argument it can be called.

In the first place to disarm such opponents, we disclaim all desire for *gingerbread-work*, or even ornament, in the sense in which it is taken by some persons; and in the next place we advocate no extravagance or imprudent outlay of money. In architecture, as in other matters, good taste is never far from utility—nothing is in good taste, which whatever its abstract elegance may be, strikes the beholder with its want of fitness. The model of the Parthenon for a blacksmith shop—of a Gothic church for a car house—of the Pantheon for a machine shop—or even of the Lantern of Demosthenes for a water station, would be supremely ridiculous—and yet similar absurdities are not uncommon.

We contend that no railroad building is in good taste, that is manifestly unfit for the use for which it is intended—either by reason of improper materials or unsuitable form. Next we assert that every building which is evidently fit, both in form and materials, for the purpose intended, may with very little if any additional outlay, be made pre-eminently an object capable of giving pleasure to a person of cultivated taste.

Let us take, as an illustration of this, a machine shop, or engine house—a place begrimed with smoke and grease, with the least possible pretensions to beauty, yet a real temple of Vulcan. This building should not be constructed after the model of a church, for it is intended for other and totally different purposes—nor should it be quite like the Parthenon, as this would be an inconvenient form—neither should it be built of wood, for this would be an unsafe material—nor should it be painted white, nor any light color, for this would soon become soiled and dirty. The building should be of stone or brick, of sufficient height, with suitable outlets for smoke at top—the chimney should rise so far above the roof as to give a good draft—the door large, with curved or pointed outline at top—the moulding over them projecting to guard the ends of the wood from the weather—if opening outwards, for a similar reason, they might fit into a recess in the wall. The roof would require to project both at the eaves and gables to protect the wall from the effects of undue moisture. The bare stone or brick wall would be liable

to injury; a coating of plaster or roughcast would prevent this, and the color should be rather sombre, so as not to soil too readily. We have already the elements of taste in the expression of fitness—let the proportions be good—the arches over the door graceful [and this costs nothing]—let the chimney rise from the roof in any one of the thousand forms now so commonly to be found, and with neat or rather severely simple mouldings, we have a building quite fit for the purpose intended, and by no means displeasing to the eye. Do we wish for ornament, let us add for upper windows, or air holes, a few wheels built into the wall—sheet iron doors, with rivets, etc.—cast iron columns and an iron smoke stack for a chimney, etc.—and behold a fair specimen of the Volcanic order.

Car houses, however, are the buildings generally selected to display the carpenter's skill in constructing unsightly and easily combustible ornament. It would consume too much time were we to enter into all the details belonging to their construction. It is enough to say that they should afford comfort to passengers, being easy of approach, affording room for the crowd at arrival and starting, protection from the weather and from hackmen, and guarded strictly against the possibility of accident to persons in and around the cars. The occurrence of fire should not only be prevented if possible, but means provided for immediate extinction. These are some of the more evident requirements, no provision for which could violate good taste. But the amount of ornament and the style of building allow of so much latitude, that it would be useless to insist upon any one plan, as thousands might be contrived, each having its peculiarities adapted to some particular case. It is here that something like architectural taste and skill are required.

The arrangement of depots is properly noticed under this head. The first requisite is neatness and cleanliness. Some depot yards which we have seen are not unfit theatres for the enactment of Dickens' scene of the ghosts of stage coaches, or rather railway cars. Old smoke stacks, broken wheels, burnt, smashed or discarded cars, heaps of cinders and oiled rags, fill up the larger space in such places. Decency at least forbids such displays, and the comfort of passengers is *not* to be neglected.

There are not wanting in the United States, we are happy to say, some excellent examples of what a depot and its buildings should be. In England, as far as we can judge from published designs, much taste is shown in such matters—but that there is room for improvement no one will doubt who has seen the gaudy buildings upon the ——— road, the dirty and ugly ones upon the ——— road, and the *no* buildings upon the ——— road.

Our readers will remember the proposal of railway villages as a means of improving the condition of the poorer classes of the community, which we gave from an English journal, some time since. We find another article upon the same subject, which, although bearing more particular reference to the miserably poor of England, will yet give many hints worthy of attention in our own country.

If our lower classes are not so badly off as the poor wretches in the larger towns of England, they are at least as much disposed to get fresh air, and a country residence near enough to the city to obtain much of their support from labor in or near it—moreover they are far more able to pay; and the transit of large numbers at a very low price would be a much better operation in this country than in England, as far as profit is concerned.

Suburban railway villages, the best remedy for the evils of an overcrowded town population.—By P. Austin Nuttall, L. L. D.

The mighty changes which the railway system of this great empire is likely to produce in society, are daily becoming more evident. Its advantages, more especially to the industrious classes, are rapidly developing themselves. The powers of accelerated locomotion are not only largely promoting the general convenience and prosperity of trade, but, by the cheapness of fare, and the facilities of transit from one locality to another, are also extensively contributing to the enjoyment and healthy recreation of the toiling denizens of our great manufacturing towns. Yet, with all the disadvantages attendant on railway enterprise—the enlargement of towns—the prosperity of the inhabitants—the rapid conveyance of all the necessaries of life—and the ever-extending operations of social intercommunity—still it is exposed to fearful drawbacks, if not closely watched, and its operations wisely controlled or judiciously directed. Like every great public good, it has its bane; but fortunately that bane has its antidote, which the directing hand of the statesman, or the wisdom of the legislature may apply:

"The bane and antidote now lie before us."

It is the very nature of the railway system to increase the trade and commerce, and consequently the population of all our large towns, where the termini of various lines will be formed. The aggregated masses of the laboring community in the confined localities of towns, attended as they are by general depravity, disease and misery, has ever been considered the greatest bane of England's manufacturing prosperity; and unfortunately the evil has hitherto been left to itself, without any effective measures being ever attempted for obviating the nuisance. Although the royal commission for inquiring into the sanitary condition of our populous towns has filled tremendous tomes with evidences of the melancholy facts, nothing effective has been done. The evils of over crowded population moreover, are likely to be increased by the operations and effects of the railway system, if the antidote, or panacea, be not timely administered. This antidote, to be effectual, must be the entire sweeping away of the filthy dens of poverty and crime with which our large towns are infested, and erecting streets or villages in the suburban districts through which the various converging railways run. By due economy in the erection of these villages, and the lowest fare which the company can afford, these residences may come within the scope of the laboring classes; and the sites previously occupied by their own miserable dwellings may be converted into agreeable and healthy localities. The subject is well worthy the consideration of the royal commission which has been just formed for taking into consideration the various metropolitan termini now in contemplation, and which the spirit of the times absolutely demands.

That the erection of these villages would be productive of remuneration to the respective companies is unquestionable. The prin-

cipal difficulty is the expense which the laborer or artisan would incur by the cost of daily conveyance. To men engaged in business, or holding lucrative situations, the expenditure would be of little importance; but to a working man, receiving weekly wages, it might be a serious object. It would, however, be the business of the respective companies to compute the lowest cost at which they could convey a given number daily, and probably arrange with the passengers (supposing these railway villages were built by the companies themselves) to pay an additional rental on their tenements—say from £2 to £3 per annum, which, in addition to the rent, would not amount to more than the working man usually pays for his miserable apartments; and at the same time it would probably be sufficient to remunerate the company for their capital and outlay, on account of the regularity and certainty of the returns. Thus the presumed difficulties attending the expense incurred by the occupants of these suburban tenements in their daily journeys, would be found to be more imaginary than real.

It is satisfactory to learn, as some confirmation of the correctness of these views, that Mr. Wilkinson, the respected chairman of the Croydon railway company, with a spirit of benevolence which does honor to his feelings, has demonstrated the feasibility of the preceding plan. At a late meeting he strongly recommended it to the attention of the proprietors, and stated that a society had been formed for the purpose of affording the working classes the benefit of a suburban residence the promoters of which had made overtures to the board for the use of the Croydon railway, in order to carry their scheme into operation. It was their intention, said Mr. Wilkinson, to build villages at different points of the line for the residence of working men and their families; that the company should convey them at a moderate rate; and that an additional rent should be charged on the tenements, to be paid to the company, whether the trains or the houses were full or empty, or whether the inhabitants availed themselves of the line or not. Mr. Wilkinson, at the same time, expressed his opinion that the company would be able to carry these people as cheap as goods: that "they might carry live at as cheap a rate as inanimate lumber, viz: at 2d. per ton per mile, fifteen persons weighing about a ton." Thus it would appear that 100 persons, residing seven miles from London bridge, might each be conveyed to and fro daily, in less time than one-quarter of an hour, for 1d. each, being 6d. a week, or £1 6s. a year. This is a most astounding result, and is calculated to exhibit the triumph of railway enterprise in promoting the cause of civilization, and effecting the social regeneration of the human race.

The plan for erecting these suburban villages appears to have originated from an association forming by Mr. Moffatt, to be named "The National Philanthropic Investment Society." The proposed average rent of the houses is to be £10 per annum; and each house is to be provided with all the domestic conveniences reduced for a family. More-

over, churches, chapels, cemeteries, literary institutions, baths, gas and water companies, sewers, etc., are to be added for the use, instruction or amusement of the inhabitants. Ten villages are proposed to be built, each covering 500 acres of ground, and each containing 500 cottage residences, with 7 individuals to each cottage; so that each village will contain 3,500 inhabitants, the whole population amounting to 35,000. By this means we shall have the dense population of the metropolis relieved in that proportion.

But this measure, if found successful, must not be confined to the Croydon railway alone. There is no reason why it should not be extended to the various lines at present branching from the metropolis. In the rural and thinly populated localities bordering on the Southwestern, the Great Western, the Birmingham and the Eastern Counties, there is ample scope and opportunity for the erection of numerous villages, where all the comforts and conveniences of life, with a free and salubrious atmosphere, might be afforded at a reasonable price, to the arduous sons of toil in this densely crowded metropolis. Thus, through the agency of the six arterial railways, branching from London, would the fetid hovels and moral charnel houses of the industrious poor be relieved of upwards of 200,000 living souls, whose physical energies would be daily renovated by breathing a purer atmosphere, and whose moral feelings would not be debased by association with the vice, profligacy and misery with which this crowded city abounds.

No doubt there would be difficulties in some of the details; but perseverance and an earnest determination on the part of the managing directors of each line to do their utmost to promote the well-being of society, and conduce to the social improvement of the human family, would overcome every obstacle.

It is earnestly to be hoped that the royal commission, which has been appointed to take into consideration the metropolitan termini of the different converging lines, will devote some attention to this very important object; and that they may be called upon to act in unison with the commission for inquiring into the sanitary condition of our populous towns. A more glorious opportunity for improving the physical condition, and elevating the moral character of the laboring classes of the metropolis, never presented itself to the mind of the philanthropist or the wisdom of the statesman. Now is the fitting occasion, when extensive neighborhoods—the mere concentration of poverty, filth, misery, and disease—are about to be swept away, but which at present, instead of eradicating the foul social gangrene, is only calculated to render the unfortunate denizens still more wretched, by driving them into the overcrowded localities that remain; and this in truth is only adding to their wretchedness and misery.

We have now the opportunity for diffusing the concentrated masses of a debilitated and demoralized population over a great extension of district, and thus imparting health and

vigor to the animal frames of squalid myriads, and at the same time, by the powerful agency of steam and rapid locomotion, to concentrate a vastly extended circle of population into one common nucleus for all the purposes of business, commerce, or social intercourse.

It is not however, to the metropolis alone that our views ought to be confined. There are, at this time, many other great emporiums of commercial industry rising into importance and daily extending in magnitude, where the population are concentrated in masses, and present the most deplorable scenes of depravity and misery. What can be more horrible to contemplate than the wretched rookeries of filth and disease with which Liverpool, Manchester, Glasgow, and other large manufacturing towns abound? Their ever increasing population, without corresponding extension of boundaries, has naturally led to those lamentable results, which have been so forcibly depicted in the sanatory report of the parliamentary commission. All these first rate provincial towns will eventually form the great centres of railway lines; and if the plan suggested be carried out, the depravity and social miseries of a crowded population will be greatly alleviated, and that state of society which statisticians, especially of the Malthusian school, have viewed as the greatest curse, may be converted into the purest blessing.

Macon and Western Railroad.

"This important work, says the Macon Messenger of June 18th, is now nearly completed. It is confidently expected to commence running passenger cars on the 1st of July to Griffin, and by the 1st of August to Atlanta. One new locomotive for freight has arrived, which is of the largest and finest class; two others are in Savannah, and two more on their way. These with those already on hand, will make an ample motive power for the road. Two passenger cars, calculated for sixty passengers each, have arrived, and are on the track. They are of the most finished and splendid workmanship; and are said (by those qualified to judge) not surpassed by any in the United States. They better represent splendid parlors, hung with rich drapery and covered with crimson cushions, than what we have heretofore known as travelling vehicles. Two more fifty passenger cars are on their way.

"We understand that freights and fare for travellers will be made as low as practicable and lower than has usually been charged on southern roads. The concerns of the road will be under the immediate charge of Mr. Foote, as superintendent and engineer—who is well qualified by experience in that department, having filled it for some time on the Norwich and Worcester railroad, which is reputed the best built, and best managed road in the country."

The people of Macon may well congratulate themselves upon the approach of the period when this road shall be completed and thus open to them the trade of the Cherokee country, as well as that of the Tennessee valley. It will be an era in their history; an event long to be remembered, and

from the following just remarks of the editor of the Messenger, we perceive that it is appreciated, and those who have been instrumental in its early accomplishment, seem to be properly estimated.

The editor says:

"The opening of the Macon and Western Railroad, and a few thoughts connected with the new state of things thereby introduced.

"The long and anxiously looked for time is at hand, when our communication with the Western and Atlantic railroad will be opened. The Macon and Western railroad is being completed with all the rapidity that labor, strongly sinewed by capital can accomplish. In sixty days this noble work will be done, and all along the track from Macon to Atlanta, will be exhibited the astonishing evidences of business and trade which steam, the master agent of the world, never fails to call into vigorous operation.

"For this consummation, so long and so devoutly wished, we are under weighty obligations to the stockholders in the new company, who have invested their capital in the enterprise. Contrary to the narrow prejudices of small minded people, our gratitude is the more due to the stockholders, because many of them have brought their capital from a distance to accomplish for us what we would in vain have essayed to accomplish for ourselves. Our thanks are due, too, to A. Boody under whose energetic direction the work of construction and re-construction has so rapidly progressed. And let us vote an ovation to the president of the company, that accomplished gentleman and stirring business man, Capt. Daniel Tyler, who has so soon, as if by the wand of a magician, elicited the new order of things from the chaotic state in which he found the affairs of the old Monroe railroad company.

"The completion of the Macon and Western railroad will be an auspicious result to Macon, to the stockholders in the new company, and to the state of Georgia. To Macon, because a destiny is averted which would inevitably have been hers, if this road had failed; to the stockholders, because the day of their golden anticipations is near, when the profits on their investment will roll into their treasury; and to the state of Georgia, because the permanency of her noble system of internal improvement is secured. Had the Monroe railroad proved a failure, the whole system of the state works would have inevitably perished. Our state pride, the commercial interests of Savannah, Macon and Columbus, and the voice of the tax paying citizens, would have voted the Western and Atlantic railroad to demolition, rather than it should have been made exclusively to foster and enrich the seaport of a sister state. In this view, even our rival railroad interests should rejoice in the present state of things.

"Considering the near and immediate completion of the Macon and Western railroad the question of a branch road, connecting it with the gulf waters, becomes one of great importance. It has been whispered that an union of the Hamburg and Charleston, and of the Georgia railroad companies is contem-

plated for the purpose of building this branch. If so, it is a happy idea, and should be carried into execution. Such a combination will insure the building of the branch at an early day, and will give strength and power to the internal improvement party in Georgia, by merging into a common interest the sectional and local questions that have heretofore arrayed the different companies in rival hostility. Let such an arrangement be made and our connection with the gulf streams by railroad will be certain and easy. Our opinion is, that the branch should be constructed from Barnesville to Columbus, and that the Montgomery and West Point road should deflect from its present direction to Girard. The large amount of business which Columbus will readily furnish to the branch road, should of itself be decisive of the question. We trust that negotiations will be set on foot at once, to bring about a concert and co-operation of our railroad companies, for this important purpose.

"We come now to consider what we mainly had in view in penning this hurried article, viz: the new business relations that will be created by the opening of the Macon and Western railroad, and the policy of our merchants in relation thereto. Few of our people have had their minds properly turned to this subject—its importance, its expansiveness, its immense ramifications have escaped their notice. A new, and an essentially different trade will be opened to Macon by the completion of the Macon and Western railroad. Heretofore our trade has been almost exclusively connected with the cotton business; hereafter it will embrace an illimitable field of human production. Our Cherokee region will be thrown open to us—the rich valleys of Tennessee will be brought close to our mart, and in a few years, from the teeming bosom of the great valley of the Mississippi, shall flow in upon us the countless, exhaustless species of produce that now go down the great father of rivers to the Crescent city. The situation of Macon is highly advantageous to profit by such a trade. Below us, to the southwest, is a fine cotton belt, within which, more and more, the labor of the state will be compressed, for growing our great staple. While the fertility of that region of the state will remunerate the planter handsomely in cotton growing, he will look to Macon, as his nearest market, to be supplied with western produce. Here, then, will be the depot for supplying all southwestern Georgia and Florida with bagging, rope, flour, bacon, etc.

"But to realize the benefits thus within our grasp, our merchants have a work to perform. They should at once establish business connections with Cherokee and Tennessee, and into every nook and corner of these regions push their acquaintance. Being farming districts, the trade of Cherokee and Tennessee will partake much of the barter character, which, by the way, has ever been the greatest source of mercantile wealth.—The corn, flour, bacon, feathers, beeswax, hides, and other articles of domestic production, which the merchants in these regions

will exchange for goods bought in this market, will be readily convertible into cash, if not here, by shipment to larger markets.—Charleston and Augusta are actively engaged in securing this trade. Merchants from these cities, or their accredited agents, are daily traversing every part of that interesting and lovely region, soliciting trade, making acquaintances, and securing customers. And what are the Savannah and Macon merchants doing at this important juncture? Supinely folding their arms, we fear, or dolefully, as is their custom, counting their eternally recurring losses on cotton. Surely Savannah and Macon will put forth an effort, at least to share with their rival cities the rich trade which will be soon opened to them. We appeal to the merchants of Savannah and Macon to turn their attention to this matter. Let them go to the up country and spend their summer months, instead of wasting their money and time at fashionable hotels and watering places at the north, and our word for it, they will be richly recompensed by a large increase of business, and the accumulation of ample fortunes."

INSTITUTION OF CIVIL ENGINEERS.—May 26, The President (Sir John Rennie) in the Chair.—The paper read was "A Memoir on the Resistances to Railway Trains at different Velocities." By Wyndham Harding, Assoc., C. E. It commenced by describing several series of experiments which had been made by different persons with a view to determining the resistance at various velocities; some new experiments made by the writer on broad gauge and atmospheric lines being given in detail. Great difference of opinion on the amount of resistance prevailed in 1837, when a committee of the British association examined the subject and reported upon it.—Notwithstanding this, it was found in 1845, that the estimates taken by some engineers of the resistances per ton at high velocities exceeded those acknowledged by other engineers by as much as 300 per cent. It appeared that the same low estimate of resistance was advanced by the advocates of the broad gauge before the gauge commissioners. It became therefore a matter of great interest, both in a theoretical and practical point of view, to determine which of these two estimates (differing thus widely) was correct; and the inquiry was stated to have been facilitated by the application of two novel and direct modes of measuring resistances recently afforded to engineers by the atmospheric railway apparatus, and the application of Morius' dynamometer, to determine the tractive force in propelling railway trains, as used by Mr. Scott Russel in his experiments. In arranging the vast number of results afforded by experiments, the author proceeded on the following principle: He collected together all the results of experiments which exhibit uniform velocities maintained on a calm day, and on a line free from sharp curves: these results he calculated and projected in diagrams, and he showed that between these results there subsisted the most satisfactory agreement and consistency. He argued that the

agreement of so many experiments made by different persons with different objects on different lines of railway during the last seven years, the resistance being measured in no less than four different ways, leads almost irresistibly to the conclusion, that the increase of resistance with the velocity was such as these various experiments indicated. The result was, that the resistance per ton to a passenger train of, say 30 tons, at a speed of 60 miles per hour, would be upwards of 50 lbs. per ton, instead of 18 lbs. per ton, or nearly three times as much as had been estimated by some engineers. The author, in pointing to the results of these experiments, stated that he desired not to express any opinion in the papers on the advantages or disadvantages of the atmospheric system, or upon the other practical points referred to; and then proceeded to apply to the experimental facts a formula expressing the law suggested by Mr. Scott Russel, which appeared to afford results closely agreeing with the experiments. The paper concluded with some remarks on the application of the experimental results exhibited, which demonstrated the great increase of resistance with the velocity (it being with a light train four times as much at 60 miles an hour, as at 10,) to the calculation of the power of the locomotive engines, to the propelling power which, he contended, must be provided in the atmospheric system beyond that which had been calculated upon as necessary to the questions of gauge and of gradient; on all these points the law which at present appeared to be established had, he stated, the most direct and important bearing; and the doctrines and modes of calculation till recently in use, as regarded propulsion on railways, would he believed, require great modification. The paper was illustrated by several tables and diagrams. A gas-burner of a novel and ingenious construction was exhibited. The principal feature of novelty was the introduction of a stream of air to the centre of the flame by means of a hollow button in the middle of the burner. The air passing up through the hollow stem of the button was heated and passed out by two series of fine holes around the periphery, and impinging it with more force with the flame of the gas curved it outward in the shape of a tulip, while the oxygen of the air mingling with the carburated hydrogen gas produced a very perfect combustion. The flame was quite white down to the top of the burner, and it was very steady, as was amply demonstrated by the excellent light in the theatre of the institution, where these burners have been used for some time. It was stated that in comparing the consumption of these burners with that of the concentric ring burner, and trying the power of the two lights with the photometer, the new burner gave a better light with a saving of rather more than one-third of the gas consumed. It was, we believe, called the "universal burner," and was introduced by Mr. M'Neil. The paper announced for June 9th (the next meeting,) was "A Description of the Iron Swing-bridge over the Wensum, near Norwich," by G. P. Bidder, M. I., C. E.—*Mining Journal.*

Manufacture of Gutta Percha.—This newly discovered substance which has only been introduced to this country within the last three years, is already found to possess properties which will render it highly important in the arts. Mr. Brooman, of Fleet street, has obtained a patent for its application, in various ways, as an ingredient in artificial fuels, mastics, and cements. In his specification, he describes five kinds of artificial fuel; the first composed of 80 or 90 parts of small coal and pitch from coal tar, to 20 or 10 parts of gutta percha; the second of 7 parts of gutta percha, 8 of small coal, 4 of saw-dust, add 1 of coal tar, or pitch. These are fuels for ordinary purposes; the 3 others are for burning, to obtain the deposit, or unconsumed carbon, as a fine pigment for the manufacture of printing inks: one is composed of 3 parts of gutta percha, and one of coal tar; another of gutta percha and caoutchouc, in equal quantities; and the last of gutta percha alone. In preparing this substance for the manufacture of various mastics, coating for hempen, woolen and other fabrics, required to be water proof, it is first freed from all foreign matters with which it may be mixed, by undergoing a washing process in a water tank, kept up to a temperature of from 180° to 200° Fah., into which it is passed several times between two steel or iron rollers, immersed in the water: thus prepared, it may be applied either in a plastic, granular, or soluble state. For the first, it is well worked in a kneading machine; for the second, it is rasped into a fine powder—and in these states, it may be combined with sulphur, various powders, colors, bristles, saw-dust, etc.; and for the last, it is dissolved in rectified naphtha, or oil of turpentine: these the patentee prefers, although it is soluble in nearly all the essential oils.—The articles of manufacture to which the gutta percha thus prepared is most usefully applicable, are single and double fabrics of cotton, wool, and other fibrous materials, leather and membranous textures, table covers, floor cloths, goods' wrappers, tarpaulings, printers' blankets, driving bands, etc.; also, in the plastic state for glass and picture frames, cornices, panelling, and other architectural ornaments, mosaics, buttons, studs, labels, balls, bracelets, armlets, garters, rings, reins, bridles, belts, bands, and various other descriptions of articles, which are never exposed to more than ordinary degrees of temperature.—*Mining Journal.*

The Atmospheric System.—Croydon Railway.—After the business had been transacted at the special meeting of shareholders, on Monday last, Mr. SAMUDA proceeded to give some account of the working of the atmospheric system on the line. He stated that since he had last reported, the number of trains had been increased from 32 to 39 per diem. This was absolutely necessary from the rapid increase of the traffic, and the result of the increase of accommodation had proved most satisfactory. The regularity of the trains had been very much increased, though occasionally some irregularity occurred from the difficulty experienced in getting over the

viaduct, unless the trains have started at such rapid speed as to carry them over by the momentum given. He had, therefore, directed his attention towards a removal of the difficulty, and he proposed a plan which he believed would have that effect. He proposed to fix at the top of the viaduct a small cylinder, to be worked by a vacuum produced in the tube. This will give motion to a small capstan, which will lift the train on, on the principle of the crane, and will effect the passage of the trains over the viaduct, irrespective of any momentum given. The most erroneous statements he said, had been circulated with respect to the working expenses of the atmospheric system. It was affirmed, that the cost amounted to 2s. 10d. per train per mile. Now, he had instituted a comparison into the cost of the two systems; and he found, from the data afforded by the last half year's account, on the one hand, and the actual charges of the atmospheric system on the other, that, notwithstanding all the difficulties with which they had now to contend, the saving had been about 22 per cent, and with increased expense, and after the introduction of engines constructed on an improved principle, it would be much less. Each stationary engine worked a distance of 3 miles at an expense of about four guineas a day. With greater experience on the part of the workmen, and with engines on a better principle, he calculated they would be able to limit the expenditure of each engine to three guineas, which, excluding the expense of the terminal engine, would give an average cost of about 6d. per train per mile, or a saving of about 3d. Engines on a new principle were in course of construction by Messrs. Boulton and Watts. The chairman, in reply to a question from a proprietor, stated that the directors expect that the Croydon and Epsom line will be opened in the autumn. He might also state that, if the traffic on the Croydon railway progressed as it had done of late they would soon be in a condition to lay down a double line on the atmospheric system. In the first fortnight in the month of May, 1843, the number of passengers carried over the line amounted to 8,500. In the corresponding period of this year the traffic amounted to 43,000 passengers.—*Mining Journal*.

Labor on Railways.—We have obtained returns from about 300 miles of railways now under construction, and we find that on them there are now employed 29,000 men and 3,000 horses. This amount comprehends one-fourth only of the lines now in progress of construction; therefore, we may assume 120,000 men and 12,000 horses as the total number employed. The wages paid for these men and horses is £500,000 per week, or £26,000,000 per annum, directly expended on railway wages. This amount consists of wages merely for men directly employed on the line. Half as much again is expended indirectly on labor, preparing rails, chairs, stock, etc., for the line, and on land and other materials as much more. We have stated that on 300 miles we have returns at 29,000 men and 3,000 horses employed. But this is not

the proper quantity required for the labor.—We have before us the engineers returns, by which we find that they require, in order to complete the works in time, an additional supply of nearly 20,000 or that 48,000 men and 5,000 horses is the proper number that should be employed. Moreover, we find that these additional men must be had in order to do the work already stipulated. These additional men cannot be obtained, and the very attempt to obtain them would merely have the effect of enhancing the cost of the present hands without materially increasing the supply. We see, therefore, that the present supply of hands is deficient—that any attempt to increase the supply would fail, because it would enhance prices beyond all possibility of profitable investment. We do not believe, as an eminent engineer has stated, that present prices are 50 per cent. dearer than this time last year. That is an exaggeration. Prices are however, kept down only by the wisdom which has hitherto moderated the demand to the means of supply.—Let us have an injudicious increase of demand, and prices will at once become preposterous.—*Railway Chronicle*.

Atmospheric Railways.—The atmospheric system is becoming daily more and more in favor of the continent, and the more experienced and scientific engineers of each state are now testing the best method to be adopted.—Councillor Schmid, the inspector of the state railways of Austria, who was commissioned by the government to visit England and France, to study the different systems of atmospheric propulsion, has returned to Vienna: his report on the atmospheric system is very favorable, and it appears that the Austrian authorities intended to apply the principle for crossing the Alps—a part of which they will have to blast, so as to carry out the line from Vienna to Trieste, also for crossing the mountain of Semmering, which at present intercepts the free or uninterrupted line to the south. When this grand undertaking is accomplished, of which there is very little doubt the exertions of lieutenant Waghorn, for transmitting the overland India mail from Alexandria to Trieste, via Austria and Ostend, will be fully successful, instead of through France, via Marseilles.—*Mining Journal*.

The project of connecting the Wilmington, [N. C.] railroad with that of South Carolina, finds increased favor in both of those states, and is likely to be carried out in due time.

A CARD.

TO THE CITIZENS OF NEW YORK.
After a residence of over twenty-one years in this city, I find it for my interest to seek, in a neighboring city, a new home, where I hope to derive more ample reward for honest and unremitting industry and enjoy the satisfaction of knowing that my past labors have contributed somewhat to the general prosperity, if not materially to my own.
Having, for so long a period, participated in the excitements and activity of this growing city, and witnessed its prosperity and rapid advancement—yet without sharing largely in its enjoyments—I cannot leave it without regret, nor without acknowledging my obligations, and gratitude, to the many kind friends, who have at all times cheered and en-

couraged me on; but more especially to those few who so generously sustained me at a period when all was lost, save a determination to succeed.—Here I have labored for the general prosperity; and have the vanity to believe that the great destiny that awaits you has not been retarded by my efforts; there I shall provide the comforts required by the body—and therefore solicit in my new habitation, and new vocation, a continuance of your approval, and an increase of your patronage. I shall feel, while I labor for the wants of the outer man—while I provide and supply, in a superior manner, the comforts and social enjoyments of life—that I am but “laboring in the vocation” that contributes “the greatest good to the greatest number.”

In the “FRANKLIN HOUSE,” 105 Chestnut street, Philadelphia, heretofore kept by Messrs. J. M. SANDERSON & SON—my future residence after the 1st of July—I hope to meet many of those faces which, during a long residence here, have become familiar to me, and grasp many an honest hand, and exchange many a kind salutation, with warm and sincere friends.

The house is now undergoing a thorough renovation, and extensive improvements are to be made, by the addition of a convenient and well arranged ladies ordinary, a spacious new dining room for gentlemen, several new parlors, and many new and convenient lodging rooms. It will be newly painted throughout, and mainly refurnished, and thus be placed on a footing with the best Hotels in Philadelphia. I shall be aided in its management, by Mr. JAMES M. SANDERSON, long favorably known as one of the gentlemanly proprietors of the FRANKLIN HOUSE, and as a caterer unsurpassed in the country; and also by the celebrated *Chef de Cuisine* PELLETIER, who has also been connected with the house during the past four years, and whose superior, as an *artiste* in his line, in this country, is yet to be found.

With such a house, and such aid in its management, I do not hesitate to say, to those friends and acquaintances who have known me during the past twenty years, and to others who have not, that they will find good accommodation, good fare, and all desirable attention to their wishes when they call at the FRANKLIN HOUSE, and upon their obedient servant,
D. K. MINOR.



ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.
No 23 Pear street, below Walnut, 1y10 near Third, Philadelphia.

RAILROAD IRON—1700 TONS VERY
Best English Rails, ready to be delivered.—These Rails weigh 60 lbs., the lineal Yard, are 3½ inches deep; 4 inches deep at base; 2½ inches wide at top; 17½ feet long, except one-tenth of 15 and 12½ feet in length.

A first rate Steam Pile Driver built by “Dunham & Co.” has never been in use, is in perfect order, and for sale a bargain; also 12 Railway Passenger Cars that have never been used, which will be sold very low.
DAVIS, BROOKS & CO.,
June 1. 30 Wall Street.

WILLIAM R. CASEY, Civil Engineer,
New York. Address Box 1078, Post-office, New York. 21

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

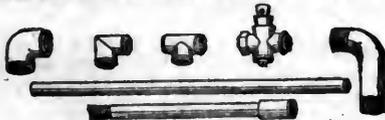
For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to 1½ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by MORRIS, TASKER & MORRIS. Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS, Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 11f

LAP—WELDED WROUGHT IRON TUBES

TUBULAR BOILERS, FROM 1 1-2 TO 5 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee.

25 23 Platt street, New York.

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP, 75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	Tons.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4½	13 5	10	24 -	50	15-16	20	
13	3½	8 3	8½	16 -	27	11-16	13½	
14	3½	6 11	7½	12 8	17	9-16	10½	
15	2½	5 2	6½	9 4	13½	1-2	7½	
16	2½	4 3	6	8 8	10½	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c. PETER COOPER, 17 Burling Slip. New York, January 23d, 1846. 1y 10

RAILROAD IRON—500 TONS OF 67 LBS. per yard—5 inches high—of the double headed pattern, which is now wholly used in England—now on the passage, and a further quantity will be contracted for. Also 500 tons T pattern, 56 lbs. per yard, for sale by BOORMAN, JOHNSTON & CO. 4t24 119 Greenwich street.

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years. For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa. Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long. 25 " 2½ x ½ " Flange Iron Rails. 75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 1f

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address JOAN F. WINSLOW, Agent, Albany Iron and Nail Works, 1y

CALIGRAPHIC BLACK LEAD PENCIL Manufactured by E. Wolff and Son, 23 Church Street, Spitalfields, London.

The Caligraphic Pencils have been invented by E. Wolff and Son, after the expenditure of much time and labor. They are the result of many experiments; and every effort that ingenuity and experience could suggest, has been made to insure the highest degree of excellence, and the profession may rely upon their being all that can be desired.

They are perfectly free from grit; and for richness of tone, depth of color, delicacy of tint, and evenness of texture, they are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use.

The Caligraphic Pencils will also recommend themselves to all who use the Black Lead Pencils as an instrument of professional importance or recreation, by their being little more than half the price of other pencils.

An allowance will be made on every groce purchased by Artists or Teachers.

May be had of all Artists, Colourmen, Stationers, Booksellers, etc.

A single pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

Caution.—To prevent imposition, a highly finished and embossed protection wrapper, difficult of imitation, is put around each dozen of Pencils. Each Pencil will be stamped on both sides, "Caligraphic Black Lead, E. Wolff and Son, London."

The subscriber has on hand a full supply of Wolff and Sons celebrated Creta Loevis, or Colored Drawing Chalks, also their pure Cumberland Lead and extra prepared Lead Pencils, and Mathematical Lead Pencils.

P. A. MESIER, Stationer and Sole Agent, No. 49 Wall Street.

N. B.—A complete assortment of Steven's Genuine Inks, Fluids, Imitating Wood stains, and Gaining Colours at the Manufacturers prices. 19 1f

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc.; by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. **JOHN F. WINSLOW, Agent.**

Albany Iron and Nail Works, Troy, N. Y.
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

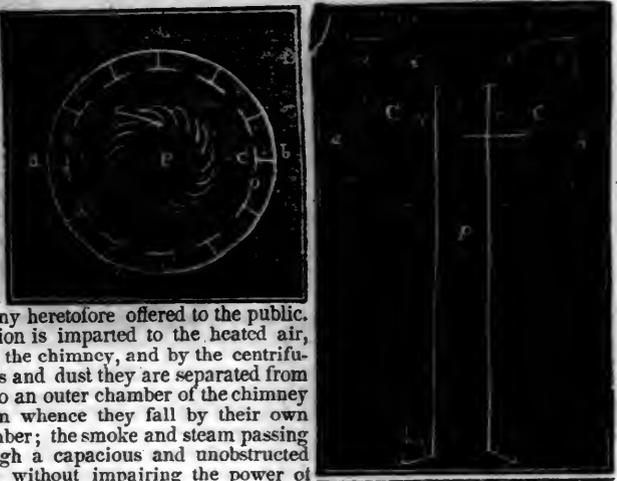
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. **FRENCH & BAIRD.**

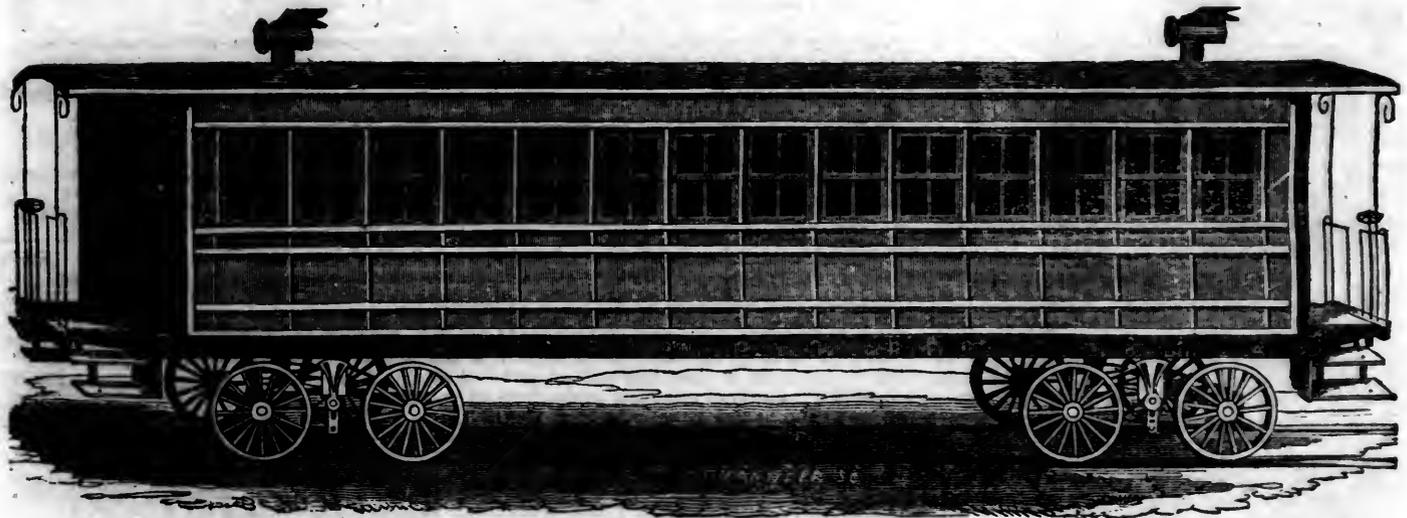
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45



BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco Pressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

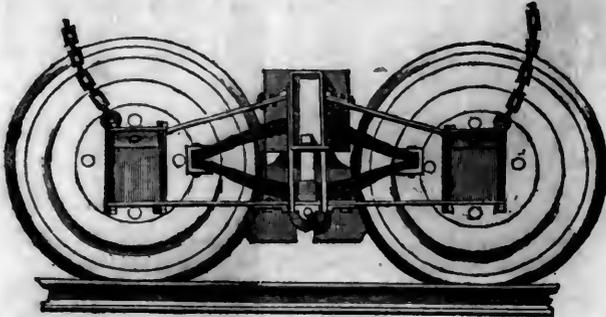
DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

1y1

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., has had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

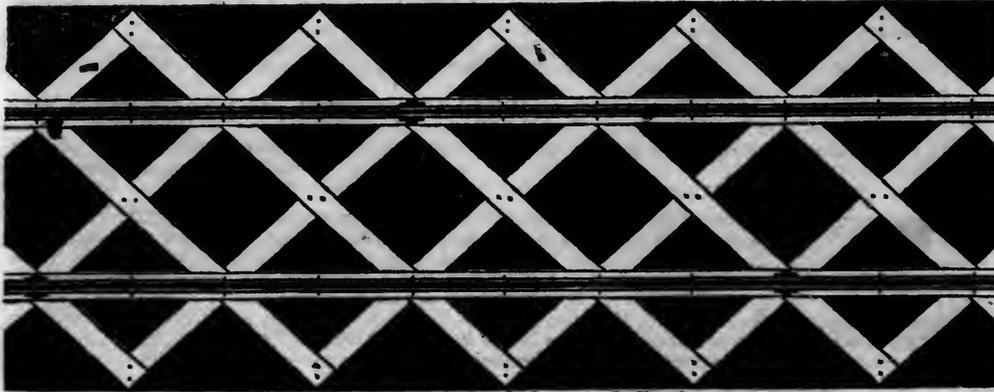
Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Sup't Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 977 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made. 1y1

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum...	5 00

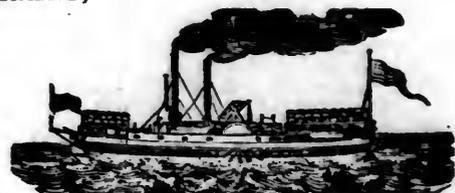
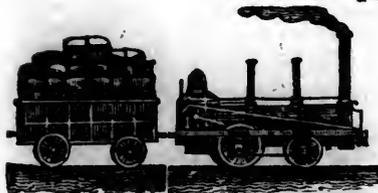
ENGINEERS and MACHINISTS.

- THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)
- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- PHENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,

AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 28.]

SATURDAY, JULY 11, 1846.

[WHOLE No. 525, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3½ p.m.

All baggage at the risk of the owners thereof.
31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD AND STAGES CONNECTING with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Loonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich. New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 32 ly J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.

Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m.

Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m.

Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, *Super't.*

TROY AND GREENBUSH RAILROAD. Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at 6½ A.M.	Leave Albany at 7 A.M.
" " 7½ "	" " 8 "
" " 8½ "	" " 9 "
" " 9½ "	" " 10 "
" " 10½ "	" " 11 "
" " 11½ "	" " 12 M.
" " 1 P.M.	" " 1½ P.M.
" " 2 "	" " 2½ "
" " 3 "	" " 3½ "
" " 4 "	" " 4½ "
" " 5 "	" " 5½ "
" " 5½ "	" " 6 "
" " 6½ "	" " 7 "

The 6½ a.m. and 2 o'clock p.m. runs from Troy, to Boston runs.

The 12 m. and 6 o'clock p.m. trains from Boston runs.

Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT, Superintendent. Troy, April 1st, 1846. 14 ly

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.

" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED to \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts.

H. C. SEYMOUR, *Sup't.*

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 tf

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4, 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams' Bridge trains will be regulated according to the state of the weather. 18

LITTLE MIAMI RAILROAD.—1846.—
Summer Arrangement.

Two passenger trains daily. On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1 1/2 p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m. On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m.

Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield. Tickets may be procured at the depot on East Front street.

The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount. W. H. CLEMENT, Superintendent.

19

MACHINE WORKS OF ROGERS,

Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.
Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery
of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.

GEORGE VAIL & CO., SPEEDWELL IRON

Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wrot. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wrot. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions.

NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. G. A. NICOLLS, Reading, Pa.

ja45

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers or fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLCOTT & ABBOTT. Factory, 9th street, near Coates, cor. Melon st. Office, No. 3 North 5th street, Philadelphia, Pa.

ly25

MARAMEC IRON WORKS FOR SALE.

By Authority of a power of Attorney from Messrs. Massey and James, I will sell at Public Auction, at the Court House in the city of St. Louis, on MONDAY, the 2nd day of November next, the above named valuable IRON WORKS—together with 8,000 ACRES OF LAND, more or less, on which there are several valuable and productive Farms open and in cultivation.

The Maramec Iron Works are situated at the Maramec Big Spring, in Crawford Co., Mo., and consist of 1 BLAST FURNACE; 1 AIR FURNACE; 1 REFINING FORGE, with large Hammer for making Blooms and Anchovies; 2 CHEFFERY FORGES for Drawing Bar Iron; 1 ROLLING MILL for Rolling Blooms into Bars and Plates;

1 SAW AND 1 GRIST MILL, All within 300 Yards of the head of the spring. There are 2 large frame Coal Houses, and all other Buildings necessary, such as Shops and Houses for the workmen.

This Spring is one of the largest in Missouri, discharging at the lowest time 7,000 cubic feet of water per minute. The Ore Bank from which the Ore has been heretofore taken is about 600 yards from the furnace; it is the *Specular Iron Ore*, the best for making Bar Iron, and the quantity inexhaustible.—It is an Iron Mountain, 400 feet above the level of the Maramec River; the ore is entirely uncovered, and there is an easy descent and a good road from it to the furnace.

The lands have been carefully selected by one of the owners with a view to the interest and convenience of the Works, and are situated principally on the Maramec River and its tributaries, embracing the best bottom lands and water powers. The following detached tracts, comprized in the above quantity, were selected for the advantages they possess;

183 1/2 ACRES in T. 40 N. of R. 8 W. in Sec. 3, near Wherry's Mill, in Osage Co.; entered to secure a very valuable Mill power on the Branca Spring and a good landing on the Gasconade River.

80 ACRES on Benton's Creek, 12 miles from the Works; entered to secure an extensive and valuable Ore Bank 2 1/2 miles from the Maramec, at a point where there is ample water power.

320 ACRES in T. 38 N. of R. 4 W. in Sec. 22 and 28, affording an extensive and valuable water power on the Maramec river.

160 ACRES in T. 37 N. of R. 3 W. in Sec. 4, embraces two inexhaustible and valuable Ore Banks and is 1 1/2 miles from Water power sufficient for a furnace and Grist Mill, and is distant 6 miles from the above site on the Maramec.

80 ACRES in T. 37 N. of R. 8 W. in Sec. 33, including an extensive bank of excellent Ore, and distant 1 1/2 miles from water power on the waters of the Gasconade River, in Pulaski Co., sufficient for Furnace and Mills. All those Banks are of the same kind as the one at the Works, and deemed inexhaustible.

1 LOT, containing nearly one Acre, on the South Bank of the Missouri River, 4 Miles above the town of Hermann, purchased for a warehouse and

landing, and is one of the best landings on the River.

The lands above described are well timbered, and have been selected with a view to have an ample supply of wood and coal, for fences, building and other purposes. There are on the land valuable quarries of Limestone well adapted for Fluxes for the Ore, and also good quarries of Rock suitable for building. There are also on the land a great number the finest kind of Springs. A large portion of the lands are bottoms well adapted to the production of Corn and other crops. The Works are situated in a very pleasant and healthful part of the country. The Maramec ore is believed to be admirably adapted to the manufacture of steel.

A further description of the property at this time is considered unnecessary, as those wishing to purchase will no doubt view the property, which will be shown by the Agent, residing at the works.

The terms of payment required will be one-third of the purchase money in hand and the balance in three equal annual payments, secured by mortgage on all the property.

A more particular description of the property will be given, and further conditions of the sale made known, on the day of sale.

JNO. F. ARMSTRONG, Agent. St. Louis, June 6, 1846.

The Louisville, (Ky.,) Journal, Cincinnati Gazette, Tribune (Portsmouth, O.,) Nashville Whig, Pittsburg Gazette, National Intelligencer, United States Gazette, (Phila.) Railroad Journal (N. Y.,) and Boston Atlas, will publish the above once a week until the 20th day of October next, and send bills to this office for settlement, and mark price on first paper. 18:25

THE SUBSCRIBERS, AGENTS FOR

the sale of Codorus, Glendon, Spring Mill and Valley, Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L KIMBER, & CO., 59 North Wharves, Jan. 14, 1846. [ly4] Philadelphia, Pa.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to James P. Allaire, Peter Cooper, Murdock, Leavitt & Co. } New York. J. Triplett & Son, Richmond, Va. J. R. Anderson, Tredegar Iron Works, Richmond, Va. J. Patton, Jr. } Philadelphia, Pa. Colwell & Co. } J. M. L. & W. H. Scovill, Waterbury, Con. N. E. Screw Co. } Providence, R. I. Eagle Screw Co. } William Parker, Supt. Bost. and Worc. R. R. New Jersey Malleable Iron Co., Newark, N. J. Gardiner, Harrison & Co. Newark, N. J. 25,000 to 30,000 made weekly. 35 1/2

RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited. S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open. JOHN BATTLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat. (Signed,) RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards. (Signed,) W. M. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by A. S. MARVIN, General Agent, 138 1/2 Water st., N. Y.

Also by Isaac Bridge, 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street, Charleston, S. C.]

CUSHMAN'S COMPOUND IRON RAILS.

etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer, Albany, N. Y.

Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

RAILROAD IRON AND LOCOMOTIVE TYRES

imported to order and constantly on hand by A. & G. RALSTON

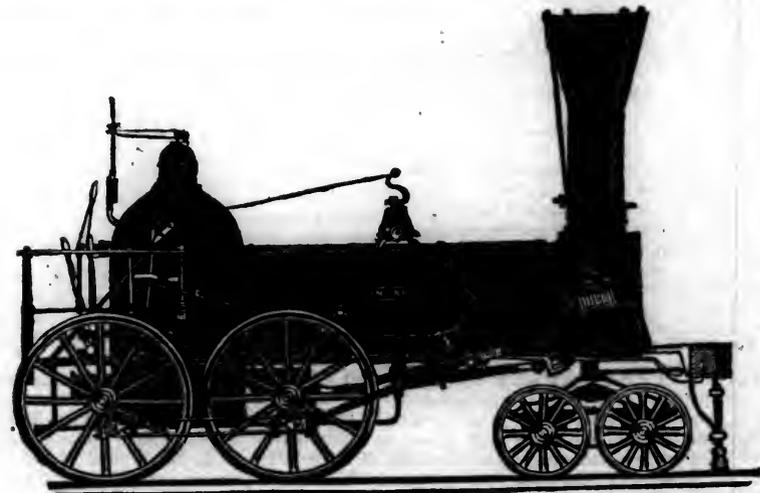
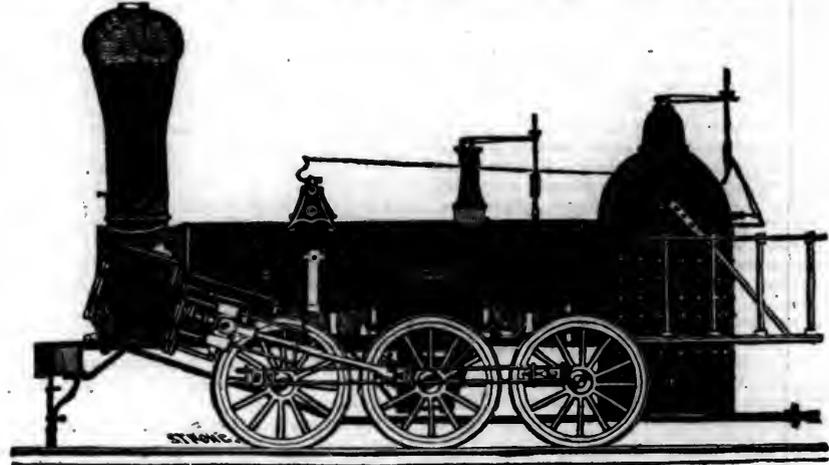
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING COMPANY

continue to furnish at the Works, situated in the town of Newcastle, Del. Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY, President of the Newcastle Manuf. Co.

NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of	Cylinder,	× 20 inches Stroke.
"	2,	14	" " "	× 24 " "
"	3,	14 1/2	" " "	× 20 " "
"	4,	12 1/2	" " "	× 20 " "
"	5,	11 1/2	" " "	× 20 " "
"	6,	10 1/2	" " "	× 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order; and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS

Atlantic and St. Lawrence Railroad.

We find in the Portland Advertiser of 23rd inst., the following remarks in relation to this road; and we congratulate the people of Portland on the flattering prospects of the work. They are certainly entitled to much credit for their public spirit and enterprise. They will beyond question, reap a rich return for their efforts when the road shall be completed. The editor says:

"We learn that the directors of the Atlantic and St. Lawrence railroad, have located the road from Fort Burroughs (Turner's ship-yard,) to the east side of Royal's river, in north Yarmouth, passing around upon the east side of Presumpscut bay, and crossing Presumpscut river immediately below the covered bridge. Proposals for contracts will be received for the grading, masonry and bridging of the first division, at the engineer's office, till the 27th inst.

"An act of the legislature has just been procured authorizing the company to take the necessary lands and flats for depots, etc., from the foot of India street on the east side, to Munjoy's Hill, on the same terms as they took the road way, upon the appraisal of the county commissioners.

"The procurement of this act has enabled the directors to act promptly upon the difficult and much debated question of the location of the depot upon Fore river.

"We have examined the plans, etc., at the engineer's office, and are struck with the remarkable facilities, and ample accommodations for business which are offered at the terminus of the road. From India street to the easterly point of Munjoys Hill a distance of half a mile or more, deep water is found, where at a short distance from the shore the largest vessels may lie at low water. Here may be formed the most magnificent quay ever yet made, by the erection of a sea wall sufficiently far into the channel of Fore river, to give ample space for as many parallel tracks inside, as the business of the road may require.

"It is worthy any one's attention to examine the plans, surveys, specifications, etc., now at the engineer's office. The engineer department has certainly done credit to itself and to the company. For skill and ability in his profession, as well as for energy and judgement in all his measures, Mr. Morton, the chief engineer, has already gained a high reputation among us, and the importance of securing at the outset of the work, a corps of engineers having practical skill and abundant experience, is now seen to be the truest economy.

"Mr. Morton returned from Montreal the present week. It will be gratifying to all to know that the work is going on at the other end of the line with the same spirit and zeal as here.

"The exploration of the country between Montreal and Sherbrooke, has been finished, and the surveying parties are now making a survey, prior to a final location of some 30 to 50 miles from Montreal. A section will be ready for contract at an early day. The famous article from *Wilmer and Smith's Times* which so 'interested' our Boston friends, was looked upon as another abortive attempt to in-

jure the road, exciting no other feeling than that of pity or contempt. No other attention was paid to it.

"The line from Portland to North Yarmouth, has been subjected to a most rigid and careful survey, and considering the general aspect of the country is remarkably favorable. It is only a half mile more than an air line with easy curves and grades, in no case exceeding 25 feet to the mile. In performing this work Mr. Morton has had the services of Mr. Noxon as resident engineer who has had great experience in building railroads, and Messrs. Arrowsmith, A. P. Robinson, Eaton, Parsell, Sherrill and Goodwin as assistants. A finer engineering corps, in our opinion, has nowhere been organized.

"We learn that the directors have unanimously voted to break ground on the fourth of July.

"The surveys from Royal's river to the Little Androscooggin, we are told are to be in progress as soon as the plans, profiles, estimates and specifications of the first division are completed."

Principles of Railway Management.

Continued from page 408.

Looking to the application of the preceding tables to a few examples, it appears that taking the average cost of construction at £21,000 per mile, and allowing 10 per cent. interest on the capital expended, and assuming also the fixed expenses to be equally divided between the goods and passenger traffic, while a line with a traffic of 90,000 tons per mile per annum should charge on the average per ton per mile 4.76d., a line with a traffic of 150,000 tons per mile per annum (nearly that of the Paris and Orleans railway) could carry with equal profit to the shareholders, at 3d. per ton per mile. A line with the traffic of 309,000 tons per mile per annum (about that of the Manchester and Leeds) could carry with equal profit to the shareholders, at 1.74d. per ton per mile; while a line with the traffic of 750,000 tons per mile per annum (nearly I believe that of the Liverpool and Manchester) could carry, with equal profit to the shareholders, at the rate of about 1d. per ton per mile.

"It has always appeared to me extraordinary, that the main trunk lines of England should hitherto have conveyed so small an amount of merchandise. The Paris and Orleans line, so lately opened throughout its entire length, carried last year, of grain and flour alone, 50,000 tons per mile, being for this one description of goods more than the average tonnage on all description of goods in Belgium, a country pre-eminent as one for transit.

"Referring to the table of the actual charge on the lines in England, I find that the average charge per mile per ton on the London and Birmingham varies from 2.2d. to 7.5d.; on the Manchester and Leeds, from 4d. to 8d.; on the Liverpool and Manchester, from 2.9d. to 5.4d. The average charge by the table for the first would be about 1.22d.; for the second, 1.74d.; for the third, 1.00d.; assuming 10 per cent. interest on a cost of £31,000 per mile.

"The extension of the benefits of railway conveyance to all agricultural produce, not having kept pace with their application to other interests, I think it will appear that the high charges contributed to that result. To illustrate this subject, I have prepared tables of the various remunerative prices for the conveyance of cattle, sheep, horses, etc.

"3 fat bullocks weigh on the average 1 ton.

"A fat bullock travels on the average upon a common road, in one day, 15 miles.

"And costs when so travelling, per day, 1s. or 3d. per mile.

"5 1-2 lean bullocks weigh, on the average, 1 ton.

"They travel on a common road, on the average, from 15 to 20 miles a day, say 17 miles.

"Their cost varies much, according to the period of the year, but it may be taken at an average of 3s. 6d. per 100 miles, say 1-2d. per mile.

"On the average, there are 4 ordinary horses to 1 ton, travelling from 14 to 20 miles per day, say on an average 17 miles, costing when travelling on a common road, per day, 4s., or say per mile, 2-9d.

"20 fat sheep weigh, on the average 1 ton, and fat sheep travel on a common road on the average, 10 to 12 miles a day, say 11 miles, costing per day per score,* 6d., or per mile, about 1-2d.

"16 pigs on the average, weigh 1 ton, travel on the common road about 12 miles per day, costing per day per score,* 9d., being per day per score, 3-4d.

"With these elements I have prepared the following tables, showing the varying remunerative charges required per head of cattle, etc., according to the total yearly amount of tonnage per mile, and adapted to the various conditions—

"1st, of a per centage on the capital of 5 per cent. and 10 per cent per annum.

"2ndly, of an original cost for construction of £18,000 and of £31,000 per mile.

"It is notorious that hitherto, on the majority of railways terminating in the metropolis or in large towns, the conveyance of cattle, sheep, calves, pigs, etc., for great distances, has been exceedingly small, and thus one of the advantages of railway communication in equalizing the price of provisions is lost.

"The table showing the cost of carriage of this class of traffic, with £31,000 per mile for construction, and 10 per cent. thereon interest, (see table original cost of construction £31,000.)

	Per fat bullock per mile.
Gives a charge for 90,000 tons per mile per annum	1-59d.
With a traffic of 150,000 tons (the Paris and Orleans traffic) of.....	1-00d.
With a traffic of 300,000 tons (that of the Manchester and Leeds,) of.....	-58d.
And with a traffic of 750,000 tons (that of the Liverpool and Manchester,) of.....	-30d.

"Now I have stated before that the cost of sending a fat bullock by the common road is 8-10d. per mile. If therefore, a railway was to convey fat bullocks at a charge of, say 6-10d. per mile, being the remunerating charge for an amount of traffic equal to that of the Manchester and Leeds railway, it would engross to itself all this class of carriage, and hold out a positive inducement to divert the beasts or cattle from other channels by the superior advantages peculiar to railway transit. For it is well known that fat beasts or sheep or pigs lose much of their weight by travelling on the common road.

"Referring to the same table, and taking,

* I have found considerable difficulty in obtaining that which might be considered as a fair average cost per day per score, the prices differing so widely according to season, locality, breed, etc. I would observe therefore, in reference to these two estimates, that, if they be found inapplicable to any particular locality, the tabular results founded on them may easily be modified to suit the exact cost that may be ascertained for the district to which the comparison is to be applied.

as before made out, the cost of a lean bullock at 1-2d. per mile, on the common road, we find the turning point at which the railway can with profit convey these, and beat the common road, is when the total traffic is about 200,000 tons per mile per annum.

Table showing the diminution in the cost of carriage per head of cattle, etc., dependent on the increase in the traffic. (Original cost of construction, £18,000 per mile.)

Allowing interest at the rate of 5 per cent. per annum on the capital.

Average traffic per mile per annum. Tons net.	Cost per mile.					
	Per ton.	Per fat bullock.	Per lean bullock.	Per horse.	Pr score of fat sheep.	Pr score of pigs.
	d.	d.	d.	d.	d.	d.
20,000	6.63	2.21	1.21	1.66	6.63	8.27
30,000	4.57	1.52	.83	1.14	4.57	5.71
40,000	3.54	1.18	.64	.88	3.54	4.43
50,000	2.92	.97	.53	.73	2.92	3.65
60,000	2.51	.84	.46	.63	2.51	3.14
70,000	2.21	.74	.40	.55	2.21	2.76
80,000	1.99	.66	.36	.49	1.99	2.49
90,000	1.82	.61	.33	.45	1.82	2.27
100,000	1.69	.56	.31	.42	1.69	2.11
150,000	1.27	.42	.23	.32	1.27	1.59
200,000	1.07	.36	.19	.28	1.07	1.34
300,000	.86	.28	.15	.22	.86	1.08
400,000	.76	.25	.14	.19	.76	.95
500,000	.70	.23	.12	.17	.70	.87
1,000,000	.57	.19	.10	.14	.57	.71

Allowing interest at the rate of 10 per cent. per annum on the capital.

20,000	12.03	4.01	2.19	3.01	12.03	15.04
30,000	8.17	2.72	1.49	2.04	8.17	10.21
40,000	6.24	2.08	1.13	1.56	6.24	7.80
50,000	5.08	1.69	.92	1.27	5.08	6.35
60,000	4.31	1.44	.79	1.07	4.31	5.39
70,000	3.76	1.25	.68	.94	3.76	4.70
80,000	3.34	1.11	.61	.83	3.34	4.17
90,000	3.01	1.00	.55	.75	3.01	3.76
100,000	2.77	.92	.50	.69	2.77	3.46
150,000	1.99	.66	.36	.49	1.99	2.49
200,000	1.61	.54	.29	.40	1.61	2.01
300,000	1.22	.41	.22	.31	1.22	1.53
400,000	1.03	.34	.19	.26	1.03	1.29
500,000	.91	.30	.16	.23	.91	1.14
1,000,000	.68	.23	.12	.17	.68	.85

Original cost of construction, £31,000 per mile.

Allowing interest at the rate of 5 per cent. per annum on the capital.

20,000	10.53	3.51	1.91	2.64	10.53	13.16
30,000	7.17	2.72	1.30	1.74	7.17	8.96
40,000	5.49	1.83	1.00	1.37	5.49	6.86
50,000	4.48	1.39	.81	1.12	4.48	5.50
60,000	3.81	1.27	.70	.95	3.81	4.76
70,000	3.33	1.11	.60	.83	3.33	4.17
80,000	2.97	.99	.54	.74	2.97	3.71
90,000	2.69	.89	.49	.66	2.69	3.36
100,000	1.47	.82	.45	.62	2.47	3.09
150,000	1.79	.59	.32	.45	1.79	2.29
200,000	1.46	.48	.27	.36	1.46	1.82
300,000	1.12	.37	.20	.28	1.12	1.40
400,000	.95	.32	.17	.24	.95	1.19
500,000	.85	.28	.15	.21	.85	1.06
1,000,000	.65	.22	.12	.16	.65	.81

Allowing interest at the rate of 10 per cent. per annum on the capital.

20,000	19.83	6.61	3.60	4.96	19.83	24.79
30,000	13.37	4.45	2.43	3.35	13.37	17.81
40,000	10.14	3.38	1.75	2.54	10.14	12.67
50,000	8.20	2.73	1.50	2.05	8.20	10.25
60,000	6.91	2.30	1.26	1.73	6.91	8.64
70,000	5.98	1.99	1.09	1.49	5.98	7.47
80,000	5.29	1.76	.96	1.32	5.29	6.63
90,000	4.76	1.59	.86	1.19	4.76	5.95
100,000	4.32	1.44	.79	1.08	4.32	5.40
150,000	3.00	1.00	.55	.75	3.00	3.75
200,000	2.38	.79	.43	.59	2.38	2.97
300,000	1.74	.58	.31	.43	1.74	2.17
400,000	1.41	.47	.26	.35	1.41	1.76
500,000	1.22	.41	.22	.31	1.22	1.53
1,000,000	.83	.28	.15	.21	.83	1.04

So with a horse, the cost of which on the common road averages per mile nearly 3d.,

the turning point in the scale or table is an aggregate goods traffic per mile per annum of about 40,000 tons.

The following tables bringing in juxtaposition the comparative cost by railway and by the common road for each class of cattle, horses, sheep, etc., enable the reader to find at a glance the aggregate amount of traffic required to produce the turning point at which the railways can convey with profit at rates cheaper than common roads.

Thus with an original cost of £18,000 per mile, and interest on the capital at 5 per cent. the turning point with fat bullocks is at or about an aggregate yearly tonnage per mile of 65,000 tons; with lean bullocks of 55,000 tons; or with an original cost per mile of £31,000, and interest thereon at the rate of 10 per cent. per annum, the turning point with fat bullocks is at or about an aggregate yearly tonnage per mile of 200,000 tons; with lean bullocks, of about 175,000 tons.

Original cost of construction, £18,000 per mile.

Allowing interest at the rate of 5 per cent. per annum.

Average traffic per mile per annum. Tons net.	Fat bullocks, 3 to 1 ton.		Lean bullocks, 5 1-2 to 1 ton.		Horses, 4 to 1 ton.		Sheep, 20 to 1 ton.		Pigs, 16 to 1 ton.	
	Cost per mile per head.		Cost per mile per head.		Cost per mile per head.		Cost per mile per score.		Cost per mile per score.	
	By railway.	By common road.	By railway.	By common road.	By railway.	By common road.	By railway.	By common road.	By railway.	By common road.
20,000	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
30,000	2.21	.....	1.21	.....	1.66	.....	6.63	.....	8.27	.....
40,000	1.52	.....	.83	.....	1.14	.....	4.57	.....	5.71	.....
50,000	1.18	.....	.64	.....	.88	.....	3.54	.....	4.43	.....
60,000	.97	.....	.53	.....	.73	.....	2.92	.....	3.65	.....
70,000	.84	.....	.46	.....	.63	.....	2.51	.....	3.14	.....
80,000	.74	.....	.40	.....	.55	.....	2.21	.....	2.76	.....
90,000	.66	8.	.36	.50	.49	2.9	1.99	6.0	2.49	9.0
100,000	.61	.....	.33	.....	.45	.....	1.82	.....	2.27	.....
150,000	.56	.....	.31	.....	.42	.....	1.69	.....	2.11	.....
200,000	.42	.....	.23	.....	.32	.....	1.27	.....	1.59	.....
300,000	.36	.....	.19	.....	.28	.....	1.07	.....	1.34	.....
400,000	.28	.....	.15	.....	.23	.....	.86	.....	1.08	.....
500,000	.25	.....	.14	.....	.19	.....	.76	.....	.95	.....
1,000,000	.23	.....	.12	.....	.17	.....	.70	.....	.87	.....
1,000,000	.49	.....	.10	.....	.14	.....	.57	.....	.71	.....

Allowing interest at the rate of 10 per cent. per annum.

20,000	4.01	.....	2.19	.....	3.01	.....	12.03	.....	15.08	.....
30,000	2.72	.....	1.49	.....	2.04	.....	8.17	.....	10.21	.....
40,000	2.08	.....	1.13	.....	1.56	.....	6.24	.....	7.80	.....
50,000	1.69	.....	.92	.....	1.27	.....	5.08	.....	6.35	.....
60,000	1.44	.....	.79	.....	1.07	.....	4.31	.....	5.39	.....
70,000	1.25	.....	.68	.....	.94	.....	3.76	.....	4.70	.....
80,000	1.11	.....	.61	.....	.83	.....	3.34	.....	4.17	.....
90,000	1.00	.....	.55	.....	.75	.....	3.01	.....	3.76	.....
100,000	.92	8.	.50	.50	.69	2.9	2.77	6.0	3.46	9.0
150,000	.66	.....	.36	.....	.49	.....	1.99	.....	2.49	.....
200,000	.54	.....	.29	.....	.40	.....	1.61	.....	2.01	.....
300,000	.41	.....	.22	.....	.31	.....	1.22	.....	1.53	.....
400,000	.34	.....	.19	.....	.26	.....	1.03	.....	1.29	.....
500,000	.30	.....	.16	.....	.23	.....	.91	.....	1.14	.....
1,000,000	.23	.....	.12	.....	.17	.....	.68	.....	.85	.....

Original cost of construction, £31,000 per mile.

Allowing interest at the rate of 5 per cent. per annum.

20,000	3.51	.....	1.91	.....	2.64	.....	10.53	.....	13.16	.....
30,000	2.72	.....	1.30	.....	1.74	.....	7.17	.....	8.96	.....
40,000	1.83	.....	1.00	.....	1.37	.....	5.19	.....	6.86	.....
50,000	1.39	.....	.81	.....	1.12	.....	4.48	.....	5.50	.....
60,000	1.27	.....	.70	.....	.95	.....	3.81	.....	4.76	.....
70,000	1.11	.....	.60	.....	.83	.....	3.33	.....	4.17	.....
80,000	.99	.....	.54	.....	.74	.....	2.97	.....	3.71	.....
90,000	.89	8.	.49	.50	.66	2.9	2.69	6.0	3.36	9.0
100,000	.84	.....	.45	.....	.62	.....	2.47	.....	3.09	.....
150,000	.59	.....	.32	.....	.45	.....	1.79	.....	2.29	.....
200,000	.48	.....	.27	.....	.36	.....	1.46	.....	1.82	.....
300,000	.37	.....	.20	.....	.28	.....	1.12	.....	1.40	.....
400,000	.32	.....	.17	.....	.24	.....	.95	.....	1.19	.....
500,000	.28	.....	.15	.....	.21	.....	.85	.....	1.06	.....
1,000,000	.22	.....	.12	.....	.16	.....	.65	.....	.81	.....

Allowing interest at the rate of 10 per cent. per annum.

20,000	6.61	.....	3.60	.....	4.96	.....	19.83	.....	24.79	.....
30,000	4.45	.....	2.43	.....	3.35	.....	13.37	.....	17.81	.....
40,000	3.38	.....	1.75	.....	2.54	.....	10.14	.....	12.67	.....
50,000	2.73	.....	1.50	.....	2.05	.....	8.20	.....	10.25	.....
60,000	2.30	.....	1.26	.....	1.73	.....	6.91	.....	8.64	.....
70,000	1.99	.....	1.09	.....	1.49	.....	5.98	.....	7.47	.....
80,000	1.76	.....	.96	.....	1.32	.....	5.29	.....	6.63	.....
90,000	1.59	8.	.86	.5	1.19	2.9	4.76	6.0	5.95	9.0
100,000	1.44	.....	.79	.....	1.08	.....	4.32	.....	5.40	.....
150,000	1.00	.....	.55	.....	.75	.....	3.00	.....	3.75	.....
200,000	.79	.....	.43	.....	.59	.....	2.38	.....	2.97	.....
300,000	.58	.....	.31	.....	.43	.....	1.74	.....	2.17	.....
400,000	.47	.....	.26	.....	.35	.....	1.41	.....	1.76	.....
500,000	.41	.....	.22	.....	.31	.....	1.22	.....	1.53	.....
1,000,000	.28	.....	.15	.....	.21	.....	.83	.....	1.04	.....

"Tables similar to the preceding, prepared with a view to show the comparative cost at which railways and canals could afford to carry various classes of goods, would be exceedingly useful. They would demonstrate that with a sufficient amount of traffic approaching for example, to that of the Liverpool and Manchester, or about that of the Manchester and Leeds railways can convey, with remunerative rates, at fares lower than canals. And when this comparative cheapness is taken into account jointly with the other advantages of speed and regularity in the transit, it becomes manifest that wherever there is much movement in the conveyance of goods, railways must take the lead."

Carriage of Parcels.

"Before leaving this part of the subject, I am desirous to advert to the question of the conveyance of parcels. I had prepared the details of some facts to be submitted to the society, tending to show many practical inconveniences in addition to the drawback of expense, to which might be in part attributed the small amount of traffic obtained by railways in the carriage of parcels. But the following statement, published in a morning paper,* of the 11th inst., by showing an important movement in the right direction, will render the production of some of these statements unnecessary. It is besides more pleasing to record improvements than indicate defects.

"The Manchester and Leeds railway company's report, presented by the directors to the proprietors on Wednesday last, stated that the principle of low fixed rates, irrespective of distance had been applied to the carriage and delivery of parcels, not only on their own line, but also on neighboring lines. On Monday last, a meeting of the Trent Valley railway company, Mr. Edward Tootal stated that on the series of lines connecting Manchester and Liverpool with Birmingham and London, combining the London and Birmingham, Grand Junction, Manchester and Birmingham, and Trent Valley lines, in future to be under the management of an amalgamated and consolidated company, under the title of the London and North-western railway company, (possessing a capital of 14,000,000 sterling,) all parcels under 12lb. weight would be carried from one end to the other, and to all intermediate places, at the uniform charge of 1s.; and that this plan was ultimately to be extended to all the lines between Falmouth and Dover at the south, and Glasgow at the north."

"Hitherto parcels were charged various rates, not only according to the distance, but according to the train by which they were despatched, and it was an irksome thing to remember the proper time for sending them at the lower rates, and to calculate the expense according to the distance. This expense was great, that in the case of small parcels, the bulk of which admitted of being separated into several, so as to bring these within the weight required by the post-office regulations, it had become a very general practice to take the channel of the post-office in preference to the direct railway conveyance.

"So far therefore, this is a very great improvement both as regards the uniformity in the charge and the reduction in its amount.—I have not the data with reference to parcels requisite for the formation of tables similar to those previously submitted with reference to other kinds of traffic; but in the absence of these, I would simply refer to the great experiment of post-office reform, and the success

of the Metropolitan Parcel Delivery companies, to support my belief that such an arrangement, if it extended the reduction still further to 6d. per parcel, or even to 3d., would prove equally if not more remunerative.

"Viewing the question of the delivery of parcels as respects regularity and economy, it is probable that the postoffice authorities, by having the distributary apparatus ready at their hands, and already adapted for this special service, could accommodate the public at rates lower than separate companies, all requiring to incur the expense of separate management. It behoves the companies therefore, if they wish to retain this source of traffic under their own control, without any intermediate agency, to make the charges so low that there shall arise no public or general desire that it should be confided to the postoffice.

To be Continued.

Miscellaneous Items.

The first annual report of the directors of the Northern railroad—the railroad from Concord to the western bank of the Connecticut river, near the mouth of White river—has just been published. The route is 63 miles in length, and the maximum grade is 50 feet to the mile. The grading, masonry and bridging was let out last autumn in ten or twelve different contracts. Considerable progress has been made in the work, and at this time about 1,200 hands are employed upon the whole line. It is expected that the lower 18 miles—from Concord—will be completed this year. Three assessments (amounting to about 25 per cent. of the capital, say \$475,000) have been levied, and for the most part paid in.

Hartford and Farmington Valley Railroad. The Hartford people are now moving for the construction of a railroad from that city to Farmington valley. The plan is, to use the Hartford and New Haven railroad for about 7 miles, and thence construct an offset to Plainville, or Bristol basin, on the Farmington canal. The length of new road required to be made, is only about 7 miles, and the estimated cost \$150,000 or \$200,000. The whole distance from Hartford to Plainville, by railroad, will thus be about 14 miles; while from New Haven to Plainville, is about 25 miles.—Such being the case, a writer in the Hartford Times calculates that even if a railroad should be constructed along the line of the canal from New Haven to Plainville, and thence northwesterly to Collinsville, as proposed, Hartford would have the best of the bargain. Or, to use his own language, the construction of 7 miles of railroad as above, "will restore and forever place in our hands the command of the extensive and valuable commerce of the towns of the Farmington river valley." If however New Haven is willing to take her chance in the game, what should prevent Hartford and New Haven from uniting for the construction of the road from Plainville to Collinsville, and perhaps eventually to Pittsfield, Mass.—*Jour. Com.*

The Railroad.—An instalment of \$10 per share was yesterday laid by the stockholders of the New Haven canal, for the purpose of commencing the canal railroad.—*Hartford Courier.*

Middletown Bridge.—The common council of the city of Hartford propose that a sum not exceeding one hundred thousand dollars, be appropriated for the purpose of defending the rights of Hartford in the matter of this bridge.

The railroad from Pittsfield to North Adams is progressing rapidly. It is expected that

the grading will be finished in the month of July.—*Northampton Gazette.*

The work of relaying the track of the Somerville railroad, with the most approved rail, has been commenced, and it will be gradually progressed in according to circumstances, and without interference with the regular travel, until the whole be completed and rendered durable, safe and permanent.—*Newark Advertiser.*

A Philadelphia paper says that two leading contractors called at the exchange on Saturday, and offered to construct the whole of the Pennsylvania railroad, with the Portage section as a link, for five and a half millions of dollars!

The wages paid to hands employed at the railroad depot, in Reading, for the last month, amounts to a fraction less than seventy-five thousand dollars.

Wilmington, [N. C.] Railroad.—The stockholders of the Wilmington and Raleigh railroad company met on Wednesday last, a majority being present. The president stated that the South Carolina and Georgia roads were willing to join the Wilmington company in furthering the project of continuing the road to the South Carolina railroad, and that should congress sanction the measure, the post master general would advance, in aid of the connecting link, ten year's mail pay of the new road, and one-third of the mail pay, during the same period, of the Wilmington, Charleston, and Georgia roads. This amount would be about \$800,000, and would go far towards building the road.—*Charleston News.*

Little Miami Railroad.—There is a rapid increase of business on this road, and eventually it must become the main route of eastern travel from the west and southwest. In a few weeks it will be open to Springfield, the termination of this road where it intersects with the Mad river and lake Erie railroad. The summer arrangement is now completed, connecting at Sandusky city with a daily line of steamboats to Buffalo, so that travellers meet with no detention. Two passenger trains leave Cincinnati daily, one at 9 A. M., and the other at half past 1 P. M. Passengers by the morning train sup and sleep at Columbus, and reach the lake the next afternoon; by the afternoon train, passengers are taken directly through to the lake in 28 hours. The fare through to Sandusky city is \$8 00—and to Buffalo, N. Y., \$14.—*Cincinnati Gazette.*

The Railroad.—The Survey Commenced. It will be seen from the following announcement made in the Chattanooga Gazette, that the work of surveying the route for the railroad from Chattanooga to Nashville, has been commenced:

Nashville and Chattanooga Railroad.—J. Edgar Thompson, Esq., chief engineer, on the Georgia railroad, has been employed to survey a route for the Nashville and Chattanooga railroad. Mr. Garnett brother of the chief engineer of the Western and Atlantic railroad arrived here a few days ago, and as assistant engineer to Mr. Thompson, immediately commenced a survey. Mr. Thompson himself and another assistant is looked for daily, when the business of surveying the route for a road from this place to Nashville, will be vigorously prosecuted. It is expected that the labor can be performed in six months, so far as surveying and making estimates of the probable cost, etc.

Muscogee Railroad.—The last legislature granted to several persons, citizens of this city and its vicinity, a charter for a railroad, under

* "Morning Chronicle," 11th March, 1846.

the above title, and vesting the stockholders with the authority to construct a road from Columbus, to connect with the Macon railroad at some point, at their discretion, from the city of Macon to Atlanta—the great object in obtaining this charter was to give this city the power to control and prevent the construction of a railroad by way of West Point to Montgomery. It will be recollected that during the session of the legislature the property owners of this city deemed the matter of sufficient importance to send a delegation to Macon to attend a meeting of the stockholders of the Central railroad; and subsequently also sent a delegation to Milledgeville, who in connection with the members from this county might assist in promoting the special object referred to.

It is believed that our members did all that could be done, or that was expected from legislation; and yet, up to the present moment, no step has been taken by our citizens to carry out the objects and purposes contemplated. It is believed that now is a proper time to make an effort, if one is to be made at all; and if those owning property here do not make it, then it cannot be expected that others, having but little interest involved, will do it for them. For the purpose of having some concert of action upon the subject, a meeting of those gentlemen named in the charter is requested at Johnson and Williams' office, on Wednesday morning, at ten o'clock forenoon.

The following are the persons named in the charter: John G. Winter, John Banks, A. H. Flewellen, Jas. M. Chambers, Samuel A. Batley, John H. Howard, Jas. R. Jones, Wm. A. Redd, H. S. Smith, Dan'l McDougald, Hines Holt, G. E. Thomas, Jas. H. Shorter, P. T. Schley.—*Enquirer.*

Erie Railroad.—The earnings of the eastern division of the Erie railroad for the month of June, 1846, were as follows:

From freight,	\$10,433 04
“ passengers and mail,	5,491 85
Total,	\$15,924 89
Same time last year,	13,854 05
Increase,	\$2,070 84
Increase from freight on milk,	896 99
“ “ other freight,	421 01
“ “ passengers,	842 84
	\$2,070 84

Western Railroad.—Its Cost and Value.

34,000 shares at \$100,	\$3,400,000
Albany bonds,	1,000,000
Massachusetts bonds,	4,000,000
	\$8,400,000
Value of sinking funds, Dec. 31, '45,	\$465,251
Six months interest accrued	12,950
Reserved fund of net earnings,	128,066
4 per cent. dividend,	136,000
Equal to \$22 per share, advance,	\$774,267

Philadelphia and Reading Railroad during the 3d week of June,

	1844.	1845.	1846.
Receipts,	\$11,429 92	25,261 61	52,112 06
Coal, tons,	9,179	22,506	32,022

Dividends.—The Portland, Saco and Portsmouth railroad have declared an annual dividend of 3, and the New Bedford and Taunton of 3 1-2 per cent.

The Morris and Essex railroad co., [N. J.] have declared a semi-annual dividend of 3 1-2 per cent.

The S. C. railway co., and the Southwestern railroad bank have declared a semi-annual dividend of \$2 per share.

The present income of the Western railroad is at the rate of one million of dollars per annum.

Western railroad stock is selling at par.

The Worcester railroad co. have declared a semi-annual dividend of 4 per cent. Receipts for six months ending May 31, \$247,785.

Railroad Iron.—The Boston Courier states that the Vermont and Massachusetts railroad company have completed a contract for 1,300 to 1,500 ton of rails at \$76 50 per ton, delivered at Charlestown, Massachusetts, duty and freight to be paid by the seller, the buyer to have the advantage of any remission of duty. This is \$8 50 less per ton than the price paid by the Northern railroad, and free from any charge for commissions, etc.

The Danville, Pa., Intelligencer says that 796 tons of iron were made at the rolling mill of the Montour iron company during the month of May.

Schuylkill Navigation.—We are informed by an officer of the Schuylkill navigation company that this work is now in a very forward state throughout the line. About one-third of the whole, extending from this city to Royer's Ford, five miles above Phoenixville, is this day open to the trade. The next division, reaching from Royer's Ford to Reading, and connecting with the Union canal, will come into use in about two weeks. The residue of the line is progressing with great vigor, and will be completed in time to have a salutary effect on the price of coal.—*U. S. Gazette.*

Self-Adjusting Railroad Break.—We learn from the Albany Evening Post, that Mr. Erwin Thayer, of Chatham, Columbia county, has invented a self-adjusting break, by means of which it is believed that collisions upon railroads may be almost entirely obviated.—This invention places the whole train under the immediate control of the engineer, who by touching a lever, breaks the speed of each car. Many accidents occur suddenly before the breakman can get to their stations. Mr. Thayer's plan, by arresting the whole train simultaneously, prevents the crushing of cars by running into each other.

If, as is confidently believed this improvement, when fully tested, accomplishes the object for which it is designed, the liability to accidents will be greatly diminished.

The following is a statement of the magnetic telegraphic lines now in operation, or being constructed:

New York and Boston, complete	265
Jersey city to Washington, do	250
Albany to Rochester, do	250
Rochester to Buffalo, to be completed in 10 days.	100
New York to Albany, via Poughkeepsie, Troy, etc., to be completed July 15th	173
Troy to Saratoga, to be completed July 10th	33
Oswego to Syracuse, do	38
Lockport to Buffalo, do	26
Ithaca to Auburn, to be completed July 4	45
Boston to Lowell, complete	25
Boston to Portland, to be completed in 60 days.	100
Philadelphia to Harrisburg, not complete	98
Total	1,403
Total in operation	961
To be in operation before Sept. 1st	1,403

The great southern line to New Orleans will probably be in operation by the middle of October.

Americans in Russia.—Col. Todd informs us that the grading and working on the entire railroad line from St. Petersburg to Warsaw, (440 miles,) was

given to American contractors. This contract amounts to four and a half millions of dollars, and was given to American contractors in the face of the competition of all Europe, without security.—*Cincinnati Chron.*

The Isthmus of Panama.—The engineers dispatched by the French government to take the requisite surveys for the projected canal across the Isthmus which is to join the two oceans, are stated in accounts from thence to have successfully accomplished their mission. The preferable point for the end of the canal on the Pacific side was selected at Vaca de Monte, a few miles west of the city of Panama, in the valley of the Calmito. On the Atlantic side, the bay of Leinon was fixed upon as affording superior conveniences for shipping to the port of Chrages. The total cost of construction of the canal was estimated at 124,000,000 francs, or say five millions sterling. The total length would be 76½ kilometres. There would be the necessity for cutting an immense tunnel, which, for shipping, would form an important part of the estimated expense. The depth of the canal would be about seven yards, the width of the bottom twenty yards, and on the surface, forty-five yards.

Notice to Contractors.

We desire to call the attention of contractors to the notice of the Camden branch railroad, in this number. It will be seen that the company propose depositing profiles in this office for the convenience of contractors residing at the north.

This is an arrangement worthy of the attention of railroad companies—as by means of it competition may be obtained from those contractors who might not find it convenient to take a journey of 500 or 1,000 miles to examine the drawings upon which they form their estimates.

English Iron Trade.

FROM LONDON MINING JOURNAL, JUNE 12, 1846.

	£.	s.	£.	s.	d.
Bar a Wales—ton	0	0—8	0	0	0
“ London	0	0—9	0	0	0
Nail rods	0	0—10	0	0	0
Hoop (staf.)	11	0—11	5	0	0
Sheet	0	0—12	5	0	0
Bars	10	10—11	0	0	0
Rails, average	9	10—10	0	0	0
Welsh cold blast foundry pig	4	5—5	0	0	0
Scotch pig b Clyde	3	7 6 3	10	0	0
Russian, CCND c	0	0—0	0	0	0
“ PSI	0	0—0	0	0	0
“ Gourieff	14	5—14	10	0	0
“ Archangel	0	0—13	12	6	0
Swedish d, on the spot	0	0—11	10	0	0
“ Steel, fagt	0	0—15	5	0	0
kegs e	0	0—14	10	0	0

From our correspondent.

Iron steady at quotations, with a moderate demand for Welsh and Staffordshire. In Scotch pigs very little export business doing since last Mining Journal, but holders are firm. Swedish and Russian are not in request.

Communicated by Messrs. Whitcomb & Barton.

English iron continues firm, but transactions have been rather limited. Scotch pig iron is not quite so good as last week, although there is no material alteration for No. 1. For assorted numbers—1, 2 and 3—we quote the price 67s. 6d.

From a correspondent.

English iron has undergone no change during last week. Scotch pig has been in active demand at 67s. 6d. per ton for mixed numbers, delivered at Glasgow: Swedish iron and steel continue dull of sale.

Glasgow Pig Iron Trade.—June 5.—There has been a continuation of the quietness noticed last week, and the sales made have been at slightly easier terms. We quote 65s. for No. 3; 67 to 68s. for mixed numbers; 68 to 70s. for No. 1—cash, free on board. The shipments during the month of May were larger than ever known in any one month; and as they are still continuing unabated, the decrease of stock will tend to give a firmness to the market.

marking the terminations of the various grades, and indicating the slope.

The neglect or recklessness of enginemen or conductors has been the cause of many accidents—this is not to be wondered at, when we remember that the demand is increasing far more rapidly than the supply by proper means. The acknowledged good character and carefulness of old hands is thrown into disrepute by the misconduct of ignorant and incompetent pretenders.

One thing more is worthy of remark. During the year 1844, and the first six months of 1845, 12 persons were killed, for over 47 millions of passengers carried—being about 1 in 4 millions. The number in any way wounded being 116, or about 1 in half a million. What mode of travelling can show a degree of safety at all approaching this?

“My Lords—The duties imposed on the railway department last year, in respect of the several railway projects upon which the department was called upon to report to parliament, were so onerous and imperative as entirely to occupy the time and attention of the officers, and to prevent them from presenting a report similar to those which, during previous years, they had been in the habit of submitting to your lordships. The department having however, in a great measure, resumed its former functions, and being relieved from the duties referred to, we have been able to prepare, and beg to lay before your lordships, the following report, embracing the occurrences of the years 1844 and 1845.

“[The tables of statistics that follow show the number and nature of accidents on railways attended with personal injury, which have been reported to the department under the provisions of the act 3 and 4 vict. c. 97, for regulating railways.]

Analysis of Accidents.—In the year 1844, 10 persons were killed, 6 of whom were passengers, and 74 more or less injured, 64 of whom were passengers, by accidents in railway travelling, arising from causes beyond the control of passengers; 7 passengers were killed, and 9 injured, owing to their own negligence or misconduct: of the company's servants, 33 were killed and 28 injured, under circumstances not involving danger to other portions of the public; and of persons who were not servants to the railway companies, but principally trespassers, 34 were killed and 17 injured, under circumstances not involving danger to passengers.

The foregoing summary of the accidents which occurred in 1845, shows that 19 persons were killed, 4 of whom were passengers; and 101, 82 of whom were passengers injured in a greater or less degree, the causes of the accident being beyond the control of passengers; that 9 passengers were killed and 10 injured, owing to their own neglect or ill conduct; that 36 servants of the companies were killed, and 24 injured, under circumstances not attended with danger to other portions of the public; and that 45 persons other than servants of the companies were killed, and 9 injured, under circumstances not involving danger to passengers.

Except in cases of accident which ensued from causes manifestly beyond the power of the railway companies to control, or to fore-

see, a strict investigation was made in every case, and a detailed report of the attending circumstances forwarded to your lordships by the inspector general. These reports will be found in the appendix.

Proportion of Accidents to the number of Travellers.—In the reports which were submitted for the years 1842 and 1843, we stated our satisfaction in being able to direct attention to the then continued and progressive decrease in the number of accidents which occurred on railways. The actual number of accidents in the years 1844 and 1845 are greater than they were in previous years; but the real danger arising from railway travelling can only be appreciated when the number of accidents shall be considered in connection with the additional amount of miles of new railways which have been opened, and the enormous augmentation of railway travellers. For this purpose the following table has been made. It includes the years 1841, 1842, 1843, 1844 and the first half of 1845; the last half of 1845 is not included, in consequence of the statistical returns for that period not having yet been received from the railway companies by the board of trade.

Years.	No. of accidents.			No. of persons injured.	Number of miles of railway open.	Total number of passengers carried.	Proportion of the number of persons injured to the total number of passengers carried.
	Killed.	Injured, not fatally.	Total.				
Last 5 months of 1840	28	22	131	153	1,330	6,029,866	1 in 30,410
1841	29	24	72	96	1,356	20,449,754	1 in 213,018
1842	10	5	14	19	1,717	21,358,445	1 in 1,124,128
1843	5	3	3	6	1,798	25,572,525	1 in 4,262,087
1844	34	10	74	84	1,912	30,363,052	1 in 456,702
1845							
first six months	15	2	30	32	2,118	16,720,550	1 in 522,517

Observations thereon.—The causes of the accidents recorded in the foregoing tables have been inserted therein, according to the statements made in the reports of the railway companies, who have not always had time to investigate them fully, when required to make their reports; and whose opinion, as to the causes at that time, somewhat differed from those subsequently formed by the inspector general or assistant inspector of railways, after a careful personal inquiry into the circumstances, upon whose reports, therefore, the following general observations have been founded, without further reference to the discrepancies alluded to.

One fatal accident was caused on the Eastern Counties railway, near Chelmsford, on the 29th of January, 1844, by the neglect of some person in the contractor's employment, who left a moveable cross-rail, from the sliding into a ballast-hole, lying upon the permanent up-line of rails, by which the engine and tender and one cattle truck of a goods train were thrown off, and ran into some rough ground, upon which they overset, and the engineman and stoker lost their lives. After having received the report of the inquiry into this accident, considering it dangerous and improper to use contractor's points, viz. shift-

ing rails and cross rails, in connection with a permanent line when opened for public traffic, your lordships addressed a circular letter to railway companies, requesting to be informed whether this practice prevailed on their respective railways; and if so, recommending that it should be discontinued. By their answers it appeared that they were generally aware of the danger of this practice, and had of their own accord either put a stop to it, or would do so as soon as their new lines or extensions were ready to be opened.

Accidents by Collision caused by Error of Judgement.—Of the accidents by collision recorded in class No. 1, in which the public are most interested, one was caused on the Nottingham branch of the Midland Counties railway, on the 2nd of November, 1844, by the mistaken zeal of the station master at Nottingham; and the other on the South Eastern railway, on the 28th of July, 1845, by the officiousness of the head porter at Tonbridge; both acting without reflection or judgment, and both assuming the power of giving orders to enginemen, which they had no right to do, which led to collisions, one of a fatal, and both of a very serious nature, that could not possibly have happened without their interference.

Accidents caused by Imperfect Arrangements.—Defective Signals.—Imperfect arrangements on the part of some railway companies, and amongst others the exclusive use of hand-lamps, and in one case of a hand-bell by day, and the use of hand-lamps by night, at stopping stations and junctions of railways, have caused or contributed to several railway collisions; and we beg to suggest that these, though proper aids, ought not to supersede the use of larger and more conspicuous signals by day and of more powerful lamps by night, elevated so high as not to be overlooked or confounded with any other objects by day, or other lights by night, without extreme neglect. In stations, and at junctions concealed from view on one or both sides by curves in cuttings, the want of elevated signals has been felt, and from the reports on some of the collisions will appear to have been partly the cause of them. Recently the South Eastern railway company have established signals of this description at all their stations and junctions, they having formerly been confined to some of the principal stations only. This example will, we trust, be followed by companies which are still deficient in this respect; and here we may remark, that it appears desirable that all railway companies should assimilate their signals, in order that enginemen, changing the service of one company for that of another, may not be perplexed by discordant or contrary systems.

Accidents from Imprudent Speed in Descending Gradients.—One of the accidents that occurred on the Eastern Counties railway, by an engine running off the rails, on the 4th of August last, near Chesterford, having been at first ascribed to an improper rate of speed, when descending a gradient on a new part of that line, your lordships were pleased to suggest to the Eastern Counties

and Norfolk railway companies the propriety of causing every change of gradient to be marked in a conspicuous manner, by a post and two arms, upon the latter of which the levels or rates of inclination should be described, and the length of each noted. This system, which had previously been adopted by the Midland and several other railway companies of their own accord, was promptly complied with by those two companies; and it appears to us desirable that the plan should be made general, because the gradients of a railway, though well known to enginemen long employed on any particular line, cannot be judged of by the eye; and this system which therefore, is not only useful to new enginemen, but acceptable to passengers, may tend to prevent accidents.

Accidents caused by Recklessness or Neglect; and Observations on Slips, which have rendered it necessary that the Up and Down Trains of Railways should use the same Line of Rails for the time being.—Several of the collisions of class No. 1 are attributable to the reckless driving of enginemen. Though perfectly aware of the fatal consequences attendant on over fast driving, or of otherwise neglecting the rules and regulations laid down for their guidance, some of the drivers and stokers of locomotive engines appear to have become so habituated to the perils of their calling, as at times to attempt a hazardous rate of speed, to neglect to keep a constant or careful look out, or to omit the precautions, upon the observance of which their own lives and those of the persons committed to their charge depend. Accidents from this cause have been more frequent during the last eight months of 1845 than at any former period—when no fewer than fifteen, nearly one-half of the whole number, thus occurred, three of which on the Eastern Counties railway happened in the short space of twenty-two days; viz., on the 18 of October and 9th of November. In reference to this subject, it may be observed that the demand for experienced enginemen far exceeds the supply, so that railway companies are sometimes forced into the alternative of taking into their employment persons of whose merit they are not perfectly assured, or of ceasing to run their engines, and for the same reason, the mere dismissal of men from a railway had ceased to be a punishment; so that, whenever persons or property have been seriously injured through such rashness or neglect, the prosecution of the enginemen in a court of law appears to be the only check. At the same time, it is due to this valuable class of men to state that as a body, they are attentive, sober and intelligent; that they have generally evinced intrepidity, presence of mind, and judgement, under circumstances of danger and difficulty, and that on long established and well regulated railways, the proportion of accidents that can be ascribed to their misconduct or neglect has been altogether insignificant.

Though the railways of the kingdom, in general, have not been materially injured by heavy rains or frosts during the period included in our present report, yet partial slips have occurred from time to time on several,

both in cuttings and embankments, which have rendered one line of rails impassable for the time being, and required the other to be travelled over slowly and with caution; and amongst the slips occasioned by the continued wet weather during the last 4 months of 1845, one of a most formidable character occurred at Morder Carrs, on the Newcastle and Darlington railway, where one line of rails was entirely swallowed up in a bog, and the other so much deranged, that for some time engines could not pass over it, and the carriages both of up and down trains were pushed over by laborers employed at the spot. The original lines of rails broken up or injured by this slip are now being permanently restored in a judicious and efficient manner by the engineers of the company, who in the mean time have provided for the safe passing of trains by a temporary line of rails in lieu of that which was the most injured. None of the slips alluded to caused any injury to persons, though it was necessary to use the same line both for the up and down trains on those railways where they took place—a more common occurrence than is generally supposed. Unless some casualty should be caused by, such an occurrence is seldom or never made known to the public, nor to this department, except when land beyond the company's boundary is required in consequence. We consider it desirable that for the future, official reports of all slips causing partial obstruction of one or both lines of rails whether attended with injury to persons or not, should be made by all railway companies to this department, as they are by some; and also, that the period of forwarding reports of accidents, already required by act of parliament, should be diminished from 48 to 24 hours; in many cases, the first intelligence received of such accidents has been not by official communication, but by the perusal of articles in the newspapers. Some railway companies have voluntarily adopted this practice, by forwarding reports of accidents as soon as they themselves were informed of them.

Extension of the Electric Telegraph on the Railways in England.—Important advantages of this Invention.—The electric telegraph, which was adopted only on the Blackwall railway, and on the portion of the Great Western railway from London to Slough, at the period of our last report, has since been established on the whole of the South Western railway, and on the South Eastern and its branches, as well as on a considerable part of the London and Birmingham line, and is either in progress or has been ordered on others, such as the Eastern Counties, Midland railway, etc., so that electro-telegraphic signals may now be made from London to Gosport, Southampton, Dover, Maidstone, and Canterbury, and in a short time the same system will be extended to Norwich and Yarmouth, and probably, also, from London to Liverpool, Manchester, Leeds, Hull and Newcastle, where the completion of a gap in the connecting chain, of about 20 miles only, between Blisworth and Rugby, remains as yet undetermined. This admira-

ble invention, by which intelligence may be communicated almost instantaneously between the most distant stations at all hours of the day and night, is calculated no less to promote the public interest than the public safety, by preventing accidents through collision on railways under unforseen circumstances, as we believe it has already done.

The Epsom Atmospheric Line.—Workmen are employed at the New Cross station, Kent road, in forming a cutting alongside the Croydon line, to form the above line, and in making an archway under the road, instead of a brick arch. The roadway is excavated, and the crown formed of massy iron girders, covered with large plates of the same metal.—The cutting a little beyond is through a very high hill. Several houses, and a great portion of a large nursery ground, will be cleared away to make room. The valley was formerly the bed of a small river, which was turned to form the Croydon line.

Mathematics as a Branch of Professional Study.

(Continued from page 422.)

Geometry Studied as a Rational Science.

The two classes of propositions which occur in the works of geometry generally, are sufficiently well marked in their characters to create no difficulty in discriminating them at a glance. The *problem* was, however, the earliest class of proposition, and originated in those *wants* of mankind, which required some particular processes to be performed; and the *theorem* would first take its rise from special observations upon relative positions of the lines employed in the construction of a problem; and, would, in fact, be a mere induction, such as we have in a former number of this series stated to be the ordinary mental habit of practical draughtsmen. That the Greeks obtained some crude notions of practical geometry from the Egyptians seems to be admitted on all hands, and Sir J. Gardner Wilkinson has insisted, somewhat strenuously, that the Egyptians possessed a profound knowledge of rational geometry. How far the worthy knight is himself competent to decide in an inquiry like this, is, however, a question that should be settled beforehand; and even if his own knowledge be admitted, (which it is not) there would still be wanting other proofs than the *scrawls* which he found in the catacombs and ruins, to show that the age of the Pharaohs was in geometry anything less empirical than the practical geometry of our own day. The subtle and analysing mind of the Greek appears to be the only one of ancient times that could grasp the abstract conception of space, and the principles which govern demonstration. Thus would arise, and thus did arise, the second form of proposition, the *theorem*, in its complete state as we now possess it. Our knowledge of the properties of figured space is more extensive than that of Euclid—especially as regards space of three dimensions—but our mode of investigating these properties, is not in any single particular superior to, or even different from, that which was employed in the school of Plato. Of course we are not here speaking of the application

of algebra to geometrical investigation; but even were we to take this into consideration, (which we shall do hereafter) it is very questionable whether, in reference to the class of readers to whom we especially address ourselves, the algebraic mode of investigation be not, *in practice*, inferior to the geometrical. At any rate, the discovery of the one pervading principle of geometrical demonstration is the parent of all the practical and theoretical knowledge of our times; and such is the law imposed upon the human mind by HIM who created it, that by no other means than this shall any man acquire a niche in the historic pantheon of geometrical discovery—or even become capable of efficiently and safely using the discoveries of others.

It is remarkable that the form of the proposition which was the latest discovered is the simplest in its character. The *theorem* alleges, that if certain geometrical magnitudes exist under specified relations, then a certain other specified relation will also inevitably and universally exist among those magnitudes.* The existing magnitudes and relations constitute the "hypothesis of the theorem;" and the stated consequence of the hypothesis is variously termed the "affirmation," "property," or "conclusion."

When the demonstration comes to be required, the general process is similar to that described in our last number; but there are classes of property that do not admit of the *direct* application of the theorems and axioms which can be brought to bear upon the proof, without at least greatly extending the number and complexity of the axioms, so as even to risk contradictions among them. The difficulty is avoided by proving that while the hypothesis is such as to impose *some relation* between the magnitudes under consideration, that relation can be no other than that which is affirmed in the proposition. The demonstration then proceeds to assume that a relation different from that which has been assigned, exists; and taking this as a truth, contemporaneously with the hypothesis, a series of inevitable consequences are deduced, till we arrive at a final one which admits of comparison with some part of the hypothesis.—If that final conclusion be incompatible with the hypothesis, the assumption which led to it must be erroneous; and hence it is erroneous to suppose the proposition itself to be other than true—or shaping the conclusion a little differently, it follows that the theorem, as enunciated, is true.

Euclid's first use of this method is in book I. prop. 4; where the absurdity to which the contrary conclusion is reduced, is, that two straight lines would inclose a space if the proposition were not universally and inevitably true. We meet with it again in props. 6, 8, 9, 11, (cor.) 14, 19, 25, 26, 27 and 29; while from the second book it is entirely absent. In third it reappears in props. 1, 2, 4, 5, 6, 9, 10, 11, 12, 13, 16, 18, 19, 23 and 27; while in the fourth again not a trace of it is

* This is the most frequent form; but it sometimes occurs that the affirmation takes the form of denying that a specified relation can ever exist among them.

found. The peculiarly happy and refined definition of proportional magnitudes in the fifth book enables Euclid generally to construct his argument in a direct form; but still where it becomes necessary to use the indirect mode of demonstration, he makes no scruple about doing so—as is evinced by his 9th proposition of that book. The sixth book, too, is almost free from the *reductio ad absurdum*—but in the eleventh and twelfth, especially the former, it is found to be very freely used. In all cases, however, it is only employed of necessity, never from choice; and it will be apparent upon looking over the subjects of the propositions where it does occur, that this necessity mainly exists for the establishment of the earlier and simpler properties of figures, and becomes unnecessary in the more advanced and recondite series of propositions. Thus, in the first book, it is used to establish the elementary properties of triangles and parallels; in the third, the elementary properties of circles; and in the eleventh, the elementary properties of intersecting lines and planes subjected to assigned hypothesis.

The contemplation of a very few of Euclid's demonstrations which are effected by this method, will render their character perfectly clear, and enable us to dispense with further remarks on the subject.

With regard to the *problem*, it will be seen that to merely devise a construction is not enough; we must know that the proposed construction does accurately fulfil the assigned conditions. In certain simple cases it requires little skill beyond the application of the common notions that grow up with us in the present state of society, to perceive how the construction may be effected. In such cases, however, these theorems themselves, (or common notions) are admitted and classed in our minds as facts; and we seldom proceed further in the matter than to *imagine* that we see the proof of the process as we go along. When, however, the problem is more operose and founded on principles more recondite, this resource fails us, and we are compelled either to become mere copyists of the process, or to possess a considerable number of properties of the figure in question, in order to devise the construction which is required. The ordinary constructions of Euclid are not very complex, neither are those which are usually given as exercises; and hence no specific contrivance would be necessary to assist the invention of a well trained mind, in the present supposed stage of a student's reading. The Greeks had, however, invented a mode of *analysis* by which great facility was conferred upon the investigation of methods for constructing intricate and difficult problems. As we shall probably devote one of our papers to this subject hereafter, we shall defer further remark on the method till then.

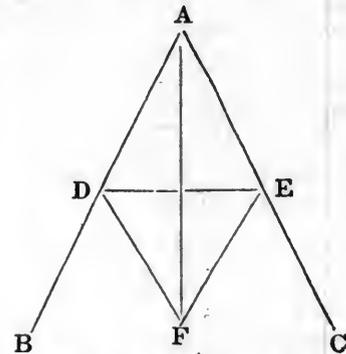
When the construction has been effected, the matter will stand thus:

The *data* (the things given from which to construct) and the lines, etc., introduced by the actual construction, are to be viewed as the *hypothesis of a theorem*; and the result-

ing figure, with its relations, as *the truths affirmed in that theorem*.

The "demonstration" of the truth of the construction then becomes identical with the demonstration of the theorem so enunciated.

Let us take, for instance, Euclid i. 9. We here see that after the construction has been performed, we have to prove the following theorem:



If the two lines, AB, AC, which meet in A, two points D and E; equally distant from A be taken, one in each line; and that if on DE an equilateral triangle DFE be constructed, and AF drawn, then AF will bisect the angle BAC.

Although the intervening operations between the data and the final thing required (*quasitum*) may be ever so numerous, this is still the state of the proposition at which we enter upon the demonstration.

It will very often happen both with the theorem and with the problem when transformed by the addition of its construction to the state of a theorem, that other lines and circles besides those actually existing in the hypothesis (or in the data and construction of the problem) will be required to facilitate the demonstration, and in not a few cases they become *essential*. The choice of these is subject to no rule, nor can any suggestions capable of general applications be offered. In this will often be shown the skill of the geometer as strikingly as in any part of his processes. We see it manifest often in Euclid's Elements—as for instance in i. 5 and 48, in iii. 37, and in iv. 10; but it is in more complex propositions that this kind of invention is most displayed. Every process of this nature should, however, be carefully stored up in the mind of the student; and he will find innumerable fine specimens of it in those older English periodicals which have been principally devoted to geometry.

Were we addressing those whose sole object in the study of geometry was intellectual exercise, we should strenuously urge upon them a considerable portion of *independent practice*, both in construction and demonstration; but upon the readers whom we actually and professedly address, we are bound to urge the same course still more strenuously. As well might a painter expect to become eminent from *only looking* at pictures, as a geometer to become capable of independent inquiry by merely reading and studying what others have done. Many collections of exercises, adapted to the student's purpose in

a greater or less degree, have been published; but they are not in general so arranged as to afford him convenient practice contemporaneously with his study of Euclid's text. The edition of Euclid, by Mr. Potts, which we reviewed a short time ago, appears to us well fitted, by its judicious arrangement of the exercises, for this purpose. The reader will gain facility in research, accurate habits and extended knowledge, at the same time. We would warn him, however, against the habit of "peeping into Bland or Cresswell for a hint" on the subject; and urge him to confine himself to his Euclid and the treasured results of his own investigations in all cases. Let him, too, not content himself with merely performing any given problem or demonstrating any given theorem; but rather keep his mind awake to the uses which may be made of the problem, or the other properties that may belong to his figure besides the one which has been enunciated in his theorem. It is this habit of close attention to all the properties of a figure, and to their systematic deduction one after another, that constitutes the inventive geometer, and gives such immense power in the application of mathematical science to practical purposes.

We have one remark more to make in connection with this subject. Euclid's geometry was essentially theoretical—the development of geometrical facts, not the construction of geometrical problems. Every problem that was solved was one subsidiary to the constructive part of the demonstration of a theorem, such as we have alluded to in a recent pamphlet; and it was only so introduced in order to justify every step of the demonstrative process. If we look at the problems of Euclid merely as practical processes, they are often inferior to others, given by subsequent writers who have had an immediately practical purpose in view. At the same time the great mass of our writers on practical geometry have satisfied themselves with merely copying Euclid's constructions, and adding a few others which the demands of the mere draughtsman rendered imperative. A good and really complete work on practical geometry remains to be written—one in which the most extended and the most refined geometrical research shall be brought to bear on the solution of graphic problems; and one at the same time in which every construction shall be attended by its rigorous demonstration, however recondite may be the principles on which it is founded. As an illustration of what we mean we shall refer to the chapter of geometrical problems in the 12th edition of Hutton, given by Professor Davies, where it will be seen that the problem is constructed irrespective of the place which its demonstration occupies in the range of theoretical geometry. That chapter, however, has upon its face, the marks of hasty composition, and the consequent want of symmetry and completeness, which we could wish had been given to it. Still it is the only work with which we are acquainted, that in any degree approaches to our own view of what such a work should be; and as the author of that chapter has of late years devo-

tedly attached himself to the geometry of engineering, it is much to be desired that he would himself finish the work which he has there begun, and give us such a complete system of practical geometry as should meet our real wants—at the same time attaching to each proposition and to each mode of construction its appropriate demonstration. We have no wish to see a series of mere processes however valuable, obtruded upon the profession, unless accompanied with undeniable demonstrations of the validity of the processes. We have heard, indeed, that Mr. Davies is now employed upon a work on Descriptive Geometry, in which a practical bearing is to be kept in view throughout; and we have no fear of the accuracy of its principles being frittered away in his hands to meet the prevailing taste of our country and our day.—He is too well known as a rigid disciplinarian in pure geometry to create anxiety on this head. Our main fear is the want of sufficient support from the public to encourage him to go to press. Even, however should this support be withheld, we are sure that such a work on plain geometry as we have pointed out, would be encouraged.

A CARD.

TO THE CITIZENS OF NEW YORK.

After a residence of over *twenty-one* years in this city, I find it for my interest to seek, in a neighboring city, a new home, where I hope to derive more ample reward for honest and unremitting industry and enjoy the satisfaction of knowing that my past labors have contributed somewhat to the general prosperity, if not materially to my own.

Having, for so long a period, participated in the excitements and activity of this growing city, and witnessed its prosperity and rapid advancement—yet without sharing largely in its enjoyments—I cannot leave it without regret, nor without acknowledging my obligations, and gratitude, to the many kind friends, who have at all times cheered and encouraged me on; but more especially to those *few* who so generously sustained me at a period when all was lost, save a determination to succeed.—Here I have labored for the general prosperity; and have the vanity to believe that the great destiny that awaits you has not been retarded by my efforts; *there* I shall provide the comforts required by the body—and therefore solicit in my new habitation, and new vocation, a continuance of your approval, and an increase of your patronage. I shall feel, while I labor for the wants of the outer man—while I provide and supply, in a superior manner, the comforts and social enjoyments of life—that I am but "laboring in the vocation" that contributes "the greatest good to the greatest number."

In the "FRANKLIN HOUSE," 105 Chestnut street, Philadelphia, heretofore kept by Messrs. J. M. SANDERSON & SON—my future residence after the 1st of July—I hope to meet many of those faces which, during a long residence here, have become familiar to me, and grasp many an honest hand, and exchange many a kind salutation, with warm and sincere friends.

The house is now undergoing a thorough renovation, and extensive improvements are to be made, by the addition of a convenient and well arranged *ladies ordinary*, a spacious new dining room for gentlemen, several new parlors, and many new and convenient lodging rooms. It will be newly painted

throughout, and mainly refurnished, and thus be placed on a footing with the best Hotels in Philadelphia. I shall be aided in its management, by Mr. JAMES M. SANDERSON, long favorably known as one of the gentlemanly proprietors of the FRANKLIN HOUSE, and as a caterer unsurpassed in the country; and also by the celebrated *Chef de Cuisine* PELLETIER, who has also been connected with the house during the past four years, and whose superior, as an *artiste* in his line, in this country, is yet to be found.

With such a house, and such aid in its management, I do not hesitate to say, to those friends and acquaintances who have known me during the past twenty years, and to others who have not, that they will find good accommodation, good fare, and all desirable attention to their wishes when they call at the FRANKLIN HOUSE, and upon their obedient servant,
D. K. MINOR.

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut, 1y10 near Third, Philadelphia.

NOTICE TO CONTRACTORS—SEALED proposals will be received at the office of the South Carolina Railroad Company until the 15th July, 1846, for the construction of the PILE or TRESTLE WORK, on the CAMDEN BRANCH RAILROAD across the Wateree River Swamp, distance to be piled three and three-quarter miles.

Plans and profiles will be exhibited on and after the 1st July, at the Engineer's Office, Camden, S. Carolina, where the requisite information may be procured; and an Assistant Engineer will be at Stateburg, to show the line to those interested.

For the convenience of those who cannot visit S. Carolina at this season, a profile may be seen at the office of the *Railroad Journal*, New York.

The timber will be furnished by the company at one end of the work, or at different points along the line.

The work to be commenced at latest on 1st November, and to be completed ready for the rails in six months.

The piles are expected to be driven by a steam engine, and the company may take one machine off the contractor's hands on the completion of the work.

Persons desirous of undertaking the above work, who may be unknown to the Engineer or Directors of the company, will be required to accompany their proposals with reference as to character and ability to perform the work, and if necessary to give good security.

Proposals will also be received at the same time, for the construction of a bridge across the Wateree River, upon "Burr's" plan, 200 feet in length, and spans not exceeding 100 feet in length, with a sliding draw of fifty feet opening. JOHN M'RAE, Engineer Camden Road.

RAILROAD IRON—1700 TONS VERY Best English Rails, ready to be delivered.—These Rails weigh 60 lbs., the lineal Yard, are 3½ inches deep; 4 inches deep at base; 2½ inches wide at top; 17½ feet long, except one-tenth of 15 and 12½ feet in length.

A first rate Steam Pile Driver built by "Dunham & Co.," has never been in use, is in perfect order, and for sale a bargain; also 12 Railway Passenger Cars that have never been used, which will be sold very low. DAVIS, BROOKS & CO., June 1. 30 Wall Street.

WILLIAM R. CASEY, Civil Engineer, New York. Address Box 1078, Post-office, New York. 21

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 fe. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side o Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ½ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by MORRIS, TASKER & MORRIS. Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture! and for sale by

MORRIS TASKER & MORRIS, Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

LAP—WELDED WROUGHT IRON TUBES

FOR **TUBULAR BOILERS,** FROM 1 1-2 TO 5 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee.

23 Platt street, New York.

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

For sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP, 75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.				HEMPEN ROPES.				CHAINS.		STRENGTH.
Wire gauge number.	Circumference of rope.	Weight per fathom.		Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	Tons.	
	INCH.	LBS.	OZ.	INCH.	LBS.	OZ.	LBS.	INCH.		
11	4½	13	5	10	24	-	50	15-16	20	
13	3½	8	3	8½	16	-	27	11-16	13½	
14	3½	6	11	7½	12	8	17	9-16	10½	
15	2½	5	2	6½	9	4	13½	1-2	7½	
16	2½	4	3	6	8	8	10½	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.

PETER COOPER, 17 Burling Slip. New York, January 23d, 1846. 1y 10

RAILROAD IRON—500 TONS OF 67 LBS. per yard—5 inches high—of the double headed pattern, which is now wholly used in England—now on the passage, and a further quantity will be contracted for. Also

500 tons T pattern, 56 lbs. per yard. for sale by BOORMAN, JOHNSTON & CO. 119 Greenwich street. 4t24

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long. 25 " 2½ x ½ " Flange Iron Rails. 75 " 1 x ½ " Flat Punched Bars for Drafts

in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, Albany Iron and Nail Works, 1y

CALIGRAPHIC BLACK LEAD PENCIL, Manufactured by E. Wolff and Son, 23 Church Street, Spitalfields, London.

The Caligraphic Pencils have been invented by E. Wolff and Son, after the expenditure of much time and labor. They are the result of many experiments; and every effort that ingenuity and experience could suggest, has been made to insure the highest degree of excellence, and the profession may rely upon their being all that can be desired.

They are perfectly free from grit; and for richness of tone, depth of color, delicacy of tint, and evenness of texture, they are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use.

The Caligraphic Pencils will also recommend themselves to all who use the Black Lead Pencils as an instrument of professional importance or recreation, by their being little more than half the price of other pencils.

An allowance will be made on every groce purchased by Artists or Teachers.

May be had of all Artists, Colourmen, Stationers, Booksellers, etc.

A single pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

Caution.—To prevent imposition, a highly finished and embossed protection wrapper, difficult of imitation, is put around each dozen of Pencils. Each Pencil will be stamped on both sides, "Caligraphic Black Lead, E. Wolff and Son, London."

The subscriber has on hand a full supply of Wolff and Sons celebrated Creta Loevis, or Colored Drawing Chalks, also their pure Cumberland Lead and extra prepared Lead Pencils, and Mathematical Lead Pencils.

P. A. MESIER, Stationer and Sole Agent, No. 49 Wall Street.

N. B.—A complete assortment of Steven's Genuine Inks, Fluids, Imitating Wood stains, and Graining Colours at the Manufacturers prices. 19f

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers, etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co, Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.
Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

* * Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.
ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

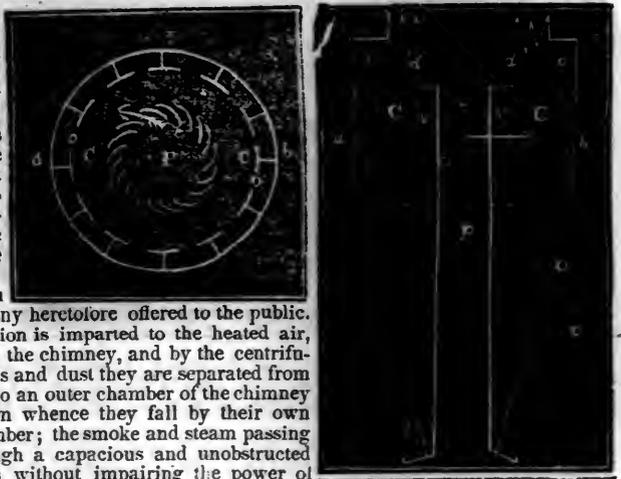
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and P. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

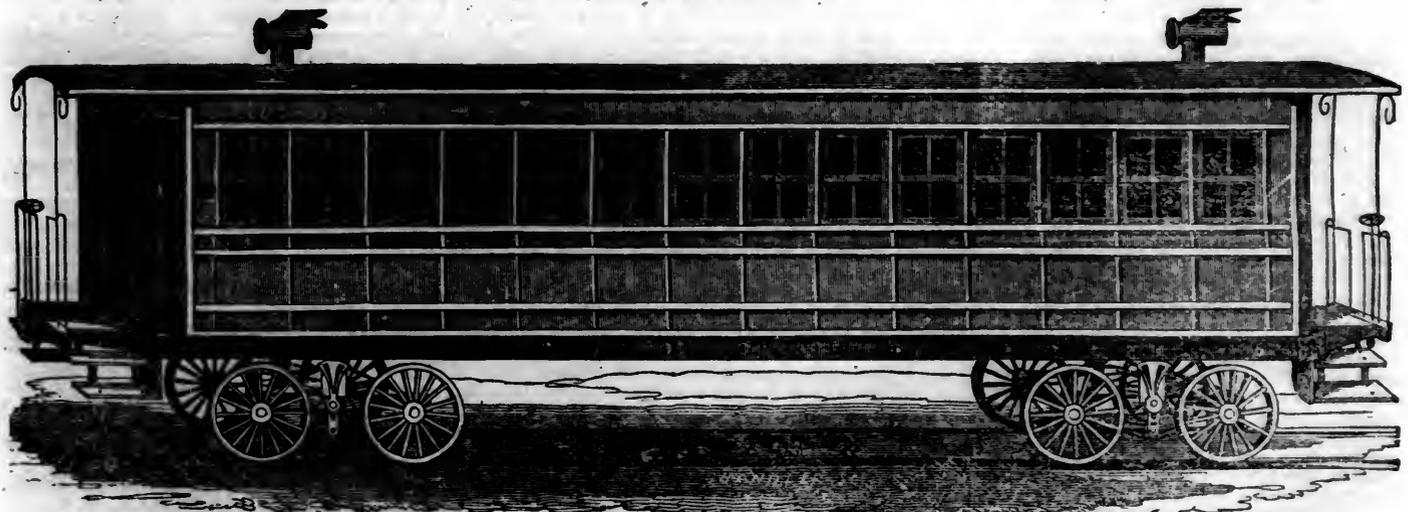
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

* * The letters in the figures refer to the article given in the Journal of June, 1844. ja45



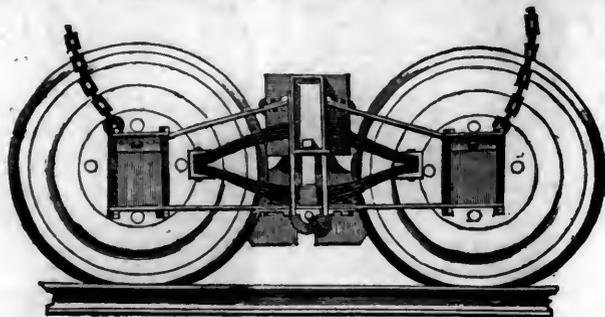
BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco Pressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes. 1y1

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Supt Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

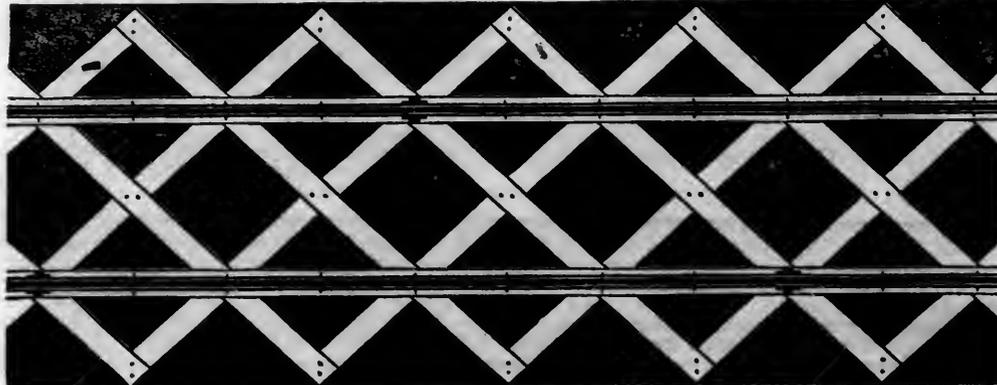
Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Supt's Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON,

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum...	5 00

ENGINEERS and MACHINISTS.

- THOMAS PROSSER, 28 Platt St. N.Y. (See Adv.)
- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- PHENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

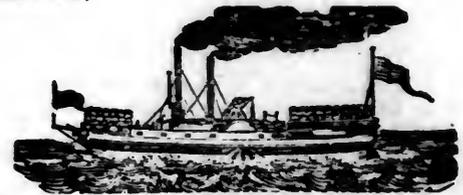
AMERICAN RAILROAD JOURNAL,

AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 29;

SATURDAY, JULY 18, 1846.

[WHOLE No. 526, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m. Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m. Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7-20 a.m. and 3½ p.m. All baggage at the risk of the owners thereof. 31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD AND STAGES CONNECTING with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846. Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 32 ly J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846. On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows: Boston for Portland at 7½ a.m. and 2½ p.m. Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m. Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m. Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m. Portland for Boston at 7½ a.m., and 3 p.m. Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m. Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given; and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, *Super't.*

TROY AND GREENBUSH RAILROAD. Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at 6½ A.M.	Leave Albany at 7 A.M.
" " 7½ "	" " 8 "
" " 8½ "	" " 9 "
" " 9½ "	" " 10 "
" " 10½ "	" " 11 "
" " 11½ "	" " 12 M.
" " 1 P.M.	" " 1½ P.M.
" " 2 "	" " 2½ "
" " 3 "	" " 3½ "
" " 4 "	" " 4½ "
" " 5 "	" " 5½ "
" " 5½ "	" " 6 "
" " 6½ "	" " 7 "

The 6½ a.m. and 2 o'clock p.m. runs from Troy, to Boston runs.

The 12 m. and 6 o'clock p.m. trains from Boston runs.

Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT, Superintendent.

Troy, April 1st, 1846.

14 ly

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M. " Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M. " Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts.

H. C. SEYMOUR, *Sup't.*

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 ly

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4, 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams' Bridge trains will be regulated according to the state of the weather. 18

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846.. Spring Arrangement.. 1946
Commencing April 1st.

Passenger trains leave daily, Sundays excepted—
Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6½ " and 2½ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
Leave Boston at 7½ a. m.; arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.
Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Boston and New York, via Springfield: Passengers leaving Boston at 4 p. m., arrive in Springfield at 8 p. m., proceed directly to Hartford and New Haven, and thence by steamers to New York, arriving at 5 o'clock a. m.

For Buffalo: the trains for Buffalo leave Albany at 7½ a. m. and 7 p. m., arriving at Buffalo at 8 a. m. and 8 p. m. next day. Returning, arrive at Albany at 4 a. m. and 4 p. m.

New York and Boston, via Albany: the trains from Boston arrive at Albany in season for the 7 o'clock boats to New York; Returning, the boats, leaving New York at 5 and 7 p. m., reach Albany at 5 a. m., in ample season for the morning trains to Boston.—Steamboats also leave Albany at 7 a. m. and 5 p. m. and stop at the usual landing landing places upon the river.

The trains of the Springfield, Hartford and New Haven railroad, connect at Springfield, and passengers from Albany or Boston proceed directly on to Hartford and New Haven.

Montreal: through tickets to Montreal may be obtained in Boston, by which passengers may proceed to Troy, and thence by stage via Chester, Elizabeth, etc., and in the season of navigation by canal to Whitehall, and thence by the splendid steamers of Lake Champlain to St. John, via Burlington, and thence by railroad and steamers to Montreal.

The trains of the Hudson and Berkshire railroad connect at Chatham and State Line.

The Housatonic railroad connects at State Line. The trains of the Connecticut River railroad connect at Springfield, and passengers may proceed without delay to Northampton, and thence by stage to Greenfield, Brattleboro, Bellows Falls, Hanover, Haverhill, etc.

Stages leave West Brookfield for Ware, Endfield, New Baintree and Hardwick; also leave Palmer, for Three Rivers, Belchertown, Amherst, Ware and Monson; Pittsfield for North and South Adams, Williamstown, Lebanon Springs, etc.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES,
Superintendent and Engineer.

Western Railroad Office,
Springfield, April 1, 1846. } 14 1y

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a. m., and 2 p. m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a. m. and 2 p. m. Distance, 28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a. m. from Lexington, and 2 o'clock p. m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a. m. from Lexington, and ma. 9, from Frankfort, other hours as above.

351y

BALTIMORE AND OHIO RAILROAD.

MAIN STEM. The Train carrying the

Great Western Mail leaves Bal-

timore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburg and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y

BALTIMORE AND SUSQUEHANNA

Railroad. The Passenger train runs daily

except Sunday, as follows:

Leaves Baltimore at 9 a. m., and arrives at 6½ p. m. Arrives at York at 12½ p. m., and leaves for Columbia at 1½ p. m. Leaves Columbia at 2 p. m., and leaves York for Baltimore at 3 p. m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62½. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3½ p. m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc.

Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a. m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day any passenger train.

D. C. H. BORDLEY, Sup't.

31 1y Ticket Office, 63 North st.

GREAT SOUTHERN MAIL LINE! VIA

Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P. M., Philadelphia at 10 P. M., and Baltimore at 6½ A. M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00
" " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to 1y14 STOCTON & FALLS, Agents.

RAILROAD IRON.—THE "MONTOUR

Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sta. 43 1y

SOUTH CAROLINA RAILROAD.—A

Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50
Fare through from Charleston to Huntsville, Decatur and Tusculumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent.

GEOURGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHICALGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenania River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot.....16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs..... 95 "
" Sugar, coffee, iron, hardware, etc..... 65 "
" Flour, bacon, mill machinery, grindstones, etc..... 33½ "
" Molasses, per hoghead \$9-50; salt per bus. 20 "
" Ploughs and cornshellers, each..... 75 "
Passengers \$10-50; children under 12 years of age half price.

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,

Ch. Eng. and Gen. Agent.

Augusta, Oct. 21 1845 *44 1y

CENTRAL RAILROAD—FROM SAVANNAH TO MACON. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight.

Rates of Passage, \$8 00. Freight—
On weight goods generally... 50 cts. per hundred.
On measurement goods..... 13 cts. per cubic ft.

On brls. wet (except molasses and oil).....\$1 50 per barrel.
On brls. dry (except lime).... 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.

On hhds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.

On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, 40 Gen'l. Sup't. Transportation.

THE WESTERN AND ATLANTIC

Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,

Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 1y17

LITTLE MIAMI RAILROAD.—1846.—
Summer Arrangement.

Two passenger trains daily. On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1 1/2 p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m. On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m. Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield. Tickets may be procured at the depot on East Front street. The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount. **W. H. CLEMENT,** Superintendent.

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions.

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains; except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. **G. A. NICOLLS,**

Reading, Pa. ja45

RAILROAD SCALES.—THE ATTEN- tion of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT, Factory, 9th street, near Coates, cor. Melon st. Office, No. 3 North 5th street, Philadelphia, Pa. 1y25

MARAMEC IRON WORKS FOR SALE.

By Authority of a power of Attorney from Messrs. Massey and James, I will sell at Public Auction, at the Court House in the city of St. Louis, on **MONDAY, the 2nd day of November next,** the above named valuable **IRON WORKS**—together with **8,000 ACRES OF LAND,** more or less, on which there are several valuable and productive Farms open and in cultivation.

The Maramec Iron Works are situated at the Maramec Big Spring, in Crawford Co., Mo., and consist of **1 BLAST FURNACE; 1 AIR FURNACE; 1 REFINING FORGE,** with large Hammer for making Blooms and Anchovies; **2 CHEFFERY FORGES** for Drawing Bar Iron; **1 ROLLING MILL** for Rolling Blooms into Bars and Plates; **1 SAW AND 1 GRIST MILL,**

All within 300 Yards of the head of the spring. There are 2 large frame Coal Houses, and all other Buildings necessary, such as Shops and Houses for the workmen.

This Spring is one of the largest in Missouri, discharging at the lowest time 7,000 cubic feet of water per minute. The Ore Bank from which the Ore has been heretofore taken is about 600 yards from the furnace; it is the *Specular Iron Ore*, the best for making Bar Iron, and the quantity inexhaustible.—It is an Iron Mountain, 400 feet above the level of the Maramec River; the ore is entirely uncovered, and there is an easy descent and a good road from it to the furnace.

The lands have been carefully selected by one of the owners with a view to the interest and convenience of the Works, and are situated principally on the Maramec River and its tributaries, embracing the best bottom lands and water powers. The following detached tracts, comprized in the above quantity, were selected for the advantages they possess;

183 1/2 ACRES in T. 40 N. of R. 8 W. in Sec. 3, near Wherry's Mill, in Osage Co.; entered to secure a very valuable Mill power on the Branca Spring and a good landing on the Gasconade River.

80 ACRES on Benton's Creek, 12 miles from the Works; entered to secure an extensive and valuable Ore Bank 2 1/2 miles from the Maramec, at a point where there is ample water power.

320 ACRES in T. 38 N. of R. 4 W. in Sec. 22 and 28, affording an extensive and valuable water power on the Maramec river.

160 ACRES in T. 37 N. of R. 3 W. in Sec. 4, embraces two inexhaustible and valuable Ore Banks and is 1 1/2 miles from Water power sufficient for a furnace and Grist Mill, and is distant 6 miles from the above site on the Maramec.

80 ACRES in T. 37 N. of R. 8 W. in Sec. 33, including an extensive bank of excellent Ore, and distant 1 1/2 miles from water power on the waters of the Gasconade River, in Pulaski Co., sufficient for Furnace and Mills. All those Banks are of the same kind as the one at the Works, and deemed inexhaustible.

1 LOT, containing nearly one Acre, on the South Bank of the Missouri River, 4 Miles above the town of Hermann, purchased for a warehouse and

landing, and is one of the best landings on the River.

The lands above described are well timbered, and have been selected with a view to have an ample supply of wood and coal, for fences, building and other purposes. There are on the land valuable quarries of Limestone well adapted for Fluxes for the Ore, and also good quarries of Rock suitable for building. There are also on the land a great number the finest kind of Springs. A large portion of the lands are bottoms well adapted to the production of Corn and other crops. The Works are situated in a very pleasant and healthful part of the country. The Maramec ore is believed to be admirably adapted to the manufacture of steel.

A further description of the property at this time is considered unnecessary, as those wishing to purchase will no doubt view the property, which will be shown by the Agent, residing at the works.

The terms of payment required will be one-third of the purchase money in hand and the balance in three equal annual payments, secured by mortgage on all the property.

A more particular description of the property will be given, and further conditions of the sale made known, on the day of sale.

JNO. F. ARMSTRONG, Agent. St. Louis, June 6, 1846.

The Louisville, (Ky.,) Journal, Cincinnati Gazette, Tribune (Portsmouth, O.,) Nashville Whig, Pittsburg Gazette, National Intelligencer, United States Gazette, (Phila.) Railroad Journal (N. Y.,) and Boston Atlas, will publish the above once a week until the 20th day of October next, and send bills to this office for settlement, and mark price on first paper. 18r25

THE SUBSCRIBERS, AGENTS FOR

the sale of Codorus, Glendon, Spring Mill and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L. KIMBER, & CO., 59 North Wharves, Philadelphia, Pa. Jan. 14, 1846. [1y4]

TO RAILROAD COMPANIES AND MAN-

ufacturers of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. **THOMAS & EDMUND GEORGE,**

ja45 N. E. cor. 12th and Market sts., Philad., Pa.

KEARNEY FIRE BRICK. F. W.

BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, } New York.
Peter Cooper,
Murdock, Leavitt & Co. }

J. Triplett & Son, Richmond, Va.
J. R. Anderson, Tredegar Iron Works, Richmond, Va.

J. Patton, Jr. } Philadelphia, Pa.
Colwell & Co. }

J. M. L. & W. H. Scovill, Waterbury, Con.
N. E. Screw Co. } Providence, R. I.
Eagle Screw Co. }

William Parker, Supt. Bost. and Worc. R. R.
New Jersey Malleable Iron Co., Newark, N. J.
Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly. 35 1y



RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATTLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched

by extreme heat. RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138 1/2 Water st., N. Y.

Also by Isaac Bridge, 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street Charleston, S. C.

16 1/2

CUSHMAN'S COMPOUND IRON RAILS.

etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
Albany, N. Y.

Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

RAILROAD IRON AND LOCOMOTIVE

Tyres imported to order and constantly on hand by
A. & G. RALSTON
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING

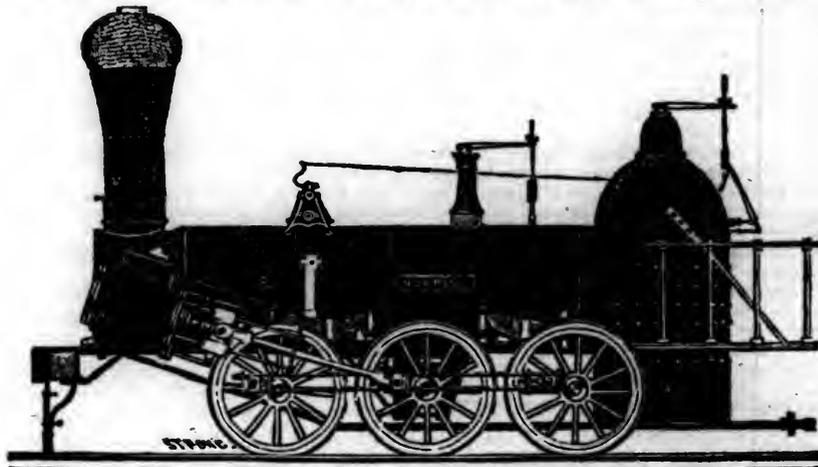
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,
President of the Newcastle Manuf. Co.

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1	1 1/2	inches Diameter of Cylinder	× 20 inches Stroke.
"	2,	14	"	× 24 " "
"	3,	14 1/2	"	× 20 " "
"	4,	12 1/2	"	× 20 " "
"	5,	11 1/2	"	× 20 " "
"	6,	10 1/2	"	× 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels for Trucks of Locomotives, Tenders and Cars

NORRIS, BROTHERS

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,
45 North Water St., Philadelphia,
or by their Agent, ROBT. NICHOLS,
79 Water St., New York.

RAILROAD IRON—1700 TONS VERY Best English Rails, ready to be delivered.—These Rails weigh 60 lbs., the lineal Yard, are 3 inches deep; 4 inches deep at base; 2½ inches wide at top; 17½ feet long, except one-tenth of 15 and 12½ feet in length.

A first rate Steam Pile Driver built by "Dunham & Co.," has never been in use, is in perfect order and for sale a bargain; also 12 Railway Passenger Cars that have never been used, which will be sold very low. DAVIS, BROOKS & CO.,
June 1. 30 Wall Street.

ENGINEERS' AND SURVEYERS'
INSTRUMENTS MADE BY
EDMUND DRAPER,
Surviving partner of
STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut,
1y10 near Third, Philadelphia.

PATENT INDESTRUCTIBLE WATER Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly *indestructible*. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 23rd
J. BALL & CO.

WILLIAM R. CASEY, Civil Engineer.
New York. Address Box 1078, Post-office.
New York. 21

A CARD.

TO THE CITIZENS OF NEW YORK.

After a residence of over *twenty-one* years in this city, I find it for my interest to seek, in a neighboring city, a new home, where I hope to derive more ample reward for honest and unremitting industry and enjoy the satisfaction of knowing that my past labors have contributed somewhat to the general prosperity, if not materially to my own.

Having, for so long a period, participated in the excitements and activity of this growing city, and witnessed its prosperity and rapid advancement—yet without sharing largely in its enjoyments—I cannot leave it without regret, nor without acknowledging my obligations, and gratitude, to the many kind friends, who have at all times cheered and encouraged me on; but more especially to those few who so generously sustained me at a period when all was lost, save a determination to succeed.—

Here I have labored for the general prosperity; and have the vanity to believe that the great destiny that awaits you has not been retarded by my efforts; *there* I shall provide the comforts required by the body—and therefore solicit in my new habitation, and new vocation, a continuance of your approval, and an increase of your patronage. I shall feel, while I labor for the wants of the outer man—while I provide and supply, in a superior manner, the comforts and social enjoyments of life—that I am but "laboring in the vocation" that contributes "the greatest good to the greatest number."

In the "FRANKLIN HOUSE," 105 Chestnut street, Philadelphia, heretofore kept by Messrs. J. M. SANDERSON & SON—my future residence after the 1st of July—I hope to meet many of those faces which, during a long residence here, have become familiar to me, and grasp many an honest hand, and exchange many a kind salutation, with warm and sincere friends.

The house is now undergoing a thorough renovation, and extensive improvements are to be made, by the addition of a convenient and well arranged *avies* ordinary, a spacious new dining room for gentlemen, several new parlors, and many new and convenient lodging rooms. It will be newly painted throughout, and mainly refurnished, and thus be placed on a footing with the best Hotels in Philadelphia. I shall be aided in its management, by Mr. JAMES M. SANDERSON, long favorably known as one of the gentlemanly proprietors of the FRANKLIN HOUSE, and as a caterer unsurpassed in the country; and also by the celebrated *Chef de Cuisine* PELLETIER, who has also been connected with the house during the past four years, and whose superior, as an *artiste* in his line, in this country, is yet to be found.

With such a house, and such aid in its management, I do not hesitate to say, to those friends and acquaintances who have known me during the past twenty years, and to others who have not, that they will find good accommodation, good fare, and all desirable attention to their wishes when they call at the FRANKLIN HOUSE, and upon their obedient servant,
D. K. MINOR.

Mails upon the English Railways.

Government has agreed to pay the Chester and Holyhead railroad for the carriage of the mails £30,000 annually for five years, to continue seven years longer if they do not pay a dividend of 5 per cent. and never to be less than 1s. 2 1-16d. per mile.

We need not wonder then at the enormous works undertaken upon this route, as shown in the extract below. The length of the road is 84 miles.

Chester and Holyhead.—The progress of the work in forming this line excites great interest, owing to the gigantic character of the cuttings, viaducts, and tunnels. The most important works are those in operation between Weeg, to the Menai straits, facing the Britannia rock, where Stephenson's iron tunnel is to bridge the Menai. The contract between those distances, nearly 12 miles in length, and passing through the great Bangor and Carnarvon mountains, is being executed by Messrs. Thomas Jackson and son. Workmen are busily engaged in almost every part of the line. There are no fewer than three tunnels in the contract, the completion of which will occupy two years and a half. The first runs under Llandegai hills, commencing at the west end of what is

termed Ogwen cutting, and its length is 440 yards. A heading has been made through it, and bricklayers are employed lining it with brick work. The shafts are completed. The next tunnel passes under the Bangor mountains at a depth varying from 160 feet to upwards of 200, and its length is nearly 1,000 yards. Here the work is excessively laborious—the tunnel having to be cut through solid rock, chiefly of iron slate, the dislodgment being entirely effected by blasting, consequently great care has to be exercised.—The whole of this range of mountains consists of rocks to the summits, not more than two feet of earth being found over any portion of them. The headings are in a very advanced state, and nearly all the shafts finished. The third tunnel is under the Ffriddsedd, or Carnarvon mountains; it has four shafts, and is to be 720 yards long. The work is equally severe, passing through rock of the same description as that at Bangor tunnels. Only the first named tunnel will be bricked in; the other two will remain in the natural state as cut through. The line is carried over the Ogwen and Cegin river and valley by two extensive viaducts. The former, over the Ogwen, consists of 24 arches of masonry, the centre arches being 35 feet in height; that over the Cegin and valley, has nine arches, 62 feet above the level of the stream, and about 200 yards in length. The foundations of the buttresses of the arch are laid 35 feet deep. The other works are progressing satisfactorily.

Glasgow Electric Clock.—The public is aware of Mr. Bain's invention of the electric clock, which derives its motive power from currents of electricity in the earth. Mr. Bain has invented and patented another kind of electric clock, which we had the pleasure of examining on Wednesday, when it was exhibited here by the inventor to a few scientific gentlemen—the clock being in Glasgow, and the pendulum in Edinburgh! By means of the electric telegraph along the railway, constructed by Mr. Bain, he intimated his wish that the pendulum at the other end of the line should be put in motion. The answer was given with the rapidity of thought: for the machinery in the clock instantly began to move. To be more particular—the clock was placed in the station house in Glasgow; the pendulum belonging to it in the station house in Edinburgh—the two being 46 miles apart. They were joined by means of the wire of the telegraph, in such a manner as that, by a current of electricity, the machinery in the clock in Glasgow was made to move correctly according to the vibrations of the electrical pendulum in Edinburgh. Thus when the pendulum in Edinburgh moved to the left, a magnet in the clock in Glasgow moved to the left; and when the pendulum moved to the right, the magnet likewise moved to the right, the movement being produced instantaneously by the rush of the electric current along the wire. The motions of the pendulum in Edinburgh being thus faithfully represented by the magnet in the clock, time was accurately kept, and indicated on the dial in the usual way. - The same result

could, at one and the same time, have been produced in a clock at the Linlithgow, and another at the Falkirk station, as well as at the Glasgow terminus; that is to say, the Edinburgh pendulum could have equally regulated all the three, which would thus have moved together like one machine. In like manner, Mr. Bain informs us, were the telegraphic wires extended over the whole of Scotland, and every railway station or town on the line had its own electric clock, the pendulum at Edinburgh would propel and regulate them all. And still further, were England and Scotland united in one grand chronometrical alliance, a single electrical pedulum of this description, placed in the observatory at Greenwich, would give the astronomical time correctly throughout the whole country.—*Scotch Reformers' Gazette.*

Speed and Power of the Locomotive, the 'Great Western.'—We noticed, in last week's Journal, the performance of a powerful new locomotive engine, built by the Great Western railway company, which, we are informed, is incorrect in several essential particulars. It is there stated that the engine and tender weigh "56 tons," and that it was ascertained the engine could, with a load of 140 tons, travel at the average speed of 55 miles per hour. This is incorrect. The engine and tender, taking the average weight of the latter with her complement of water and coke over the whole distance run, weigh 43, and not 56 tons; and the average speed to and from Swindon, deducting time lost in stoppages, was 50 and not 56 miles per hour.—Our notice states that the engine, without her water, weighs 36 tons, whereas it is, with water, 28½ tons only. Her maximum speed, with the 140 tons, on a falling gradient of 4 feet per mile, was 26 miles per hour. But the trip in question was an experimental one, for the purpose of ascertaining how the engine would work with a heavy passenger load. It was found that the engine did not work at the required pressure; the blast pipe was therefore reduced, and she is now in very good working order. She has since carried the ordinary express train to Exeter, 194 miles, in 183 minutes, or at a rate of 63 miles per hour; but even this does not fairly show the vast capabilities of this extraordinary machine. Excluding the comparatively slow rate at which the train runs down the inclines and the loss of time in arriving at and leaving stations, the average rate of travelling will be from 63 to 69 miles per hour. On Thursday, the express train, weighing 90 tons, and worked by the same engine, travelled from Didcot to Paddington, 53 miles in 51 minutes—that is, from station to station. The speed between the 47th and 2d mile posts averaged 70 miles per hour; and yet a few years since the world was unwilling to believe that 20 or 30 tons could be taken at 13 miles per-hour by a locomotive. Learned men ridiculed the absurdity of the proposition. They lectured and wrote with great display of scientific knowledge about adhesion and the resistance of the wind, and demonstrated "by mathematical data" that it was absolutely impossible to reach a velocity

of 20 miles an hour with 20 or 30 tons.—Such is the correctness of human calculations, as proved in practice; and who shall say that even now we have arrived at the maximum safe speed of transit—already have we beaten the bird and the race-horse in speed, with enormous weight, and equalled the lightning's flash in transmitting intelligence; and science may have yet in store for us materials which will cause posterity to regard our present discoveries, as only the simple elements of knowledge.—*Atmospheric Railway Gazette.*

Miscellaneous Items.

The Delaware and Raritan canal, and Camden and Amboy railroad and Transportation co., have declared a semi-annual dividend of 5 per cent., payable on the 17th inst.

The Louisa (Va.) railroad has declared a dividend of 3 1-2 per cent.

The work upon the Cheshire railroad, is, let with the exception of a short distance through Keene, from Ashburnham to a point about 2 miles south of the village of Walpole. This road is going on well, and although many parts of it will be very costly on account of the great quantity of rock cutting; we hope to see it in successful operation in the course of 1847.—This is the most expensive work of the kind for the distance, now in progress in New England. If however, it can be made to connect with the road, the stock will be profitable.

Our Railroad.—The engineer of the Rutland road, Mr. Gilbert and his assistants, having as we understand, finished the survey from Middlebury to Burlington, are proceeding on to Rutland. This survey, we understand from Mr. G., is nearly final for the contracts. Judge Follet is now at the east awaiting the decision of the New Hampshire commissioners as to the terminus of the Cheshire road. Should this be satisfactory, the strongest hopes may be indulged that the first assessment will be cheerfully paid, and the grading commenced this season. But should not a conjunction with the Cheshire be agreed upon, and the friends of the Rutland road be obliged to look to another quarter for assistance, there are strong reasons for believing that it can be obtained, and to an amount which will place the success of the road beyond a peradventure. Despair is actually out of the question. Western Vermont has decreed that she will have a railroad from some quarter, although patience may have a tolerable work to do before it is accomplished.—*Northern Galaxy.*

Railroad Matters.—The legislature of New Hampshire has granted a charter to the Claremont people for a railroad to connect with the Vermont Central at Windsor, and run to the northern termination of the Cheshire road.—This seems to suspend the necessity of extending the Central road below Windsor, and well accommodates the business of Claremont, which has already become a pretty important manufacturing town and will doubtless have that part of its business vastly increased after the opening of the railroad.—*Watchman and Journal.*

Connecticut and Passumpsic Railroad.—Engineers are employed in making a locating survey, between Wells river and St. Johnsbury. The St. Johnsbury Caledonian states that the survey below Wells river to Orford has been completed, and a portion of the section is to be put under contract forthwith. The

whole survey of the route, to Derby line, is to be completed this season.—*Boston Courier.*

Saxonville Branch Railroad.—The celebration of the 4th, and of the opening of railroad to Saxonville, took place with great eclat on Saturday last. The procession formed at 11 o'clock, on Chapel hill, under the escort of the Framingham volunteers, and marched to the depot to greet, on the arrival of the cars, the invited guests, the president and directors of the Manufacturing and Worcester railroad companies.

Speeches were made by the president of the day, the president of Worcester railroad, and others.

Of the many villages rapidly rising to notice and importance in the vicinity of Boston, under the influence of Yankee enterprise and manufactures, Saxonville is one of the most thriving. The population of the village is rapidly increasing, and already numbers 2,000 within 3-4ths of a mile from the centre. The completion of the railroad has given a new impetus to business, and promises still further to increase the importance and growth of the place. The engineers and others engaged in the Long Pond water works have been unable to lease dwellings here. Every tenement is taken.—*Boston Traveller.*

Worcester and Nashua Railroad.—At the annual meeting of the stockholders of this corporation, a vote was passed instructing the new board to suspend all operations on the road, and the treasurer to pay all the debts of the company, and to hold the balance of the property in trust till the sum of \$700,000 shall have been actually and unconditionally subscribed.

Norwich and Worcester Railroad Company.—The following gentlemen were elected directors of this company, on the 8th instant, viz: John C. Holland, John A. Rockwell, Wm. P. Greene, Daniel L. Trumbull, of Norwich; Alexander DeWitt, of Oxford; Amos Binney, Wm. Ward, Richard S. Fay, Franklin Haven, of Boston; Wm. Aug. White, Joshua N. Perkins, Elisha Townsend, of New York.

At a subsequent meeting of the board, John C. Holland was unanimously re-elected president.

Hartford.—\$100,000 was subscribed at Hartford to the stock of the Hartford and Bristol railroad, the day the books were opened.

\$40,000 of the stock of the Hartford, Danbury and New York railroad, was subscribed by three gentlemen of Hartford, and it was supposed many others would follow the example, though perhaps not in amount.

New York and Erie Railroad.—The commissioners appointed to locate the route for the New York and Erie railroad in the counties of Sullivan and Broome, are to meet for that purpose as follows: In Monticello, on the 5th of August; at Harpersville 10th of August; and in Binghamton on the 12th of August.

Atlantic Railroad, and Mail Route.—We perceive that the town council have called a meeting of the citizens of the town and the adjacent districts, for Monday, the 6th day of July, for the purpose of considering the propriety of petitioning the legislature for a renewal of the charter of the "All Saints and Charleston railroad company." We hope the meeting will be well attended from all the parishes. The day has arrived when the people in this section of the state need to be up and doing, if they ever intended to move in the matter. The recent meeting at Sumpterville

was an enthusiastic one, and was well responded to by the people of Darlington, and others interested in having a road connect with the Camden route—and the stockholders in a meeting at Wilmington on the return of their Summer delegation, were much elated at the prospect of connecting their road with that of Charleston, even by the circuitous route proposed.

We again repeat that nature seems to have graded the face of the country from Wilmington to Hob-Caw point, now Allston's, 2 miles below this town, a distance of 110 miles without the obstacle of a single river, except the Cape Fear, at the town of Wilmington. The Wilmington company can and will bring their road to the South Carolina line, Georgetown and All Saints can bring it to Georgetown, and St. James, Santee and the company will take it to Charleston—and thus complete the Atlantic route. The stock in such a road will be as good as any in the country. Let us lose no time in obtaining a renewal of our charter. If we are superseded by a charter by war of Darlington, we are thrown back in our work a quarter of a century.—*Georgetown (S. C.) Observer.*

A Grand Work.—In a month the Macon and Western railroad will be in operation its entire length to Atlanta. "There will then be (says the Savannah Republican) a connected line of communication from Savannah, a distance of three hundred and seventy-two miles, stretching diagonally across the state to the Oostenaule river, within 40 miles of the Tennessee line. This road passes through many of the most populous and wealthy counties of the state. It will secure (or rather ought to secure) to Savannah, the trade of nearly all middle and Western Georgia and eastern Alabama, and will enable our merchants to compete for that of the northwestern counties, as well as of east and middle Tennessee and north Alabama."

Railroad Break.—Lyman A. Gouch of Springfield has invented an improved break for railway cars. The breaks may be applied to the locomotive and every car in the train, at once, and by one man—by the engineer or by another person. It appears to be similar to an invention recently noticed in New York. It is stated that Mr. G. has also invented a new rail and a new car wheel, designed to prevent a car running off the track. He should now invent a faithful switch-tender, and many of the ordinary railroad accidents would be averted.—*Northampton Gazette.*

Michigan Railroad Sale.—We are sorry to hear again unfavorable reports in regard to the sale of the Central railroad. There is too much reason to apprehend, we understand, that no sale will be effected. The corporators are disposed to purchase the road, but it is understood that the bondholders insist upon such terms as render it impracticable. They are under an impression that whether the railroad is sold or not, their interest will be promptly and fully paid. Everybody here knows that this will not be realized. Yet the official state paper constantly asserts it, and it is supposed to speak by authority. The result may be to defeat the sale. Such is clearly the design.—*Detroit Adv.*

Railroads to and through Vermont.—The Adams railroad, from Pittsfield to the Vermont line in Pownal, is under contract to North Adams, and will be completed to that place early next year. The road is designed to connect with the Western Vermont road, through Bennington, to Rutland, and with the help of

the Housatonic and New York and New Haven, or Harlem roads, will make a very direct and easy route, by which the people of western Vermont can reach the city of New York.

The Connecticut and Passumpsic rivers company, will it is understood, soon put under contract about 40 miles of the road, probably the portion between the mouth of White river and the village of Wells River. It is said that the aggregate cost for this distance, will not exceed \$800,000 which is about the amount of their present subscription.

The Northern railroad from Concord to the western boundary of Labanon, is under contract for the whole distance, and it is understood, will be completed early next spring.—This road not being very expensive, and receiving as it will, the whole business of the Vermont Central and Connecticut and Passumpsic rivers roads, cannot fail to be very profitable.

The Vermont Central railroad is under contract, its whole length 117 miles, from Windsor to Burlington, and about 2,000 hands are employed upon it. Certain parts of this road will be very expensive, particularly the 14 miles between Windsor and White river, and the first 10 miles east from Burlington. There has been some complaint from a portion of the contractors, that they could not get pay for their work as stipulated in their contracts.—This probably arises from the fact that the subscribers have not paid their instalments with much promptness. When this will be completed is very doubtful, as a very large additional subscription will be required to finish the work.

The Champlain and Connecticut river railroad, from Belows Falls through Rutland to Burlington, a distance of 116 miles, has been located for about 55 miles, and if a satisfactory arrangement can be made for a connection with the Cheshire road, a portion of it will be very soon put under contract. The engineer's (Mr. Gilbert,) estimates of the cost of grading this road made upon his preliminary survey were considered very low, but as great improvements have been made in the final location, it is fully settled that his original estimates were too high. This road has labored under very great difficulties. When finished, no road in Vermont can ever be as profitable as the Rutland, for none in proportion to the distance, can be constructed as cheaply, or pass through a country as rich in agricultural or mineral wealth.

The Champlain and Ogdensburg railroad company has been organized, the whole capital stock, \$2,000,000 having been unanimously subscribed. About \$500,000 were subscribed by the residents of the state of New York. \$1,000,000 were taken, as we are informed, by the following persons:—S. F. Belknap, \$100,000—S. F. Belknap and co., \$50,000—Chas. Paine, \$200,000—Sam'l M. Felton, \$100,000—S. S. Lewis, \$100,000—and James C. Dun, \$100,000. This work is a very important undertaking, and when completed, as we hope to live to see it, will be of immense public benefit.—*Belows Falls Gazette.*

The Western Vermont railroad company has not been authorized, nor has the Vermont and Canada railroad, chartered from Burlington, through St. Albans, to Canada line.

Railway Signals.

We find in the Railway Chronicle for 2nd May, the plan of "railway signals," introduced upon some of the English railways, by Mr. Hutton Gregory,

the engineer of the London and Croydon railway.—We deem it a matter of so much importance to the proprietors of, as well as to the passengers upon, our American railroads, that we give the description entire, together with the illustrations, in the hope that some of our correspondents will urge the adoption in this country, of this, or some better plan by which accidents may more seldom occur, if not entirely avoided. No one at all observant of the passing events of the day, will question the necessity of the adoption of measures to prevent accidents on railroads. They are quite to numerous already. Yet they are increasing in a ratio, apparently much greater than that of the system itself, whereas there should be a steady decrease, as we have more experience.

"Foolish, ill-concocted schemes for insuring safety, or at least for inculcating a belief in safety, even where it may not exist, are so multifarious and manifold, that it is very agreeable, in the exercise of our editorial functions, to be able now and then to recommend for general adoption, and very heartily, without reservation, some plain, practical, unquestionable improvement. We have been watching the progress of the fixed station signals through various phases of improvement, and we think we are now able to recommend for general adoption on all railways not yet supplied with a satisfactory set of signals, the following, which we have seen in daily use with progressive improvements for a considerable time.

"These signals have the advantage of being simple, conspicuous and unmistakable—they act in the same manner both by night and by day—they are not liable to get out of order—they are of two classes, those at stations merely, and those at junctions. We to-day only describe the first of the class.

"These signals are of a class called semaphore signals, similar to what were formerly used as telegraphs by the admiralty.—They were introduced into railways by Mr. Hutton Gregory, the engineer of the Croydon railway, on that line, and they have since been extended along the Brighton and South Eastern, and other lines. They have this merit—that the signal depends neither upon color nor shape, but solely upon the position of an arm, which may be as large and as conspicuous as you choose.

"The general aspect of the station signal is an upright post of great height, on either side of which is an arm like that of a man. The right arm refers to the right line of the railway, whether up or down. The arm up in a horizontal position on either side means that a train on that side must "stop" at that station—not to stop would imply the greatest penalty that can be inflicted. The arm inclined downwards implies that you may go on, but "slowly"—and closed down means "right" or "do as you please." The height of the post must be conspicuous enough to be seen at a distance, and the arms also must be of a size sufficient for the same purpose. The size given with our engravings have been found quite adequate to that purpose.

"At night however, the signals are by colored lamps—red, green and white corresponding to stop, slow, and right. These

Fig. 1.

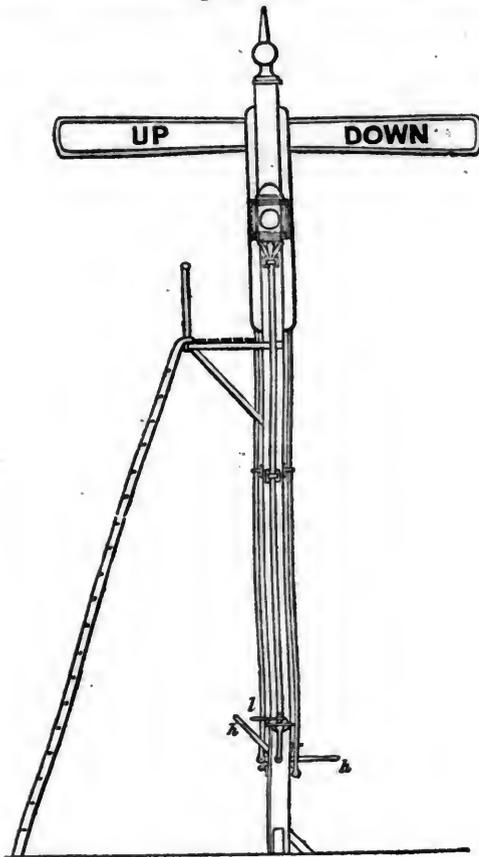


Fig. 2.

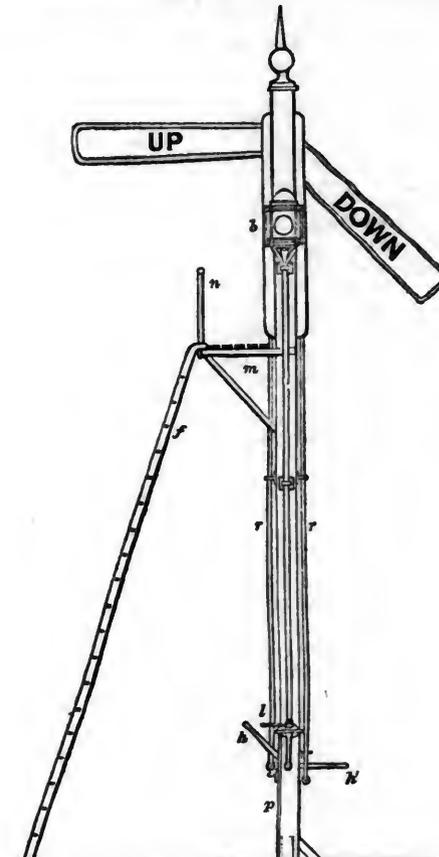
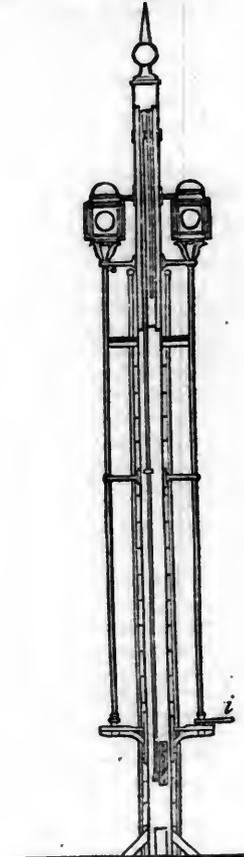


Fig. 3.



lights are worked by a mechanism precisely similar to the arms.

"Fig. 1. Elevation of semaphore signals. The arms being placed in the position indicating "stop."

"Fig. 2. Ditto, an arm indicating 'caution,' or 'slacken speed.'"

"Fig. 3. End view, showing the lamps.

"*p* is an upright post, firmly staked into the ground; *h h*, two hand levers connected to the rods, *r r*, which rods are at upper ends, attached to the blades or signal boards *up* and *down*. *h* works the blade *up*, and *h'* the *down*. The hand levers are retained in a fixed position by springing into notches on side of upright post, as seen in fig. 3. *s s*, rods communicating with the handles *l l* to the signal lamps *b b b*. The handles *l l*, also, springing into notches made in the disc round which they travel. *f*, an iron ladder attached at top to the two rods *n n*. This ladder at its upper end is made to slide up on the rods *n n*, by which means the bottom can be brought close up to the post, so as to be out of the way when not required. *m*, a platform to facilitate the trimming and cleaning the lamps. The signal boards are used by day, and the lamps by night.

"These signals are, as we have said, originally the invention of Mr. Hutton Gregory; and, as we shall know on a future occasion, the combination of them so as to work at junctions, is an elegant and valuable combination, calculated to avoid danger in the highest degree that any mechanism can be conceived to accomplish.

"The mechanical construction of these signals was intrusted to Messrs Stevens and Sons, of Darlington works, Southwark; and many of the details and improvements which have made the invention the practical and perfect thing which it is have been added by them. The last steps of improvement in practical usefulness consist in the substitution of joints and levers, instead of wood wheels and ropes, for working the arms, parabolic lamps with ten inch reflectors, with the platform, guard rails, and ladder for cleaning the lamps. All these minor arrangements thus brought to perfection gives the machine that practical value which enables any company to adopt the whole plan at once, without doubt as to its effect or difficulty or delay in carrying it out.

"The engine drivers and guards are most easily instructed in its use. The engine driver invariably takes the signal from the left hand side of the post, as seen by him approaching it, so that wherever the signal post may be placed, and whether with single or double arms, he cannot possibly be confused or mistaken, for he has only to attend to one fixed rule—to look to the semaphore arm on his left hand. When the arm is extended at right angles, it is for stopping the engine; when depressed to an angle of 45°, for caution, or to slacken speed; and when the arm or semaphore is within the case, entirely concealed from view, and only the upright post visible, it indicates that the road is clear.—At night the signals are given with the parabolic reflecting lamps, a red light for danger

—green for caution—and white for all right; and Stevens and Sons' large parabolic reflecting lamps are so powerful, and their arrangement in placing them near the top of the post renders them so distinct from the station or other lights that may be near them, that the night signals, red, green, and white, are distinctly seen, where curves and cuttings do not interfere, for two or three miles. This arrangement is so simple, that it is at once comprehended by the engine driver or signal man, and at the same time it is so decided, that it cannot possibly be misunderstood; this fact has been fully exemplified on the South Eastern railway, for since the semaphore signals have been introduced on that line (nearly four years) there have been fewer accidents than on any other line of the same length in the kingdom; and not one that has occurred can be attributed in a single instance to any defect in the working of the semaphore signals.

The price for the semaphore day and night station signals, with two semaphore arms, and two large parabolic lights, platform, ladder, and apparatus complete, we believe is about £30; as this answers for two signals, one for the up and the other for the down line, and is all that is required at a station, it amounts to £15 per signal; and taking the strength and durability into consideration, renders them most economical and complete. The facilities for manufacturing these signals are such as to enable the manufacturers to supply twenty of them in as many days if required.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.

Saturday, July 18, 1846.

THE RAILROAD JOURNAL will hereafter be published *simultaneously* in NEW YORK and PHILADELPHIA. The editorial department will as heretofore, be under the direction of the subscriber, aided by his former associate Mr. George C. Schaeffer, and other gentlemen of ability connected with the profession—and renewed efforts will be made to render it *more* worthy of the rapidly increasing support which it is now receiving.

Engravings and illustrations will be more frequently given, and expensive maps will be occasionally prepared, showing the progress of the railway system, one of which, showing the proposed route of steam communication from China, across the isthmus, and through the United States, to England, by Edward McGeachy, Esq., of Jamaica, is now in the hands of the artist, and will be ready in a few weeks; and others will follow.

The office in NEW YORK will remain for the present, at 23 Chambers street, and be in charge of Mr. Egbert Hedge, long connected with the work—who is authorized to transact business for me.

The office in PHILADELPHIA will be at the FRANKLIN HOUSE, 105 Chestnut street, under the direction of the editor and proprietor, where all letters and communications by mail, and all exchange papers and periodicals may be hereafter addressed to

D. K. MINOR.

The editor of the Railroad Journal presents his compliments to his numerous subscribers and friends and assures them that he will be always gratified to see them at his new office and home, the FRANKLIN HOUSE, late SANDERSON'S, 105 Chestnut street, Philadelphia. He will be found at home.

BALLARD'S NEWLY IMPROVED PATENT JACK SCREW.

The advantages of this Jack Screw for Stone quarries, Railroads, Steam Boiler Builders, and other purposes, are superior to any other machine.

The improvement consists in being able to use either end of the screw, as occasion requires.

It is capable of raising the heaviest Locomotive with ease, being portable, strong and powerful, and not likely to get out of order.

Many Railroad Companies and Boiler makers have them in use, by whom they are highly recommended.

JACK SCREWS of various kinds, sizes, power and price, constantly on hand at the manufactory, No. 7 Eldridge street near Division.



THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00
 " " Sandusky to Buffalo, Cabin..... 6 00
 " " " " Steerage..... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, *Sup't, etc.*

M. & S. C. R. R. Co.

Sandusky, Ohio.

NEW RAILROAD ROUTE FROM Buffalo to Cincinnati.

Passengers destined for Columbus and Cincinnati,

by Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance.....230 miles

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy Iron,] to Mansfield, distance..... 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

TIME.

From Buffalo to Sandusky..... 24 hours.

Leave Sandusky 5 a.m. to Columbus.... 14 "

From Columbus to Cincinnati..... 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.

From Buffalo to Sandusky, Cabin.....\$6 00

" " " " Steerage..... 3 00

" Sandusky to Columbus..... 4 50

" " " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipt availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, *Sup't, etc.*

M. & S. C. R. R. Co.

Sandusky City, Ohio.

Hallette's Atmospheric Railway.

A model of this mode of propulsion, is exhibiting near the Rosemary branch at Peck-

ham. It consists of a tramway of about 120 yards in length, upon a part of which a tube of about 50 yards in length is laid, over which a carriage capable of holding six or eight persons runs. The tube is exhausted by means of a small steam engine; there are two valves near each end of the pipe, and one in the centre; those at the ends close the pipe while the air is being exhausted. The piston, which passes through the pipe, is connected with the carriage by means of a "coultter," which is a broad steel plate, about three-eighths of an inch in thickness at the widest part, tapering from the centre like a knife to both edges; it stands perpendicularly from the piston in the pipe, and is attached to the carriage. In its course it slightly opens, and passes between the lips of the tube, as the piston is propelled from one end of the pipe to the other. The "lips," by their elasticity, close the longitudinal opening in the pipe and render it air-tight, at the same time admitting the passage of the thin "coultter" between them, with very little friction. The means used by M. Hallette differs essentially from that of Samuda; the latter has a valve with a longitudinal hinge, which is raised up by the piston rod or "coultter," to let the atmospheric air in behind and force on the piston; while the valve of the former closes the aperture by means of two caoutchouc hoses, ("lips,") and covered with leather on the sides. These are inflated by forcing air into them, and they are retained in their proper places over the longitudinal opening in the metal pipe by means of circular longitudinal cavities cast in the upper part of it to receive them. These iron cavities close on the top to nearly three-quarters of an inch, so that the slit underneath them in the metal pipe is about half an inch wide, instead of two inches or two and a half as in Samuda's. M. Hallette proposes to keep the longitudinal valve always closed, except where the thin piston plate is passing through at the time. He therefore does not admit the air immediately behind the piston from the top, as Samuda does, by raising the valve, but the end of the pipe is left open for the air to rush through after the piston and push it along. He intends the pipe to be continuous from one end of the railway to the other, but at intervals of 1,000 yards he proposes to have valves and side openings in the tube, to let in the air immediately after the piston has passed, and then, in the course of a short time, closing of themselves, and so be ready for the next exhausting process. He calculates that his system will require much less power than Samuda's, and work more economically, with less waste and leakage.

Principles of Railway Management.

Continued from page 439.

Passenger Traffic.

Before concluding these observations, it will be useful to extend the same reasoning to the consideration of the passenger traffic. I believe, especially in regard to the conveyance of goods, that it important to direct attention to the encouragement that may be given to its increase by a lowering of fares. With respect to passenger traffic much has already been accomplished to reduce the tolls to a low

charge; but it is believed that companies destined to accommodate populous neighborhoods may, with benefit, carry their system of reduction still further.

The gauge commissioners report gives at 46½ tons, exclusive of engine and tender, the total weight of a train capable of containing 126 first class passengers, being thus composed, viz:

7 carriages weighing about 34 tons.
126 first class passengers with their baggage. 12½ "

Total load 46½ "
or in round numbers, three first class passengers to a ton gross weight; taking however, the mean for all passengers, the number per gross ton will of course be more; I assume it at six passengers per ton gross.

Now in the preceding tables, the charge per ton per mile is the return per ton net, made up first of a fixed charge for interest, etc., 45d. per ton per mile deducted from the experience of the Belgian railways. The working expenses of a passenger train per ton per mile are considerably greater than those for the conveyance of goods, owing to the greater speed, expense of plant, class of officers, etc.

The average working of nine years on the Belgian railways gives the cost per ton per mile for passenger trains at 1 1/2 d.; and although the difference of speed might lead to the supposition, that the cost would be less on the Belgian than on the English railways, the greater skill of the English engineers and managers, and the greater cheapness of coke must, I have no doubt, enable them to work at their higher speed with an economy equal to that of the Belgian railways, even including the passenger tax; I assume therefore, in the following tables 1-2d as the cost per ton per mile of passenger trains.

An inspection of the following tables shows of how great importance it is to the public, that the traffic per line should be great.

Taking the cost at £31,000 per mile, and allowing 10 per cent. interest on the capital, we find that a line with an average number of passengers of 120,000 per mile per annum should charge per mile per passenger, on the average 3.86

While a line with the traffic of the Manchester and Leeds (about 650,000 passengers per mile per annum) may charge 0.9

A line with the traffic of the London and Birmingham, (viz: about 700,000 per mile per annum) 0.85

With a traffic of 1½ million (Paris and Orleans) 0.52

Do. 1½ (London and Greenwich) 0.50

Do. 3 (Lond. & Blackwall Qy ?) 0.33

The actual charges on the London and Birmingham were, in 1810, per mile per passenger 2.609

In 1815 they were reduced to 1.818

By this important reduction, the public benefited to the amount of many thousands, increase in the number of passengers having been in 1845 fifty-seven per cent., (or for the half year as 222,000 is to 346,000.)*

* In the report of the parliamentary proceedings of the 19th March, 1846, it is stated that the London and Birmingham, Grand Junction, and other amalgamated companies propose to reduce their charges still more, that is to say, to 2d. per mile per 1st class, 1½d. per mile per 2d class, and 1d. per mile per 3d class passenger.

Table showing the diminution in the cost of carriage per passenger, dependent on the increase in the traffic.

Original cost of construction, £18,000 per mile.
Allowing interest at the rate of 5 per cent. per annum on the capital.

Average passenger traffic per mile per annum, tons gross.	Average No. of passengers corresponding to gross tonnage. 6 to 1 ton gross.	Per ton gross per mile.			Charge per passenger per mile, d.
		Fixed charge for interest, etc.	Actual working expenses.	Total charge.	
20,000	120,000	6.18	.....	7.38	1.23
30,000	180,000	4.12	.....	5.32	.89
40,000	240,000	3.09	.....	4.29	.71
50,000	300,000	2.47	.....	3.67	.61
60,000	360,000	2.06	.....	3.26	.54
70,000	420,000	1.76	.....	2.96	.49
80,000	480,000	1.54	.....	2.74	.46
90,000	540,000	1.37	1.20	2.57	.43
100,000	600,000	1.24	.....	2.44	.41
150,000	900,000	.82	.....	2.02	.34
200,000	1,200,000	.62	.....	1.82	.30
300,000	1,800,000	.41	.....	1.61	.27
400,000	2,400,000	.31	.....	1.51	.25
500,000	3,000,000	.25	.....	1.45	.24
1,000,000	6,000,000	.12	.....	1.32	.22

Allowing interest at the rate of 10 per cent. per annum on the capital.

20,000	120,000	11.58	.....	12.78	2.13
30,000	180,000	7.27	.....	8.92	1.49
40,000	240,000	5.79	.....	6.99	1.16
50,000	300,000	4.63	.....	5.83	.97
60,000	360,000	3.86	.....	5.06	.84
70,000	420,000	3.31	.....	4.51	.75
80,000	480,000	2.89	.....	4.09	.68
90,000	540,000	2.56	1.20	3.76	.62
100,000	600,000	2.32	.....	3.52	.58
150,000	900,000	1.54	.....	2.74	.46
200,000	1,200,000	1.16	.....	2.36	.39
300,000	1,800,000	.77	.....	1.97	.33
400,000	2,400,000	.58	.....	1.78	.29
500,000	3,000,000	.46	.....	1.66	.28
1,000,000	6,000,000	.23	.....	1.43	.24

Original cost of construction, £31,000 per mile.
Allowing interest at the rate of 5 per cent. per annum on the capital.

20,000	120,000	10.08	.....	11.28	1.88
30,000	180,000	6.72	.....	7.92	1.32
40,000	240,000	5.04	.....	6.24	1.04
50,000	300,000	4.03	.....	5.23	.87
60,000	360,000	3.36	.....	4.56	.76
70,000	420,000	2.88	.....	3.98	.66
80,000	480,000	2.52	.....	3.62	.60
90,000	540,000	2.24	1.20	3.34	.56
100,000	600,000	2.02	.....	3.22	.54
150,000	900,000	1.34	.....	2.54	.42
200,000	1,200,000	1.01	.....	2.21	.35
300,000	1,800,000	.67	.....	2.87	.31
400,000	2,400,000	.50	.....	1.70	.28
500,000	3,000,000	.40	.....	1.60	.27
1,000,000	6,000,000	.20	.....	1.40	.23

Allowing interest at the rate of 10 per cent. per annum on the capital.

20,000	120,000	19.38	.....	20.58	3.86
30,000	180,000	12.92	.....	14.12	2.35
40,000	240,000	9.69	.....	10.89	1.81
50,000	300,000	7.75	.....	8.95	1.49
60,000	360,000	6.46	.....	7.66	1.28
70,000	420,000	5.53	.....	6.73	1.12
80,000	480,000	4.84	.....	6.04	1.00
90,000	540,000	4.31	1.20	5.51	.92
100,000	600,000	3.87	.....	5.07	.84
150,000	900,000	2.55	.....	3.75	.63
200,000	1,200,000	1.93	.....	3.13	.52
300,000	1,800,000	1.28	.....	2.49	.41
400,000	2,400,000	.96	.....	2.16	.36
500,000	3,000,000	.77	.....	1.97	.33
1,000,000	6,000,000	.38	.....	1.58	.26

Without pursuing these illustrations into further detail, I conclude from them that the public and the companies are both highly benefited by a large concourse of goods or passenger traffic on any one line, provided that the managers of such line are alive to

the advantages to themselves of encouraging the influx of traffic, by extraordinary reductions on tolls and fares. Referring to actual results, such of the great companies as have tried the experiment of low fares, have found their receipts increased. The London and Birmingham and Grand Junction, the Great Western, the South Eastern, the Brighton, and others have reduced their fares for passengers, and by return tickets, season tickets and other means, rendered the travelling much less expensive. They have likewise made great reductions in their charges for goods, and the result has been a profit by the change. The reductions, however, have as yet only been applied timidly, and not to the extent required to give fair play to the principle.— Hence we still see, on the majority of the lines, and we indeed see it officially reported, that their trains do not travel half or a quarter full. There is, of course, a limit to this profitable reduction, but I believe it has not yet been attained on the great lines. On short lines the working expenses are proportionally so much greater, that the limit with them will generally be (*ceteris paribus*) at a higher standard.

I have shown, with regard to goods, that in Belgium, while the canals carried on the average 400,000 tons of goods per mile per annum, the railways, owing to their high charges and want of proper accommodation for the goods traffic, carried only 40,000 tons.

Now there is no doubt that the railways can carry at as cheap a rate as the canals, and that they offer superior advantages, which ought to give them the preference without any chance of competition from canals. I attribute this inconsistency between actual results, and results that ought to be, to the neglect of an important branch of railway accommodation.

As regards the passenger traffic, I conceive that on those lines where we now see a return of the conveyance of 1,000,000 passengers per mile per annum, we shall soon see returns of double or treble that amount.*— There are railways now considering the propriety of contracting for the daily conveyance of artisans to and from their abodes near the metropolis to their places of work, at rates so low, that the rent of their houses in the country, supplied with every requisite, added to the cost of their conveyance by railway morning and evening, will be less than the rents which they pay for the miserable hovels in which they now reside.

I introduce this topic for the purpose of calling attention to an important principle enunciated in some observations which I shall quote, viz: that the conveyance of the masses, i. e., of third class passengers, should have a close relation to the cost of conveyance of goods, weight for weight. More room and better accommodations must be afforded them—but as a set-off to the additional expense incurred on that score, there is a great saving in the time and cost of loading and unloading. In order to adhere throughout this essay to a

* 47,778 passengers are stated to have been conveyed in a single day from the London bridge station of the Southeastern railway.

purely statistical character, I designedly avoid entering into the general question which is here incidentally referred to.

I quote the following passage from the report of the speech of the chairman of the London and Croydon railway company, at a general meeting of the shareholders held on the 10th of this month. The chairman stated that "an association had been recently established in London for improving the dwellings of the working classes. A very intelligent member of that association considered that it would be an error of judgment to improve the habitations in London, and had repeatedly urged the erection of suitable tenements within five or six miles of London, in order that they and their families might enjoy the pure air of the country. He considered further that this plan might be effectually carried out by the means of railways, and a proposal had been made to the board by an eminent architect, who, in his zeal for the industrious classes, proposed to construct a railway for the purpose of carrying out his plan with greater effect. But, in the first instance, he came to the directors to ascertain if they would take these people home and back again at a cheap rate. And he considered that they might effect the desired object if they would carry these people as if they were goods, and at as cheap a rate as goods were conveyed. He saw no reason why they should not accept the proposition, and bring an additional amount of traffic on their line, thus increasing their profits, and conferring great advantages on the industrious class of the community, by removing them from the moral and physical effluvia generated in all large and densely-populated cities, afford them better houses, better water, better lighting, and, in short, almost a change of existence."

Now, if such an arrangement as this were carried out, and believing that in a commercial or a financial point of view, it will be to the interest of metropolitan railways, and all railways generally terminating in very populous towns, to facilitate the carrying out of any arrangements which will have the effect of making their railway accessible to the great masses—ininitely small profits multiplied by millions will, in a public and private point of view, be better than large profits multiplied by thousands, or perhaps only hundreds. To carry out any such arrangement as is here contemplated, of course the utmost economy consistent with safety and protection from the weather would be studied. The first item of saving would be by a diminution in the speed (perhaps not exceeding 20 miles an hour) whereby considerable reduction would be made in the working charges—also the number of passengers per ton would be more than the previous average taken, which comprised in the data the weight for the accommodation of first class passengers.

In the annexed tables I have illustrated this subject of an economical and profitable conveyance of numbers brought to the utmost limit. In goods trains properly loaded, the average net weight to the gross weight is about $\frac{1}{2}$, or as one ton net to two tons gross

The same proportion of net to gross weight would hold for the conveyance of passengers for the purposes just explained, and we should thus have to every two tons gross weight fifteen passengers conveyed.

Table showing the diminution in the cost of carriage per passenger dependent on the increase in the traffic. (Special illustration adapted to the conveyance of great numbers as explained in preceding text.)

Original cost of construction, £18,000 per mile. Allowing interest at the rate of 5 per cent. per annum on the capital expended.

Average passenger traffic per mile per annum tons gross.	Average No. of passengers corresponding to gross tonnage. 71-2 to 1 ton gross.	Per ton gross per mile.			Charge per passenger per mile.
		Fixed charge for interest, etc.	Actual working expenses.	Total charge.	
20,000	150,000	6.18	.....	6.41	.86
30,000	215,000	4.12	.....	4.35	.58
40,000	300,000	3.09	.....	3.32	.45
50,000	375,000	2.47	.....	2.70	.36
60,000	450,000	2.06	.....	2.29	.31
70,000	525,000	1.76	.....	1.99	.27
80,000	600,000	1.54	.23	1.77	.24
90,000	675,000	1.37	.....	1.60	.21
100,000	750,000	1.24	.....	1.47	.19
150,000	1,125,000	.82	.....	1.05	.16
200,000	1,500,000	.62	.....	.85	.11
300,000	2,250,000	.41	.....	.65	.09
400,000	3,000,000	.31	.....	.54	.07
500,000	3,750,000	.25	.....	.48	.06

Allowing interest at the rate of 10 per cent. per annum. on the capital expended.

Average passenger traffic per mile per annum tons gross.	Average No. of passengers corresponding to gross tonnage. 71-2 to 1 ton gross.	Per ton gross per mile.			Charge per passenger per mile.
		Fixed charge for interest, etc.	Actual working expenses.	Total charge.	
20,000	150,000	11.58	.....	11.81	1.57
30,000	215,000	7.72	.....	7.95	1.04
40,000	300,000	5.79	.....	6.02	.80
50,000	375,000	4.63	.....	4.86	.65
60,000	450,000	4.86	.....	4.09	.55
70,000	525,000	3.31	.....	3.54	.47
80,000	600,000	3.89	.....	3.12	.42
90,000	675,000	2.56	.23	2.79	.37
100,000	750,000	2.32	.....	2.55	.34
150,000	1,125,000	2.54	.....	1.77	.24
200,000	1,500,000	1.16	.....	1.39	.19
300,000	2,250,000	1.77	.....	1.00	.13
400,000	3,000,000	.58	.....	.81	.11
500,000	3,750,000	.46	.....	.69	.09

Original cost of construction, £31,000 per mile. Allowing interest at the rate of 5 per cent. per annum.

Average passenger traffic per mile per annum tons gross.	Average No. of passengers corresponding to gross tonnage. 71-2 to 1 ton gross.	Per ton gross per mile.			Charge per passenger per mile.
		Fixed charge for interest, etc.	Actual working expenses.	Total charge.	
20,000	150,000	10.08	.....	10.31	1.37
30,000	215,000	6.72	.....	6.95	.93
40,000	300,000	5.04	.....	5.27	.70
50,000	375,000	4.03	.....	4.26	.57
60,000	450,000	3.36	.....	3.59	.48
70,000	525,000	2.88	.....	3.11	.42
80,000	600,000	2.52	.23	2.75	.37
90,000	675,000	2.24	.....	2.47	.33
100,000	750,000	2.02	.....	2.25	.30
150,000	1,125,000	1.34	.....	1.57	.21
200,000	1,500,000	1.01	.....	1.24	.17
300,000	2,250,000	.67	.....	.90	.12
400,000	3,000,000	.50	.....	.73	.10
500,000	3,750,000	.40	.....	.63	.08

Allowing interest at the rate of 10 per cent. per annum.

Average passenger traffic per mile per annum tons gross.	Average No. of passengers corresponding to gross tonnage. 71-2 to 1 ton gross.	Per ton gross per mile.			Charge per passenger per mile.
		Fixed charge for interest, etc.	Actual working expenses.	Total charge.	
20,000	150,000	19.38	.....	19.61	2.61
30,000	215,000	12.92	.....	13.15	1.75
40,000	300,000	9.69	.....	9.92	1.32
50,000	375,000	7.75	.....	7.98	1.06
60,000	450,000	6.46	.....	6.69	.89
70,000	525,000	5.53	.....	5.76	.77
80,000	600,000	4.84	.....	5.07	.67
90,000	675,000	4.31	.23	4.54	.61
100,000	750,000	3.87	.....	4.10	.55
150,000	1,125,000	2.55	.....	2.78	.37
200,000	1,500,000	1.93	.....	2.16	.29
300,000	2,250,000	1.29	.....	1.52	.20
400,000	3,000,000	.96	.....	1.19	.16
500,000	3,750,000	.77	.....	1.00	.13

The average charge for working expenses

was stated to be 1.2d. per mile per ton net on passenger trains generally. The lower speed for the accommodation of the passengers now considered, would reduce this charge considerably, in fact bring it to the .45d. per ton net per mile, found to be the working cost of goods trains on the Belgian railways. Taking therefore .23d. as the cost per ton gross, and applying the proportion above deduced of 15 passengers to two tons gross weight, I have constructed the annexed tables again as before divided into four classes, viz:

1st. Two in relation to the costs of construction of £18,000 per mile, and £31,000 per mile.

2dly. Two in relation to the interest on the capital of 5 per cent. per annum, also to the interest of 10 per cent. per annum.

Conclusions from Preceding Analyses and Tabular Deductions.

Assuming that which from the past management of many of the English railways, I am warranted in assuming, viz: that an enlightened desire to meet the wants of the public as to economy, speed and safety, will continue to be the ruling motive of the managers; it is clearly to the interest of the public that where hitherto 500,000 passengers have travelled 1,000,000 should by reduced fares and increased accommodation, be induced to travel in future; and that where hitherto 500,000 tons of goods have been conveyed, a demand should be created by reducing the charges, for the conveyance of 1,000,000 tons.

But this important benefit cannot be obtained by the formation of directly competing lines, which must divide the traffic between them, and thus of necessity prevent that great reduction of tolls and fares which the tables show to be consistent only with increase of traffic.

By the same tables it appears that where the traffic is very large the original cost of the railway has an influence on the amount which it is necessary to charge by no means proportionate to the relative costs. For example, with an amount of passenger traffic corresponding to 500,000 tons per mile per annum, the expense of conveying a passenger is, with an original cost of £31,000, and an allowance of 10 per cent. interest thereon, .13d. or $\frac{1}{80}$ d.; whereas, with the original cost of £18,000, and a similar allowance of 10 per cent. interest, the cost of conveying a passenger is .09d., or $\frac{1}{110}$ d.

The same tables show that with an average passenger traffic, corresponding to 40,000 tons per mile per annum, the remunerating charge at 10 per cent. interest, and £31,000 original cost per mile, is 1.7d. on the average.

And that with a passenger traffic corresponding to 500,000 tons per mile per annum, a charge of .13d. would produce the same remuneration of 10 per cent. on the same original cost of £31,000 per mile.

But if railways are thus, for the advantage of the public, to convey great numbers of passengers and great quantities of merchandise, it is most important that no system be peremptorily and finally adopted which shall limit the powers of railways to give accom-

modation to that prospective increase of traffic. All railway systems ought to be eminently expansive; and to take what has been accomplished in the past as a criterion of what is to be accomplished in the future, nay, of that which the public will shortly demand, and to found any conclusion on such a narrow basis, would be most detrimental to the public interests. These demand from our engineers (and they will I doubt not satisfy the demand) increased power, increased speed, and increased economy.

Let us bear in mind that the railway system is but commenced; and looking at the great improvements which have been made in locomotives, enabling them to accomplish the conveyance of loads double those they could draw some years ago, let us be careful in adopting the present average speed and loads of passenger and other trains as the speed and loads that will be required some years hence by the public. Let us not devise our future works and arrangements with the idea of "finality" to cramp our exertions.

The traffic is not simply to be diverted from existing channels—it is to be created by every encouragement of cheapness of transit, regularity, safety, adaptation to the wants of the public, and enlightened economy in the management and working.

The objects can only be fully attained by the cordial co-operation of all officers employed on railways; and all must be so remunerated as to be encouraged in making the strenuous efforts which are essential to introduce the improvements thus indicated.

Companies should themselves undertake (without mediators) the conveyance of goods. The communication ought to be direct between the great commercial and manufacturing public and the railway managers. Otherwise the bold deductions recommended in the carriage of goods would probably be attended by a loss, for they would not in all likelihood be met by corresponding reductions by carriers, and the public would not have the attraction of the very low fares so essential to secure great quantities. There are defects inherent in the practice of conveyance of goods by intermediate carriers which must of necessity act as a discouragement to the increase of traffic. For example, by the present system of sending merchandize through the instrumentality of carriers, intermediate stations in relation with the smaller towns do not afford them daily communication, because the carriers have not a sufficient amount of goods to load a truck for each day. If, on the contrary, the carriage of the goods were in the hands of the company, inasmuch as the goods for each town would not be divided into as many loads as there may be carriers to that station, the delivery could be a daily one. Hence the public would have the advantage of a more exact surface, and of greater dispatch, the effect of which would be an increase in the amount.

The payment of two managements, double profits, etc., must of course enhance the charges. The public interest, moreover, is not so quickly identified with that of private carriers as with that of great companies,

and does not act so quickly upon the former as upon the latter.

Considering the item of economy in the working expenses, chiefly in that part embraced under the head of locomotive expenses, viz: coke, oil, etc., the tables show that when the traffic is so great as to make the fixed charge for interest per ton very small, this item of working cost is most important. Now various means have been adopted to reduce this cost, which I shall simply report upon without recommending any in particular.

One of these methods has been, and continues to be adopted by the superintendent of the Manchester and Leeds railway, who, after having had considerable experience of the effect of working the locomotives in the usual way at the direct cost of the company, let the work by contract to the engine drivers and others, including supply of coke, oil, etc., and repair of engines; the result was astonishing, the saving being found to be as 17 to 30, or more than one-half.

I am informed that it was curious to see the effect of this plan in keeping regularity on the line. On arriving at a station, if there were any unusual delay, immediately the engine driver, whose steam was being thereby wasted, and whose profits were proportionately diminished, roused the guards and superintendents, and thus his interest succeeded better in introducing regularity than the supervision of the police. The saving in materials, coke and oil, was quite unexpected in amount.

I learn "that on the Great Western railway the engine drivers have had for some time the benefit of an arrangement similar to that of the Manchester and Leeds. A certain fixed amount of coke per mile is allowed to them, and the quantity saved by them at the week's end is taken note of, and they receive a certain per centage of the value of the coke thus saved. The effect produced is seen in the smallness of the present fixed allowance per mile as compared with the quantity allowed at first." My informant, who has tested the efficacy of the principle, adds, "I think there can only be one opinion as to the policy of giving the mechanic a direct interest in his work."

On the Paris and Orleans line a bonus is held out for a similar object to the engine drivers, and locomotive department generally, by giving them a share in the profits arising from the saving they effect in the consumption of coke. The expenses by that plan diminished upwards of 7 per cent. in 1844, as compared with 1843, the difference in the cost of coke being only 2 per cent. in the corresponding years.

The same company carry still further the principle of allowing their employees to participate in the surplus profits where these have reached above a certain per centage, and the following details explain the general plan hitherto followed in the distribution of such profits.

The Paris and Orleans railway company conceive that they have obtained, from this regulation, results highly satisfactory. The arrangement consists in holding out encour-

agements for efficient services performed with due attention to economy, by giving a right to the persons employed in the service of the company to a participation in the profits above 8 per cent., according to a scale dependent upon the relative station and usefulness of each.

For the year 1844 the division of profits was made according to the following statement:

(The exchange is taken at £1 = 25 francs.)

The total receipts for the year were.....	Fs.	£	£
.....	6,901,786	=	276,071
Expenses.....	2,286,662	=	131,466
Net receipts.....	3,615,124	=	144,605
			144,605

The statutes regulate the application of this surplus as follows:

1 per cent. sinking fund on the capital stock of the company.....	400,000	=	16,000
4 per cent. interest on redeemed and redeemable shares.....	1,200,000	=	48,000
Annuity to Mr. Leconte, the grantee.....	12,000	=	480
Dividend to the shareholders, equal to 8 per ct. per annum, including on the redeemed and redeemable shares, and the sinking fund.....	1,600,000	=	64,000
			128,480

Total payments as fixed by the statutes..... 3,212,000 = 128,480

Excess to be accounted for as follows..... 16,125

15 per cent. on this surplus to be divided among the officers and men of the company..... 60,468 = 2,418 14 4

Remains for additional distribution among shareholders..... 342,655 = 13,706 0 0

Which added to the..... 1,200,000

and..... 1,600,000

previously set aside, gives 3,142,655 = 125,706 0 0

Or at the rate of 9 per cent. on the capital stock of the company.

Mode of Distribution.

The distribution of the 15 per cent. above mentioned was regulated as follows:

The officers and men employed by the company are divided into three classes, viz:

In the first—engineers and superintendents; the managers of departments and such others among the responsible officers as may be deemed entitled to be ranked in this category by the directors.

In the second—all responsible officers not included in the first, and such others as may be deemed entitled by the directors.

In the third are comprised all others engaged by the year in the service of the company, i. e., receiving an annual salary.

For the first class, each one will be entitled to $\frac{1}{10}$ of the 15 per cent. for every 1000 francs (£40) of his annual salary.

For the second class the participation will be $\frac{1}{500}$ for each 1000 francs (£40) of his annual salary; one-half the share so falling to each member of this category shall be invested either in stock or in a savings' bank, to be held in trust for the benefit of the person entitled, by the directors of the company whose sanction will be required for the withdrawal or assignment of the same; the second half will be paid in cash.

The balance will be assigned to the members of the third class as follows :

The one-half shall be assigned among all the members, in proportion to their respective annual salaries, and be similarly vested either in the savings' bank or stock, in the name of the company as trustees, for the benefit of each. The second half shall be distributed in cash, on the recommendation of the superintendents, to those members of the division who shall have distinguished themselves.

For 1844 these additions to the annual incomes were as follows :

For the 1st class, the total salaries of which amounted to 70,000 francs, [£2,928] the increase was rather more than 20 per cent on the salaries...	Fr.	£	s. d.
	14,260 =	570	8 0
For the 2d class, the total salaries of which amounted to 103,800 francs, [£4,152] the increase was rather more than 12 per cent on the salary.	12,552 =	502	1 7
For the 3d, the total salaries of which amounted to 743,572 francs, [£29,743] the increase was rather more than 4½ per cent. on the salary.....	33,665 =	1,346	12 0
Totals	60,468 =	2,419	1 7

Whatever may be the means taken to hold out encouragement to the subordinate servants of railway companies, I believe that it is very important for the interest of the public, as well as those of the railway companies themselves, that some means should be devised to make the employees directly interested in the increase of profits which they may be instrumental, although it may be only to a small degree, in producing.

The superior officers of a great company will, generally, be supported in the very great mental exertion and bodily fatigue their arduous duties call upon them to undergo, by their sense of justice to their employers, and the praiseworthy desire for distinction and consequent improvement in their positions and incomes; but such motives cannot be supposed to influence equally all the subordinate servants, down to the very workmen; and there can be no doubt, that upon the willing efforts of all, without excepting those in the most subordinate grades, will the successful introduction of reforms, tending to the very economical conveyance of great numbers of passengers and great quantities of goods, in an essential degree depend.

Nothing is further from my views, than the adoption of any expression that could be construed into a belief, that the subordinate employees of railways would consciously relax in their efforts to discharge their duties efficiently; it is, on the contrary, universally acknowledged, that railway companies are exceedingly well served; still, where a man's salary constitutes the whole of the revenue he derives from his office, and with little prospect of any increase in his salary by extra exertions, it is not in human nature generally to volunteer those exertions beyond the requirements of ordinary routine business. "It is the interest of every man to live as much at his ease as he can; and if his emoluments are to be precisely the same, whether he does or does not perform some very laborious duty,

it is certainly his interest, at least as interest is vulgarly understood, either to neglect it altogether, or, if he is subject to some authority that will not suffer him to do this, to perform it in as careless and slovenly a manner as that authority will permit. If he is naturally active and a lover of labor, it is his interest to employ that activity in any way from which he can derive some advantage, rather than in the performance of his duty from which he can derive none.

The increase in goods traffic, where it is to depend either upon the diversion of existing traffic from inferior channels into which habit continues to drive it, or upon the creation of new traffic by the facilities offered, may be undoubtedly effected by the individual efforts of those officers, who, by their situations, come into frequent contact with the controllers of such traffic—the station superintendents, for example. If these knew that their emoluments would be increased in proportion to any increase in the traffic at their stations—they would, if in an agricultural district for example, avail themselves of their opportunities of contact with the farmers of their neighborhood, to point out to them the advantages offered by the railway for the conveyance of manure, or agricultural produce—if in a mineral district, or a locality possessed of any natural product imperfectly explored, they would make it their study to learn the wants of such districts as regards facility of transit, and if necessary make such wants known, or point out the required improvements. The results of such activity and exertions at one station or in one isolated case would be insignificant; but if a spirit of this kind could by any system be infused into all the members of the general body of the assistants, the results of their united exertions would in the aggregate be most important.

If, on the other hand, the employees feel that by increase of labor they only add to their own toil without any corresponding increase in their emoluments, the majority will allow things to remain as they find them, and feel no desire beyond that of just doing their duty and no more.

When on lines of railway already commanding very great traffic, observations are made tending to show that by some light extra exertion, or by trifling alterations in arrangements to meet public demand, the conveyance of a new class of goods can be secured, or its quantity much increased—sometimes the remark is made, "that really the line is as full as it well can be, and any great addition will only tend to create confusion."

At other times, the recommendation to open out a new source of income to a railway by the carriage of some species of heavy goods hitherto conveyed by canal, is met by the observation, that "really the goods trains are already so numerous as to interfere sadly with the passenger traffic"—"that the latter is the most profitable, and therefore the most worthy of all attention"—and thus an improvement is delayed, or it may be altogether omitted.

Now it is questionable whether such observations would occur, if with every increase of traffic, and consequent increase of profit, a corresponding increase took place in the emolument of the servants of the company.

There would be no difficulty in selecting ap-

propriate illustrations of great improvements that have been brought about by the enlightened exertions of persevering managers of railway traffic, and in relation to goods as well as passengers. So little has hitherto been done, however, towards rendering railways available for the carriage of provisions, that I prefer giving one or two examples of what has been accomplished in this way—taking for instance the supply of fish, as being an article of food, the conveyance of which is by no means popular with traffic superintendents, and it may be fairly added with the public also, owing to the careless and positively offensive way in which it is thrust in sometimes in the same carriage with second and third class passengers.

Until lately, but small attention had been paid to the conveyance of fish to Manchester, and its price then ranged from 6d. to 1s. per pound. At that time the weekly supply brought chiefly from Hull was about three tons per week per railway. Through the exertions of Capt. Lawes, facilities were offered for the conveyance of fish from Hull to Manchester at rates similar to those charged for the ordinary heavy merchandize amounting from 16s. to 20s. a ton, or about one-tenth of a penny per lb. At first the great reduction in the cost of carriage had but little effect on the price, the fish vendors continuing to sell the fish at much the same rate as before, and consequently the amount brought by railway was increased but little. The principle of competition was brought to bear upon the fish sellers, and the consequence has been a reduction in the price to 1 1-2d. to 2d. per lb.

The carriage by railway has increased from three tons to eighty tons weekly—thus the railway company as carriers, the public as consumers, and the fishermen as producers, have all been gainers by this improvement, the result of the exertion or an enlightened manager.

It must not be supposed that even so trifling a change as this from the established practice can be accomplished without trouble. To prove the reverse, it is sufficient to state that the fish from Hull to Manchester has never got further, as the Liverpool and Manchester company refused to carry it on the same terms.

The Preston and Wyre company and the Manchester and Bolton company established a similar fish trade from Fleetwood to Manchester, but it was suddenly stopped by the North Union company (an intermediate link,) insisting on a charge larger than both the other companies' charges put together.

During the scarcity of hay which prevailed last season, the Manchester and Bolton railway and the Preston and Wyre railway companies carried hay from Ireland to Manchester at a charge for 50 miles of 10s. 4d., per ton, and this with the charge for the sea transit and the land transit on the Irish side, still left the hay considerably cheaper than that to be then purchased from the immediate neighborhood.

To-morrow takes place the opening of the Great Northern railway, which is the most gigantic of any in Europe, or even in the world. Its length, with embranchments, is 291 kilometres; it unites the capitals of two kingdoms—Paris and Brussels; its traffic will be enormous. Although the embranchments are not yet completed, there are already 175 locomotives and 32,500 carriages on the line. The feasting, and the pomp, and the parade of the opening of to-morrow will be gorgeously magnificent. Throughout the whole length of the line all the population will be on foot to welcome the trains; and at Lille, Amiens, and other great towns, there will be such rejoicings as were never seen before, and probably will never be seen again.—Paris, June 15,

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 63,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 feet two stories high, with a shed part 45x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

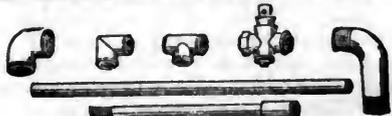
Blacksmith shop, 49 feet long by 20 feet wide. For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by MORRIS, TASKER & MORRIS, Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture and for sale by MORRIS TASKER & MORRIS, Warehouse S. E. corner 3d and Walnut Sts., Philadelphia.

LAP—WELDED WROUGHT IRON TUBES

TUBULAR BOILERS, FROM 1 1/2 TO 5 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee, 28 Platt street, New York.

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP, 75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	Tons.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4 1/4	13 5	10	21 -	50	15-16	20	
13	3 3/4	8 3	8 1/2	16 -	27	11-16	13 1/2	
14	3 1/2	6 11	7 1/2	12 8	17	9-16	10 1/2	
15	2 3/4	5 2	6 1/2	9 4	13 1/2	1-2	7 1/2	
16	2 1/2	4 3	6	8 8	10 1/2	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.

PETER COOPER, 17 Burling Slip. New York, January 23d, 1846. 1y 10

RAILROAD IRON—500 TONS OF 67 LBS. per yard—5 inches high—of the double headed pattern, which is now wholly used in England—now on the passage, and a further quantity will be contracted for. Also

500 tons T pattern, 56 lbs. per yard, for sale by BOORMAN, JOHNSTON & CO. 119 Greenwich street. 4t24

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/2 x 1/2 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/2 x 1/2 " Flange Iron Rails. 75 " 1 x 1/2 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, Albany Iron and Nail Works, 1y

CALIGRAPHIC BLACK LEAD PENCIL. Manufactured by E. Wolff and Son, 23 Church Street, Spitalfields, London.

The Caligraphic Pencils have been invented by E. Wolff and Son, after the expenditure of much time and labor. They are the result of many experiments; and every effort that ingenuity and experience could suggest, has been made to insure the highest degree of excellence, and the profession may rely upon their being all that can be desired.

They are perfectly free from grit; and for richness of tone, depth of color, delicacy of tint, and evenness of texture, they are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use.

The Caligraphic Pencils will also recommend themselves to all who use the Black Lead Pencils as an instrument of professional importance or recreation, by their being little more than half the price of other pencils.

An allowance will be made on every groce purchased by Artists or Teachers.

May be had of all Artists, Colourmen, Stationers, Booksellers, etc.

A single pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

Caution.—To prevent imposition, a highly finished and embossed protection wrapper, difficult of imitation, is put around each dozen of Pencils. Each Pencil will be stamped on both sides, "Caligraphic Black Lead, E. Wolff and Son, London."

The subscriber has on hand a full supply of Wolff and Sons celebrated Creta Loevis, or Colored Drawing Chalks, also their pure Cumberland Lead and extra prepared Lead Pencils, and Mathematical Lead Pencils.

P. A. MESIER, Stationer and Sole Agent, No. 49 Wall Street.

N. B.—A complete assortment of Steven's Genuine Inks, Fluids, Imitating Wood stains, and Graining Colours at the Manufacturers prices. 19ft

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v 19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

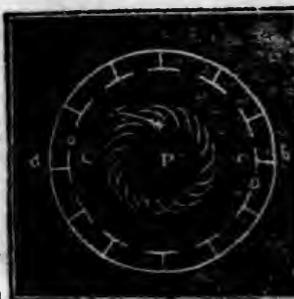
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45



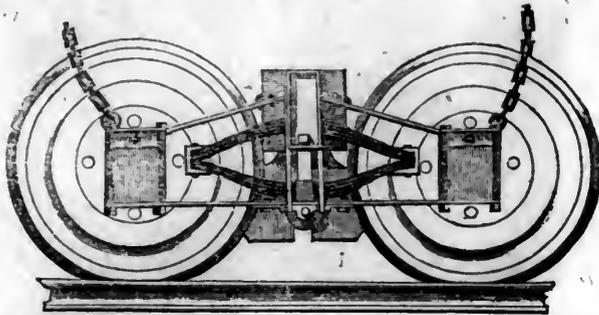
BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco Pressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes. 171

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.] WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed.] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed.] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

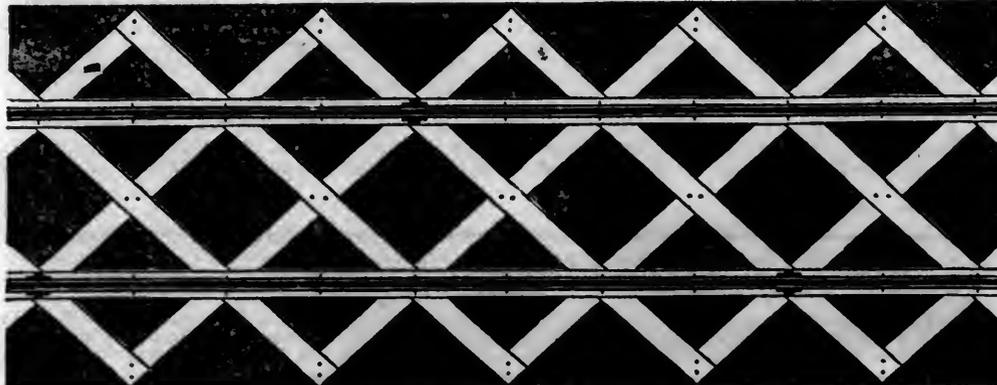
Long Island Railroad Depot,

Jamaica November 12, 1845.

[Signed.] JOHN LEACH,

Sup't Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON,

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

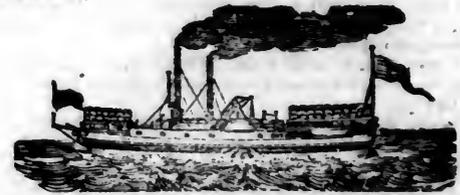
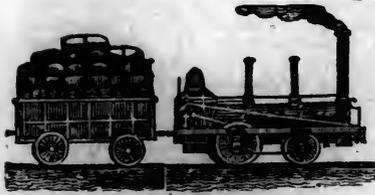
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ENGINEERS and MACHINISTS.

- THOMAS PROSSER, 23 Platt St. N. Y. (See Adv.)
- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- PHENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 30;

SATURDAY, JULY 25, 1846.

{WHOLE No. 527, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.
Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.
Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.
Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3½ p.m.
All baggage at the risk of the owners thereof.
31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD AND STAGES CONNECTING with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.
New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars.
321 ly J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:
Boston for Portland at 7½ a.m. and 2½ p.m.
Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m.
Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m.
Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m.
Portland for Boston at 7½ a.m., and 3 p.m.
Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.
Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m.
Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, *Super't.*

TROY AND GREENBUSH RAILROAD. Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at 6½ A.M.	Leave Albany at 7 A.M.
" " 7½ "	" " 8 "
" " 8½ "	" " 9 "
" " 9½ "	" " 10 "
" " 10½ "	" " 11 "
" " 11½ "	" " 12 M.
" " 1 P.M.	" " 1½ P.M.
" " 2 "	" " 2½ "
" " 3 "	" " 3½ "
" " 4 "	" " 4½ "
" " 5 "	" " 5½ "
" " 5½ "	" " 6 "
" " 6½ "	" " 7 "

The 6½ a.m. and 2 o'clock p.m. runs from Troy, to Boston runs.

The 12 m. and 6 o'clock p.m. trains from Boston runs.

Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT,
Superintendent.
14 ly

Troy, April 1st, 1846.

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A.M. and 4 P.M.
" Middletown at 6½ A.M. and 5½ P.M.
FARE REDUCED to \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P.M.
" Middletown at 12 M.
The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P.M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts.

H. C. SEYMOUR, *Sup't.*

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Millford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 tf

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4, 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams' Bridge trains will be regulated according to the state of the weather.

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846..Spring Arrangement..1846
Commencing April 1st.
Passenger trains leave daily, Sundays excepted—
Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6½ " and 2½ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.
Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.
Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.
Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.
Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.
Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.
For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES,
Superintendent and Engineer.

Western Railroad Office,
Springfield, April 1, 1846. } 14 ly

NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.

Passengers destined for Columbus and Cincinnati, O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance.....230 miles.
From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy Iron,] to Mansfield, distance.....56 "
Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance.....88 "
Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

TIME.
From Buffalo to Sandusky..... 24 hours.
Leave Sandusky 5 a.m. to Columbus.... 14 "
From Columbus to Cincinnati..... 15 "
Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.
From Buffalo to Sandusky, Cabin.....\$6 00
" " " Steerage..... 3 00
" Sandusky to Columbus..... 4 50
" " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Sup't, etc.
M. & S. C. R. R. Co.

WILLIAM R. CASEY, Civil Engineer,
New York. Address Box 1078, Post-office.
New York. 21

THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00
" " Sandusky to Buffalo, Cabin..... 6 00
" " " " Steerage.... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.
Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.
Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.
B. HIGGINS, Sup't, etc.
M. & S. C. R. R. Co.

Sandusky, Ohio.

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:

Leaves Baltimore at.....9 a.m. and 3½ p.m.
Arrives at.....9 a.m. and 6½ p.m.
Leaves York at.....5 a.m. and 3 p.m.
Arrives at.....12½ p.m. and 8 p.m.
Leaves York for Columbia at...1½ p.m. and 8 a.m.
Leaves Columbia for York at...8 a.m. and 2 p.m.

FARE.
Fare to York.....\$1 50
" Wrightsville..... 2 00
" Columbia..... 2 12½
Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg.....\$9
Or via Lancaster by railroad..... 10
Through tickets to Harrisburg or Gettysburg... 3
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5½ p.m.
Returning, leaves Owing's Mills at.....7 a.m.
D. C. H. BORDLEY, Sup't.
31 ly Ticket Office, 63 North st.

LXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.
Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1.25.
On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.
The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.
35 ly

RAILROAD IRON—1700 TONS VERY

Best English Rails, ready to be delivered.—These Rails weigh 60 lbs., the lineal Yard, are 3½ inches deep; 4 inches deep at base; 2½ inches wide at top; 17½ feet long, except one-tenth of 15 and 12½ feet in length.
A first rate Steam Pile Driver built by "Dunham & Co.," has never been in use, is in perfect order, and for sale a bargain; also 12 Railway Passenger Cars that have never been used, which will be sold very low.
DAVIS, BROOKS & CO.,
June 1. 30 Wall Street.

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the

Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburg. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13yl

SOUTH CAROLINA RAILROAD.—A

Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama. Fare through from Charleston to Montgomery daily.....\$26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 22 00
The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.
1y25 **JOHN KING, Jr, Agent.**

CENTRAL RAILROAD-FROM SAVANNAH TO MACON. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—
On weight goods generally... 50 cts. per hundred.
On measurement goods..... 13 cts. per cubic ft.
On brls. wet (except molasses and oil).....\$1 50 per barrel.
On brls. dry (except lime)... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.
On molasses and oil.....\$6 00 per hhd.
Goods addressed to F. WINTER, Agent, forwarded free of commission. **THOMAS PURSE,**
40 Gen'l. Sup't. Transportation.

THE WESTERN AND ATLANTIC

Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.
From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.
On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.
This is the most expeditious route from the east to any of these places.
CHAS. F. M. GARNETT,
Chief Engineer.
Atlanta, Georgia, April 16th, 1846. 1y17



RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATAILÉ.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 51 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched

he extreme heat. RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed,)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138½ Water st., N. Y.

Also by Isaac Bridge, 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street Charleston, S. C.

16 ft

CUSHMAN'S COMPOUND IRON RAILS.

etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
Albany, N. Y.

Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

RAILROAD IRON AND LOCOMOTIVE

Tyres imported to order and constantly on hand by

A. & G. RALSTON

Mar. 20th 4 South Front St., Philadelphia.

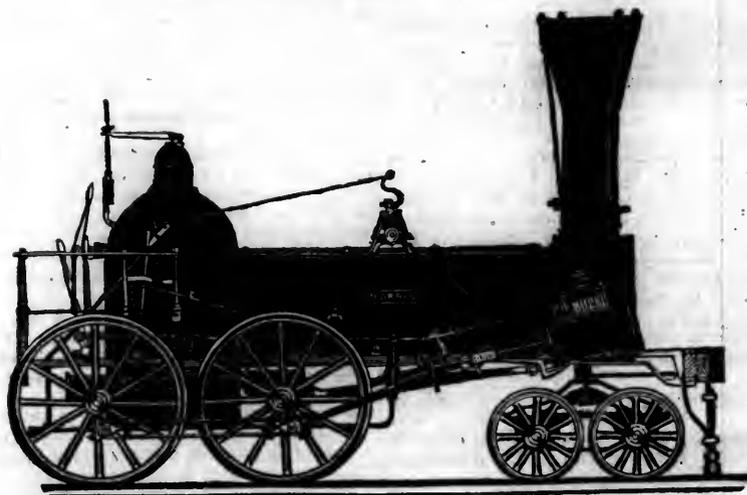
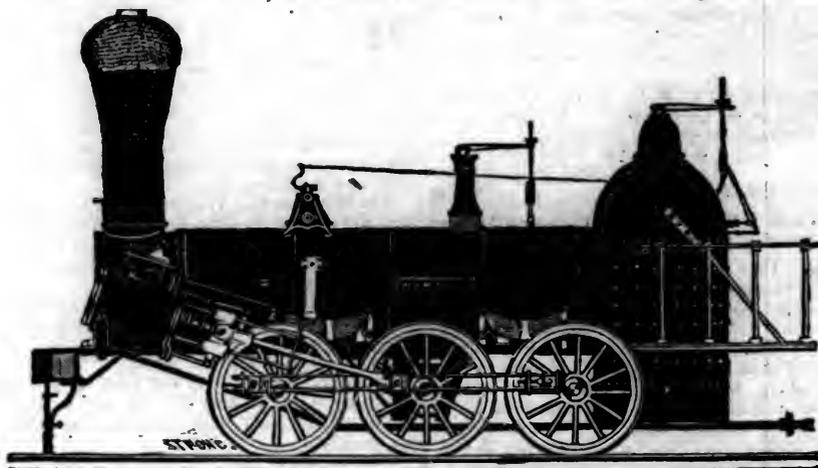
THE NEWCASTLE MANUFACTURING

Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel, Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 ⁷ / ₈ inches	Diameter of	Cylinder,	× 20 inches	Stroke.
" 2,	14	"	"	× 24	"
" 3,	14 ¹ / ₂	"	"	× 20	"
" 4,	12 ¹ / ₂	"	"	× 20	"
" 5,	11 ¹ / ₂	"	"	× 20	"
" 6,	10 ¹ / ₂	"	"	× 18	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order; and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS

A Simple Method of Protecting from Lightning, Buildings with Metallic Roofs.

On the principle of electrical induction, houses thus covered are evidently more liable to be struck than those furnished either with shingle or tile. Fortunately, however, they admit of very simple means perfect protection. It is evident, from well established principles of electrical action, that if the outside of a house were encased entirely in a coating of metal, the most violent discharge which might fall upon it from the clouds would pass silently to the earth without damaging the house, or endangering the inmates. It is also evident, that if the house be merely covered with a roof of metal, without projecting chimneys, and this roof were put in metallic connection with the ground, the building would be perfectly protected.—

To make a protection, therefore, of this kind, the professor advises that the metallic roof be placed in connection with the ground, by means of tin or copper gutters which serve to lead the water from the roof to the earth. For this purpose, it is sufficient to solder to the lower end of the gutter a riband of sheet copper, two or three inches wide, surrounding it with charcoal, and continuing it out from the house until it terminates in moist ground. The upper ends of these gutters are generally soldered to the roof; but if they are not in metallic contact, the two should be joined by a slip of sheet copper. The only part of the house unprotected by this arrangement will be the chimneys; and to secure these, it will only be necessary to erect a short rod against the chimney, soldered at its lower end to the metal of the roof, and extending fifteen or twenty inches above the top of the flue.

Considerable discussion in late years has taken place in reference to the transmission of electricity along a conductor; whether it passes through the whole capacity of the rod, or is principally confined to the surface.—From a series of experiments presented to the American Philosophical society, by Professor Henry, on this subject, it appears that the electrical discharge passes, or tends to pass, principally at the surface; and as an ordinary sized house is commonly furnished with from two to four perpendicular gutters, (two in front and two in the rear,) the surface of these will be sufficient to conduct, silently, the most violent discharge which may fall from the clouds.

Professor Henry also stated, that he had lately examined a house struck by lightning, which exhibited some effects of an interesting kind. The lightning struck the top of the chimney, passed down the interior of the flue to a point opposite a mass of iron placed on the floor of the garret, where it pierced the chimney; thence it passed explosively, breaking the plaster, into a bedroom below, where it came in contact with a copper bell-wire, and passed along this horizontally and silently for about six feet; thence it leaped explosively through the air a distance of about ten feet, through a dormer window, breaking the sash, and scattering the fragments across the street. It was evidently attracted to this point by the upper end of a perpendicu-

lar gutter, exhibiting scarcely any mark of its passage until it arrived at the termination, about a foot from the ground. Here again an explosion appeared to have taken place, since the windows of the cellar were broken. A bed, in which a man was sleeping at the time, was situated against the wall, immediately under the bell-wire; and although his body was parallel to the wire, and not distant from it more than four feet, he was not only uninjured, but not sensibly affected. The size of the hole in the chimney, and the fact that the lightning passed along the copper wire without melting it, show that the discharge was a small one, and yet the mechanical effects, in breaking the plaster, and projecting the window-frame across the street were astonishingly great.

These effects the professor attributes to a sudden repulsive energy, or expansive force developed in the air along the path of the discharge. Indeed, he conceives that most of the mechanical effects which are often witnessed in cases of buildings struck by lightning, may be referred to the same cause.—In the case of a house struck within a few miles of Princeton, the discharge entered the chimney, burst open the flue, and passed along the *cockloft* to the other end of the house: and such was the explosive force in this confined space, that nearly the whole roof was blown off. This effect was, in all probability, due to the same cause which suddenly expands the air in the experiment with Kinnerly's electrical air thermometer.—*From the Proceedings of the American Philosophical Society, June 20, 1845.*

Report of Railway Department of the Board of Trade.

Continued from page 443.

We commenced, in No. 28 of the Railroad Journal, the report of the railway department of the board of trade, with the intention of giving the remaining part of it in the next number, but owing to absence and a desire to call the special attention of railway companies to it, the remaining portion has been delayed; it will however be none the less acceptable or useful, by the short delay.

The remarks in relation to the use of "locomotives placed in the rear," deserve attention—and the statistics in relation to "the reduction of fares on the principal railways in England since January, 1844," should be studied by the "directors" of some of the main lines of railroad in this vicinity, and especially by those who control the lines between New York and Philadelphia—on which the highest rates, comparatively speaking, in the country are charged.

RAILWAY DEPARTMENT, BOARD OF TRADE, }
Whitehall, April 6, 1846. }

Pleasure Trips.—In the course of the year 1844, pleasure trips prevailed extensively, much danger was apprehended, and the following circular letter was issued to the railway companies on the subject:

Whitehall, Oct. 17, 1844.

Sir:—The attention of the lords of the committee of the privy council for trade, having been called to the extent and character of trains for excursions of pleasure, and eminent engineers and managers of railways having represented, in reply to their lordships' inquiries, that much danger to the passengers

is incurred on these occasions, from the unmanageable size of the trains, travelling at a high rate of speed, and without guards in proportion to the number of carriages and passengers, I am directed to request that you will be so good as to bring under the notice of the board of directors of the ——— company, the great importance of conducting these excursions in a manner which shall diminish the chances of accidents.

Their lordships do not propose to advise your company to adopt any particular arrangement; but they direct me to inform you that the professional gentlemen above mentioned, whose opinions on this subject are worthy of the gravest consideration, have stated their conviction, in which their lordships entirely concur, that danger is to be apprehended, unless the size of the trains be considerably diminished, or their rate of speed lessened.

Some of these gentlemen recommend that the excursion trains should be divided into sections of a size suitable to the powers of one locomotive engine only. Others are of opinion that two locomotive engines, coupled with a proportional number of carriages, are not objectionable.

In these instances the usual speed may be kept up, provided great precautions are taken to prevent collision.

Again, there are others who do not object to the use of a greater number of engines, but who strongly insist on the necessity of restricting the speed to 15 miles per hour.—These gentlemen, however, admit that on such occasions, it is difficult to regulate the speed, and bring it within due limits. All of them agree that the carriages for this purpose should be provided with bearings and drawing-springs; that a number of guards, adequate to enforce the company's regulations, and preserve order, should be attached to the trains; and that arrangements should be made for preventing the platforms at the stations being crowded to excess.

In conveying these sentiments, my lords desire that it may be clearly understood, that they by no means wish to suppress excursions of this character: their lordships are aware of their useful influence on the portions of the community who profit by them; but my lords are most anxious that their very utility and consequent magnitude should not lead to the disastrous results, which must ensue, if the practice of conveying great multitudes along railways be not accompanied by a better system than that which has hitherto prevailed.

My lords take this opportunity of stating also, that the primary object of each company is to convey passengers generally, according to the published time tables; and their lordships conceive that in no case should the trains so published be postponed or delayed, or otherwise interfered with, by casual trains however beneficial to a particular section of the public, or profitable to the railway company.

I have, etc., D. O'BRIEN.
Propelling Trains by Locomotives placed in the Rear.—The subject of propelling trains,

or of assisting them by locomotive engines placed in the rear, having occupied the attention of your lordships, the following circular was issued, the answers to which of the different railway companies have been satisfactory. The practice which had prevailed may be considered as generally abandoned; it is now only resorted to in cases where no danger can be apprehended:

Whitehall, Aug. 18, 1845.

Sir:—The lords of the committee of privy council for trade have at various times directed their attention to the consideration of a practice which has hitherto partially prevailed, of assisting the engine employed in drawing a train, by means of a second engine, applied so as to propel the train from behind.

In 1841, my lords addressed a circular letter to the directors of the different railway companies, inquiring whether engines were thus employed by them in rear of the trains upon their lines, and whether their experience led them to consider the use of an extra engine in front or behind as an additional source of danger.

The replies of the companies very generally conveyed the opinion of the directors, that the employment of an engine behind was an additional source of danger, and further disclaimed the use of them in that position, except under peculiar circumstances.

These replies were laid before parliament and printed in the annual report of the officers of the railway department.

In 1842, a report by the inspector general of railways, condemning the use of an engine in rear of a train, was likewise laid before parliament and printed. And on those occasions, on which complaints upon this subject have been addressed to the railway department of the board of trade, my lords have intimated their opinion that the use of engines in the manner above mentioned ought not to be permitted as a practice by the directors of railway companies.

Circumstances which have recently been brought under their lordships' notice have again induced them to turn their anxious attention to this question.

My lords, after careful and mature consideration, have directed me to convey to you the expression of their opinion, that the employment of engines for the purpose of propelling trains from behind is in the highest degree objectionable, and dangerous to the safety of those who may occupy the trains to which they are applied. And my lords direct me to recommend to you, in the strongest terms, the propriety of issuing such directions as may cause the servants of the company to abstain entirely for the future from the employment of engines for the purpose of thus propelling the trains from behind.

My lords have no authority by which they can prohibit the companies from having recourse to this practice, but they deem it their duty to address to you this recommendation, and to impress strongly upon you a consideration of the very heavy responsibility which will rest upon any railway company, if an accident should occur to a train upon their line at a time when it is thus propelled in a man-

ner admitted almost universally to be productive of great additional danger to the safety of those whom the company undertake to convey.

My lords direct me to request that you will be so good as to acknowledge the receipt of the communication, which I have now the honor of addressing to you.

I have, etc., G. R. PORTER.

To the Secretary of the ——— Railway Company.

Cheap Third Class Trains provided by Act of Parliament.—In conformity with the provisions of the act 7 and 8 Vict. c. 85, which relate to the conveyance of the poorer classes of travellers at moderate fares, and in carriages in which they may be protected from the weather, steps were promptly taken to insure compliance with the law by those railway companies which were amenable to the act in question. By this law, discretionary power was vested in your lordships to allow alternative arrangements in regard to speed, covering from the weather, seats, or other particulars, as should appear more beneficial and convenient for the passengers under particular circumstances. The chief points insisted upon by the board of trade have been, complete protection from the weather, through the closing of apertures, by curtains, or by shutters, or by Venetian blinds, or by windows, and provisions for the admission of light and air when these apertures were so closed; and recently several railway companies have provided inside lamps for their covered third class carriages at night, which, though necessary for the comfort of the passengers, was not done at first. By far the greater number of the railway companies evinced the utmost alacrity in complying with the provisions of the act, as well as great liberality in the mode of providing for the accommodation of passengers travelling by the parliamentary cheap trains. Most of the railway companies adopted windows, which raised the third class carriages to the description of second class carriages, and all that come under the law have long been running carriages which have been approved by your lordships. Most of the railway companies upon which the law is not compulsory have voluntarily come into the general arrangements; and on the whole, it may be assumed that the intentions of the legislature, with reference to these cheap trains, have been fully and satisfactorily carried into execution, both with regard to the carriages and the hours of running.

A return of the various charges made by existing railway companies, of passengers, cattle, coals, and various kinds of merchandise, distinguishing the charges made from the maximum charges authorized by their respective acts of parliament, having been made to an order of the house of commons, it thence appeared that the general charges were far below those which the railway companies might have demanded. In connection with this subject, it may be stated that many of the old established companies, in order to save themselves from the effect of new and competing projects, have reduced their charges considerably. The immediate effect of the

reduction has been an increase of traffic in such a ratio, as to augment instead of diminishing the net profit. We have not as yet, the means of ascertaining the extent of the increase; moreover, it would be difficult to arrive at a seasonable conclusion as to how much of actual increase ought to be attributed to the reduction of charge, and how much to other causes. Subjoined is a table, showing the reductions which have been made by several companies; and it is satisfactory, at any rate, to be able to report that the country at large has benefited to the extent set forth.

Statements showing the reductions in the fares, for passengers on the principal railways in England, since January 1, 1844.

	Express trains.		Mixed trains.	
	First class.	Second class.	First class.	Second class.
<i>Birmingham and Gloucester.—53 miles in length.</i>				
Fares on Jan. 1, 1844	None.	None.	14s.	10s. 6d.
Fares on Nov. 15, 1845	.....	.....	14s.	10s. 6d.
Reduction from Jan. 1, 1844, to the present date	.....	.....	None.	None.
Rate per mile on Jan. 1, 1844	.....	.....	3-169d.	2-377d.
Rate per mile at present date	.....	.....	3-169d.	1-377d.
Reduction per mile	.....	.....	None.	None.
<i>Chester and Birkenhead.—Length 15 miles.</i>				
Fares on Jan. 1, 1844	None.	None.	None.	None.
Fares on Nov. 15, 1845	.....	.....	2s. 6d.	2s.
Reduction from Jan. 1, 1844, to the present date	.....	.....	2-000d.	1-600d.
Reduction per mile	.....	.....	None.	None.
<i>Grand Junction.—Length 98 miles.</i>				
Fares on Jan. 1, 1844	27s.	.....	24s. 6d.	18s.
Fares on Nov. 15, 1845	20s.	.....	17s.	14s.
Reduction from Jan. 1, 1844, to the present date	.....	7s.	7s. 6d.	4s.
Rate per mile on Jan. 1, 1844	.....	3-306d.	3-000d.	2-204d.
Rate per mile at present date	.....	2-448d.	2-081d.	1-714d.
Reduction per mile	.....	8-57d.	9-18d.	9-18d.
<i>Great North of England.—Length 45 miles.</i>				
Fares on Jan. 1, 1844	Commenced in 1845.		13s.	9s.
Fares on Nov. 15, 1845	.....	.....	9s.	11s.
Reduction from Jan. 1, 1844, to the present date	.....	.....	2s.	1s.
Rate per mile on Jan. 1, 1844	.....	.....	3-466d.	2-400d.
Rate per mile at present date	.....	3-466d.	2-400d.	2-933d.
Reduction per mile	.....	.....	533d.	267d.
<i>Great Western.—Length 118½ miles.</i>				
Fares on Jan. 1, 1844	No express trains.		30s.	21s.
Fares on March 10, 1845—Paddington to Bristol	.....	.....	30s.	21s.
Reduction from Jan. 1, 1844, to the present date	.....	.....	3s.	2s. 6d.
Rate per mile on Jan. 1, 1844	.....	.....	3-04d.	2-13d.
Rate per mile at present date	.....	2-53d.	1-77d.	2-74d.
Reduction per mile	.....	.....	30d.	53d.
<i>Hull and Selby.—Length 31 miles.</i>				
Fares on Jan. 1, 1844	None.	None.	5s.	4s.
Fares on Nov. 15, 1845	.....	.....	5s.	4s.
Reduction from Jan. 1, '44, to the present date	.....	.....	None.	None.
Rate per mile on Jan. 1, 1844	.....	.....	9-635d.	1-548d.
Rate per mile at present date	.....	.....	1-935d.	1-548d.
Reduction per mile	.....	.....	None.	None.

Lancaster and Preston.—Length 20 miles.			
Fares on Jan. 1, 1844.	None.	5s. 6d.	3s. 6d.
Fares on Nov. 15, 1845	5s. 6d.	3s. 6d.	
Reduction from Jan. 1, 1844, to the present date	None.	None.	
Rate per mile on Jan. 1, 1844	3-300d.	2-100d.	
Rate per mile at present date	3-300d.	2-100d.	
Reduction per mile	None.	None.	
Leeds and Selby.—Length 6 miles.			
Fares on Jan. 1, 1844.	None.	2s.	1s. 6d.
Fares on Nov. 15, 1845	1s. 4d.	1s.	
Reduction from Jan. 1, 1844, to the present date	8d.	6d.	
Rate per mile on Jan. 1, 1844	4-000d.	3-000d.	
Rate per mile at present date	2-666d.	2-000d.	
Reduction per mile	1-334d.	1-000d.	
London and Birmingham.—Length 112½ miles.			
Fares on Jan. 1, 1844.	32s. 6d.	30s.	20s.
Fares on Nov. 15, 1845	27s.	23s.	17s.
Reduction from Jan. 1, 1844, to the present date	5s. 6d.	7s.	3s.
Rate per mile on Jan. 1, 1844	3-474d.	3-207d.	2-138d.
Rate per mile at present date	2-886d.	2-458d.	1-817d.
Reduction per mile	587d.	478d.	320d.
London and Brighton.—Length 50½ miles.			
Fares on Jan. 1, 1844.	14s. 6d.	None.	12s. 8s.
Fares on Oct. 1, 1845.	12s. 6d.	10s.	7s. 6d.
Reduction from Jan. 1, 1844, to the present date	2s.	2s.	6d.
Rate per mile on Jan. 1, 1844	3-445d.	2-851d.	1-9s.
Rate per mile at present date	2-970d.	2-376d.	1-782d.
Reduction per mile	0-475d.	0-475d.	0-118d.
London and Croydon.—Length 10½ miles.			
(Including 1½ miles on the Greenwich railway.)			
Fares on Jan. 1, 1844.	None.	None.	2s. 3d. 1s. 9d.
Fares on July 25, 1844.	1s. 3d.	1s.	
Reduction from Jan. 1, 1844, to the present date	1s.	9d.	
Rate per mile on Jan. 1, 1844	2-5714d.	2d.	
Rate per mile at present date	1-4285d.	1-1428d.	
Reduction per mile	1-1429d.	0-8572d.	
London and Southwestern.—Length 94 miles.			
Fares on Jan. 1, 1844.	None.	None.	23s. 6d. None.
Fares on Oct. 1, 1845.	22s. 6d.	19s. 6d.	15s.
Reduction from Jan. 1, 1844, to the present date	None.	4s.	
Rate per mile on Jan. 1, 1844	3d.	None.	
Rate per mile at present date	2-87d.	2-48d.	1-91d.
Reduction per mile	None.	0-52d.	None.
Manchester and Birmingham.—Length 85 miles.			
Fares on Jan. 1, 1844.	25s.	None.	23s. 17s.
Fares on Nov. 15, 1845.	17s. 6d.	15s.	11s. 6d.
Reduction from Jan. 1, 1844, to the present date	7s. 6d.	8s.	5s. 6d.
Rate per mile on Jan. 1, 1844	3-529d.	3-274d.	2-400d.
Rate per mile at present date	2-470d.	2-117d.	1-623d.
Reduction per mile	1-058d.	1-129d.	776d.
Manchester and Leeds.—Length 51 miles.			
Fares on Jan. 1, 1844.	None.	None.	15s. 9s. 6d.
Fares on Nov. 15, 1845	11s.	8s. 6d.	
Reduction from Jan. 1, 1844, to the present date	4s.	1s.	
Rate per mile on Jan. 1, 1844	3-529d.	2-235d.	
Rate per mile at present date	2-588d.	2-000d.	
Reduction per mile	941d.	235d.	

Midland.—Length 123 miles.			
Fares on Jan. 1, 1844.	None.	None.	33s. 22s. 6d.
Fares on Nov. 15, 1845	33s.	22s. 6d.	
Reduction from Jan. 1, 1844, to the present date	None.	None.	
Rate per mile on Jan. 1, 1844	3-219d.	2-195d.	
Rate per mile at present date	3-219d.	2-195d.	
Reduction per mile	None.	None.	
Newcastle and Darlington Junction.—Length 60 miles.			
Fares on Jan. 1, 1844.	*None.	None.	10s. 6d. 8s.
Fares on Nov. 15, 1845	10s. 6d.	8s.	10s. 7s.
Reductions from June 19, 1844, to the present date	6d.	1s.	
Rate per mile, June 19, 1844	3-230d.	2-461d.	
Rate per mile at present date	3-230d.	2-461d.	
Reduction per mile	3-076d.	2-153d.	
Newcastle and Carlisle.—Length 60 miles.			
Fares on Jan. 1, 1844.	None.	None.	16s. 12s.
Fares on Nov. 15, 1845	12s.	9s.	
Reduction from Jan. 1, 1844, to the present date	4s.	4s.	
Rate per mile, Jan. 1, 1844	3-200d.	2-400d.	
Rate per mile at present date	2-400d.	1-800d.	
Reduction per mile	800d.	600d.	
North Union.—Length 22 miles.			
Fares on Jan. 1, 1844.	None.	None.	5s. 6d. 4s.
Fares on Nov. 15, 1845	4s. 6d.	3s.	
Reduction from Jan. 1, 1844, to the present date	1s.	1s.	
Rate per mile on Jan. 1, 1844	3-000d.	2-181d.	
Rate per mile at present date	2-454d.	1-636d.	
Reduction per mile	545d.	545d.	
Preston and Wyre.—Length 19 miles.			
Fares on Jan. 1, 1844.	None.	None.	4s. 3s.
Fares on Nov. 15, 1845	4s.	3s.	
Reduction from Jan. 1, 1844, to the present date	None.	None.	
Rate per mile on Jan. 1, 1844	2-526d.	1-894d.	
Rate per mile at present date	2-526d.	1-894d.	
Reduction per mile	None.	None.	
South Eastern.—Length 88 miles.			
Fares on Jan. 1, 1844.	None.	None.	18s. 6d. 12s.
Fares on Sept. 1, 1845.	18s.	None.	15s. 10s.
Reduction from Jan. 1, 1844, to the present date	3s. 6d.	2s.	
Rate per mile on Jan. 1, 1844	2-52d.	1-64d.	
Rate per mile at present date	2-45d.	2-04d.	1-36d.
Reduction per mile	48d.	2-8d.	
York and North Midland.—Length 24 miles.			
Fares on Jan. 1, 1844.	None.	None.	7s. 5s.
Fares on Nov. 15, 1845	6s.	4s. 6d.	
Reduction from Jan. 1, 1844, to the present date	1s.	6d.	
Rate per mile on Jan. 1, 1844	3-500d.	2-500d.	
Rate per mile at present date	3-000d.	2-250d.	
Reduction per mile	500d.	250d.	

In this table no note has been taken of the diminution of cost to parties availing themselves of return tickets, which however, have been extensively used. The reduction of fares in respect to return tickets is very considerable, and the system of issuing them is becoming more prevalent.

* Line opened on June 19, 1844, and commenced in 1845.

New Lines opened in 1844.—During the year 1844 the following new lines were examined by the inspector general, previous to their being opened for public traffic:

Date when inspected, 1844.	Name of Railway.	Length. M. Ch.
Jan. 1	Bishop, Auckland and Weardale railway extension	7 23
" 30	South Eastern extension (Folkestone to Dover)	6 23
April 6	Newcastle and Darlington (branch to Durham, etc.)	2 19
" 12	Yarmouth and Norwich	21 25
" 24	Bristol and Exeter (Beambridge to Exeter)	21 77
" 26	Bricklayer's Arms line	1 56½
May 3	Liverpool and Manchester (extension in Manchester)	1 4
" 20	Dublin and Drogheda	31 62
" 25	West London	2 78
June 10	Oxford branch of the Great Western	9 57
" 15	Newcastle and Darlington Junction	23 15
" 29	Halifax branch of Manchester and Leeds	1 57
July 6	Bristol and Gloucester extension (Bristol to Gloucester)	37 43
Aug. 6	Sheffield and Manchester extension [Glossop to Woodhead]	7 65
Sept. 23	Maidstone branch of South Eastern	7 65
Oct. 9	Chester and Birkenhead extension.	0 43
Dec. 2	Warwick and Leamington branch of London and Birmingham	8 53
		195 45½

New Lines opened in 1845.—During the year 1845 the following new lines of railway were examined by the inspector general, previous to their being opened for public traffic:

Date when inspected, 1845.	Name of Railway.	Length. M. Ch.
Jan. 4	Gravesend and Rochester	6 35
" 31	Maryport and Carlisle [portions of]	19 56
April 26	Guilford Junction with South Western	5 65
May 3	Cheltenham and Great Western	15 40
" 28	Northampton and Peterborough branch of London and Birmingham	44 47
June 2	Wilsontown, Morningside and Coltness	8 50
" 10	Sheffield and Manchester [Glossop branch]	1 6
" 30	Garnkirk and Coatbridge extension	1 6
July 7	Norwich and Brandon	37 59
" 4	York and Scarborough	48 60
" 12	Sheffield and Manchester extension [Sheffield to Summit tunnel]	18 71
" 28	Eastern Counties [BishopsStortford to Brandon]	55 28
Sept. 15	Tunbridge Wells branch of South Eastern	4 1
" 21	London and South Western [Gosport extension]	0 27½
Nov. 15	Brighton and Chichester [Worthing extension]	4 60
" 21	Macclesfield branch of Manchester and Birmingham	10 56
Dec. 20	Sheffield and Manchester extension [Summit tunnel]	3 1
" 20	Do., Ashton Branch	2 32
" 29	Whitehaven Junction	5 17

The reports of the inspector general, with reference to these new lines of railway, will be found at length in the appendix. The usual statistical returns of traffic for 1844 and 1845 will be found in the appendix together with summaries, showing the number of passengers carried on the several lines

of railway, the receipts by the railway companies for their conveyance, and the amounts received for the conveyance of merchandise.

Amount of the Traffic and miles of Railway open in 1843, 1844 and 1845.—As an indication of the prosperity of the country, which is materially affected by the facilities given to and the extent of our internal communication, we annex the following table, showing, by the amounts received, the increase which has taken place in railway travelling and in the transport of goods by railway during the three years preceding June 30, 1845; and we may add, that the increase of traffic thus shown is still steadily progressing.

Year ending	Miles of railway open.	Receipts		Total.
		from passengers.	fin. goods, cattle, etc.	
June 30, 1843	1798½	£ 3,110,257	£ 1,424,933	4,535,190
" 1844	1912½	3,439,294	1,635,280	5,074,674
" 1845	2118½	3,976,341	2,333,373	6,209,714

G. R. PORTER,
D. O'BRIEN.

C W. PASLEY, Major-General,
Inspector General of Railways.

On the Derivation of the Word Theodolite.
By PROFESSOR DE MORGAN.

The word *theodolite* has puzzled all who have tried to trace it to its origin. Some have connected it with the roots of *theomai* and *dolichos*, and made it a *seer of lengths*, though the instrument neither does, nor ever did, see anything but angles. In a modern dictionary of good reputation, it is connected with *theomai* and *dolos* and made a *seer of stratagems*, which might apply to a telescope; but unfortunately the use of the term *theodolite* was prior to the invention of the telescope.

The word is exclusively English, never having obtained any mention from foreigners till comparatively recent times. The *Encyclopedie Methodique* (1789) does indeed give the word without allusion to its origin; but Saverien's dictionary (1753) says that the *theodolite* (as it is spelt,) is an instrument used by the English, much resembling the *graphometrie*.

I find that the use of the word runs back to the "Geometrical practise named *Pantometria*," begun by Leonard Digges, and finished by Thomas Digges his son (published London, 1571, quarto, reprinted in 1591.)—But it seems as if the name was not then new. Chapter 27 is on "the composition of the instrument called *Theodelitus*," and it is plain from various modes of speaking that the word is here an adjective or participle. This "circle called *theodelitus*," or "planisphere called *theodelitus*," is nothing but a graduated circle with a revolving diameter furnished with sights, and placed horizontally.—Held vertically, it would have been the astrolabe of the period, and nothing else. In Leybourn's 'Compleat Surveyor,' 1657, we learn that the altitude circle was *sometimes* added; and in Stone's mathematical dictionary (1726) that it was *sometimes* furnished with a telescope.

A ruler with sights, travelling upon a graduated circle, was a constituent part of va-

rious astronomical instruments imported into Europe from the east, and was accompanied by the arabic term *alhidada* to express it.—The word *alidude* or *alhidade* (for it is spelt both ways) is completely naturalized in France, and appears in the common dictionaries. It was also used by the English writers of the sixteenth century, and among others by Digges himself. The original *theodolite* being nothing but a graduated circle with an *alidade*, some connection between the terms might be suspected by those to whose notice they are brought. But so different do the words appear, that I for one, should never have been reminded of the first by the second, if I had not happened to find, in a writer contemporary with Digges, an intermediate formation, which brings the two words nearer together. Wm. Bourne's 'Treasure for Travellers,' was published in 1578; he does not use the word *theodolite*, but calls the instrument the "horizontal or flatte sphere." He begins by spelling the word *alhidada* thus, *alydeday*, but soon changes it, and keeps very steadily to *athelida*, which is the only technical term introduced in his description of what Digges calls *theodelitus*.—From these premises, I cannot help inferring that the *theodelited* circle of Digges, and the *athelidated* circle of Bourne, which are certainly the same things, are but described by different corruptions of the Arabic word whose earliest European form is *alhidada*.

In our day such a transformation might not be easy; but when the works above mentioned were written, nothing was more common than to spell the same word in two different ways in the course of one sentence.—Bourne himself, though he sometimes spells the name of Digges's work correctly, *Pantometria*, yet in the first place in which it occurs, he makes *Pantometay* of it, possibly a misprint for *Pantometry*.

The fact seems to have been thus in this and many other instances. In the sixteenth century, before the language was well settled, an author more accustomed to Latin than English, would try to anglicize some technical terms; and, not finding his results please his own fancy, would then fall back upon the Latin. Bourne has done this with both *athelida* and *pantometria*; and, were it worth while, I could show abundance of similar instances in other writers.

Nor is it against the connection of the words that Digges uses them both. Instances are not wanting in which two different spellings of the same word are used by the same writers for different things. For example, the original English sense of the word *square* applies to an angle, not a figure; a right angle is a square corner; and to this day the carpenter's right angle is called a square. But I could name half a dozen writers of the end of the sixteenth century who use the two spellings *square* and *squire*, the former in the modern sense, the latter for the carpenter's instrument.

Miscellaneous Items.

Dividends.—The Auburn and Syracuse railroad company have declared a dividend of 4 per cent., payable the 1st of August. Stock-

holders in New York will receive their dividends at the the American Exchange bank.

The directors of the Western railroad have declared a dividend of \$3 per share, payable Aug. 3d, to holders of stock on the 18th inst.

A dividend of 3 per cent. on the Portsmouth, Saco and Portland railroad is declared.

Eastern Railroad in N. H.—At the annual meeting held at Hampton on Tuesday last, the following gentlemen were chosen directors: Ichabod Goodwin of Portsmouth, Isaiah Breed, of Lynn, Stephen A. Chase, of Salem, Benjamin T. Reed, of Boston, and Daniel P. Drown, of Portsmouth.

At a meeting of the directors subsequently held, Ichabod Goodwin was elected president, and Daniel P. Drown, clerk.

Western Railroad.—The following comparative statement of receipts on the Western railroad, for six months ending June 30th, as compared with the corresponding six months of last year, shows an increase of nearly \$71,000:

	1846.	1845.
Passengers, -	\$168,539 73	\$149,130 38
Freight, -	227,953 73	177,623 15
Other sources, -	13,610 85	11,537 73

Total, - \$410,104 31 \$339,141 46
Increase—passengers, \$18,559 35; freight, \$50,330 58; other sources, \$2,072 82; total, £90,962 85.—*Boston Transcript.*

Boston, Concord and Montreal Railroad.—We learn that a full meeting of the directors of this road was held in this town on Tuesday and it was determined to push forward the enterprize with renewed energy. Peter Clark, Esq., has been appointed constructing agent, and has entered upon the duties of his appointment.—*N. H. Patriot.*

We find the following in the "list of acts" passed by the New Hampshire legislature, June, 1846.

"To incorporate the Souhegan railroad company; Peterborough and Shirley railroad; Franklin and Bristol railroad; Salisbury and East Kingston railroad; Ashuelot railroad company; Sullivan railroad company; East Wilton and Groton railroad."

Norwich and Worcester Railroad.—From an exhibit of the business of this road from Dec. '45, to June 1, '46, 6 months, as compared with the same time one year since, we are pleased to find the following favorable result: Receipts to June 1, 1846, 6 mos. \$106,091 24
" " " 1845, " 98,373 72
Increase, - - - - - \$7,717 52

Philadelphia and Reading Railroad.—*Second week in July.*

	1844.	1845.	1846.
Receipts, \$14,838 30	28,013 02	53,605 56	
Coal, tons, 10,671	22,825	33,049	

The ship Harriet Rockwell, arrived at Savannah, from Cardiff, (Wales,) with a cargo of rails for the Macon and Western railroad, which completes the amount required for laying the track the entire distance to Atlanta, 101 miles.

Vermont and Massachusetts.—We understand that operations on this road are going forward with renewed energy—nearly one-half the entire line being under contract.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N.Y.

Saturday, July 25, 1846.

80 RAILROAD IRON.

50	Tons 2½ x ¼ Flat Bar Railroad Iron.
50	1½ x ¼ " " " "
8	2½ x ¼ " " " "
15	1 x ¼ " " " "

with Spikes and Plates, for sale by
 A. & G. RALSTON & CO.,
 4 South Front st., Philadelphia.
 1m30

BOILER IRON.—55 TONS ASSORTED
 Boiler Iron, Nos. 3, 4 and 5, and of widths of 26, 32 and 36 inches, random lengths, in store, and for sale by
 A. & G. RALSTON & CO.,
 4 South Front st., Philadelphia.
 1m30

English Iron Trade.
 PER GREAT BRITAIN.

Each new arrival gives additional evidence of the great impetus given to the iron trade by the large number of works now in construction, or soon to be commenced.

On the continent, iron works have become a favorite investment, and some of the new establishments are conducted upon the most magnificent scale. Still it is doubtful whether the demand can be supplied for some time.

FROM LONDON MINING JOURNAL,
 JULY 2, 1846.

	£.	s.	£.	s.	d.
Bar a Wales—ton	0	0—8	0	0	0
" London	0	0—9	0	0	0
Nail rods	0	0—10	0	0	0
Hoop (staf.)	11	0—11	5	0	0
Sheet	0	0—12	5	0	0
Bars	10	10—11	0	0	0
Rails, average	9	5—9	10	0	0
Welsh cold blast foundry pig	4	5—5	0	0	0
Scotch pig b Clyde	3	6—3	8	0	0
Russian, CCND c	0	0—0	0	0	0
" PSI	0	0—0	0	0	0
" Gourieff	14	5—14	10	0	0
" Archangel	0	0—13	12	6	0
Swedish d, on the spot	0	0—11	10	0	0
" Steel, fagt	0	0—15	5	0	0
" kegs e	14	5—14	10	0	0

From our correspondent.

Iron.—Staffordshire has been very firm during the past month at our quotations of 2d ult. Welsh is a shade lower, but £8 for bars at the shipping ports, may be considered as the lowest price. Scotch pig having declined 3s. or 4s., enabled parties to place many orders which had been some time on the market, and large sales were made at about 67s. 6d. for mixed numbers. On the 29th ult., 30,000 tons of railway bars, at £9 10s., and 9,000 tons of chairs, at £7, were sold by three Staffordshire houses to a railway company in their vicinity. Swedish iron and steel continues very dull: a few sales of the former article were made last month, but we do not know of any transactions in the latter.

Communicated by Messrs. Whitcomb & Barton.

In English iron the demand for exportation is still very limited, but prices remain firm. Extensive sales of Scotch pig iron [3-5ths No. 1, and 2-5ths No. 3] have been made this week at 66s. cash in a month

—and also for bill at three months, without interest. Welsh and Staffordshire pig iron are in rather more request; and it is expected, in consequence of the very large orders which have been given, and are now in the market for rails, that higher prices must prevail. Foreign iron dull of sale.

Together with the corn and customs bills, the royal assent was given last night to about 60 other bills—a large proportion of which are for railways, making, with those previously in operation, an extent of railway enterprise that does not require an immediate attention to it to create the extensive demand for iron, exemplified in our last number. With reference to the consumption of iron abroad for railways, the construction of lines most required in India are favorably spoken of in the accounts that continue to be received; and the desire manifested at the first general meeting of the Paris and Lyons railway, to effect an arrangement with the Lyons and Avignon, and the Avignon and Marseilles companies, by which passengers may be conveyed from Paris to the Mediterranean, without break in the journey, will call for the co-operation of the French government, to accelerate these undertakings by the admission into France of British iron—or the route to India, via Trieste, may be the first completed, to the prejudice of the direct line through France to the nearest port for embarkation in the Mediterranean.—Mining Journal, June 27.

THE IRON TRADE IN FRANCE.—The present favorable change in the weather for the last week, from sultry to a moderate temperature, and the genial rains which have fallen, have had a very beneficial effect in the mining districts, as several foremasters had been obliged to suspend the blasting of their furnaces, the men not being able to support the intense heat, which temporarily caused a decrease in the production of cast iron, the price of which at St. Dizier is still maintained firm, at £7 12s. 6d. the 1000 kil. [or 17 cwt. 3 qrs. English;] wrought iron [fers battus] from £14 16s. to £15 12s. 6d. per 1090 kil., at which prices numerous orders have been given; sheet and hearth iron is steady at £9 16s., and a few sales made, as the stock in hand is small, and the iron masters are reluctant to give this high price. A great deal is doing in the manufacture of ornamental iron, and water and gas pipes, which at present is giving an active employment. On the whole the iron trade is improving, and some extensive demands are expected for railway and other purposes, when the generality of furnaces are in full blast.

Macon and Western Railroad Company.

We are gratified to learn that this important section in the great line of railroad communication between the north and south by the Atlantic states, and also between the south and west to the Tennessee river, is on the eve of completion.

We have been looking for a long time with interest to the building of this road, from a conviction of the vast public advantages which would result by opening a cheap, easy and expeditious access to Mobile, New Orleans and the extreme south, through this section of country.

When we ascertained, last winter, that the attention of some of the most intelligent and enterprising capitalists of New York and Boston had been turned to this work, we entertained no farther doubts, either in regard to their proper appreciation of its importance, or of its speedy construction, if placed in their hands. Such has been the result; and it gives us unfeigned pleasure to be able to announce, that on the fourth of the present month, the road was opened to passengers from Macon to the city of Griffin, a distance of fifty-eight miles—and the cars have been running regularly since that time, and also that on or about the 1st of August ensuing, both passenger and freight cars will run over the road the whole distance from Macon, northwesterly, to Atlanta, being one hundred and one miles.

At the latter point this road connects with the Western and Atlantic road, a state work, by Georgia, upon which, it is said, near three millions of

dollars have been already expended. The state road commences at Atlanta, and runs westerly a distance of one hundred and thirty-six miles, to the Tennessee river; thus opening, when complete, in connection with the road to be built from Nashville to the western termination of the state road, a direct and convenient channel for the valuable products of large sections of Tennessee, Ohio and Kentucky, to the Atlantic coast, and the return merchandize for the supply of the same region of these wealthy and fertile states.

The state road is now in actual operation from Atlanta for some sixty or eighty miles westerly, and is steadily progressing to completion. The Nashville road, it is understood, is also to be completed without delay.

But at this time, the completion of the Macon and Western road is of more immediate importance to the travelling public between the north and south. Passengers wishing to go from the north to Columbus, Montgomery in Alabama, Pensacola, Mobile, New Orleans or Texas, and from these parts to the north, can now accomplish the distance with great comparative expedition and comfort. The Central railroad, commencing at Savannah, and terminating at Macon, a distance of one hundred and ninety-two miles, is said to be one of the best regulated roads in the southern states, and accomplishes this distance with remarkable regularity in from ten to eleven hours. Passengers proceeding south on their arrival at Macon, immediately pass up the Macon and Western road to Barnesville, a distance of forty miles. From this point, a well conducted line of stages deliver passengers at Columbus in Georgia, or at Notasulga, the present termination of the Montgomery railroad. This space between Barnesville and Notasulga forms the only interruption to a continuous line of railroad and steamboat communication between the cities of New York and New Orleans.

We are happy to be assured that during the present year, effective and decided measures will be taken to connect the Macon and Western at or near Barnesville, with the Montgomery road, via Columbus.

Indeed, it may well be doubted, whether any other line of contemplated railroad can now be found in the United States, which would in the same degree benefit the travelling public and the stockholders, as the one in question. That it will be speedily built, we have not only personal assurance, but those also which are still stronger, resulting from the great value of such an investment on the part of its proprietors.

It is represented to us, that the traveller going to Pensacola, Mobile or New Orleans, by the Savannah and Macon roads, to the present Montgomery terminus, will not only accomplish the distance in the same if not less time than by the other route, but will save between twenty and thirty miles of stage travel; and when we take into consideration the very imperfect state of the highways in that particular region of country, this would be regarded as no unimportant consideration.

The engines and cars on the Macon road are said to be wholly new, and of the most modern and superior construction. Indeed, we have already heard gentlemen who have passed down the road from Barnesville to Macon, during the present month, express their admiration of the great beauty and comfort of the cars, and the easy and rapid movement over the road.

It is now understood that a fine and substantial line of steamboats run daily between Charleston

and Savannah, in connection with the Wilmington boats, thus forming a continuous day and night route from New York to New Orleans.

The stock of the Macon and Western road is principally owned in New York and Boston, and by the terms of its organization the general management is exclusively confined to northern agents. The skill and efficiency of those now employed on the work is fully exhibited in the fact of having laid down in a substantial and durable manner almost one hundred miles of superstructure since the month of January last, including also the necessary depot buildings, water tanks, turn tables, engines, passenger and freight cars, and all the other multifarious appendages to such a road, and that all this has been, probably, accomplished within the original estimate of the cost of the work.

That the stock cannot fail to produce golden returns to its proprietors admits of no doubt on the part of those best acquainted with the business and products of that region of country, and particularly so when it is known that the whole road when complete, with all its engines, cars, fixtures and appurtenances, will cost but little over five thousand dollars per mile.

Indeed, upon such a statement, it may well be doubted whether any railroad can be found in the United States which bids fair to yield a larger return to its stockholders on the amount of capital employed.

Excursions.

The fashion of making "excursions," is one of the novelties introduced by the modern facilities in travelling; for by the old ways of journeying, this amusement, as it may now fairly be styled, would have been impossible. Five or ten stage coaches would have cost five or ten times as much as one, and a jaunt of 30 to 100 miles and back again in one day, would have been no joke. Now-a-days, it costs but little more to draw five or ten cars with a locomotive, than it costs to draw one; and the fatigue of a trip of one hundred miles is but little more than the ennui from want of employment.

We are pre-eminently a locomotive people, and our very amusements are locomotive—the greater the speed, the greater the sport. The most phlegmatic nation cannot long resist the influences of railroads, but they are perfectly in accordance with the genius of our people.

It is only since the doctrine of low fares has been properly understood, that "excursions" have been encouraged by companies as a source of great profit—as it is by low fares only that a large number can be induced to take a trip for pleasure to any considerable distance—and it is to a distance only that people will go for pleasure, who are well acquainted with their immediate neighborhood. We were impressed with the force of this sort of popular argument, on a recent trip over the Long Island railroad. The fare through and returning had been reduced for the day to \$1 12½, including a trip from Greenport to Sag Harbor. The low price of course brought together a large number of passengers, and among them we saw one at least, who, although over eighty years of age, and residing within 12 miles of the city of New York, had never ventured into Gotham. It is not improbable that many persons were present who had never been twenty miles from their homes, and who now for the first time made a journey of nearly two hundred miles in one day.

The 4th of July, together with a few days before and after, gave occasion this year to many of these trips or excursions, and although the weather was very unfavorable, the receipts on several roads were

truly enormous. Between New York and Philadelphia, where the fare was reduced to one-half the usual sum, a larger number of passengers was taken than could be furnished with seats, and many of those, who paid four dollars, as well as those who paid but two, were obliged to stand. This of course was quite too bad, that inducements should be held out for people to travel, and that after having paid their fair—no less, by the way, than it should be at all times—they should be compelled to crowd together like so many sheep.

On all such occasions, extraordinary care should be taken to prevent accidents—the greater number present, the more fearful the result, if any occur. The responsibilities of the company as carriers are in no wise diminished, but on the contrary increased in proportion to the number of passengers. We hope one good at least will result from the increasing number of these pleasure trips each season, viz: that those railroad companies who have hitherto charged from fifty to one hundred per cent. more than they should charge, will begin to find that there is something in low fares, and that their receipts might be vastly greater if their fares were more reasonable. Those who will listen to no other argument, will sometimes heed that which is directed to the pocket.

Responsibilities of Directors.

In a late number, we made some remarks upon the duties of directors, for however singular it may seem, there are serious and responsible duties belonging to the office of director. The subject is an important one which we do not think is by any means exhausted. There is one branch of it upon which we propose making a few remarks at present—the duty of directors in the selection of competent engineers.

Nearly the whole value of a railroad depends upon its judicious construction and location—a mistake in the outset is fatal, or only to be remedied by a vast outlay which may forever cripple the exertions of the best financiers. That a good work can be constructed by any other than a skilful engineer, is hardly to be maintained by even the most stupid. The amount of knowledge required, and knowledge of such various kinds, to fit a man for the profession is such, that we should think no one uneducated (professionally) could for a moment be thought capable of disposing of property to a vast amount, by means which must be essentially empirical. No amount of blundering practice will ever educate one unprepared for practice.

What would be thought of a quack who, without knowledge of the human frame, ignorant of the properties of medicines, and trusting only to his own notions—should claim employment upon the ground that he had practiced for many years?

All this seems so absurd, that it would be wasting words to offer any argument against it—but unfortunately railroad directors are not infallible—are not all of them conscious of having any particular responsibilities, farther than to the amount of stock owned by them.

If the location and construction of a railroad have been proved by all past experience to be undertakings beyond the power of any but those who were professionally fitted for them—how can those who know nothing even of the nature of the questions continually arising for solution, undertake to perform duties which depend upon the solution?

It seems to be thought by some that *pliability* is the grand desideratum in an engineer—but who would think of employing a doctor because in a difficult case he would do as his patient directed him?

The present mania for speculation in England has already thrust many incompetent men into employment as engineers—and although men of great name are nominally engaged, are paid large sums, and do actually ride over the line—the real work has in many cases fallen into the hands of those who were utterly unfit for it. The evils resulting from this are in part seen even now, but their full amount will never be discovered until all chance for remedy is past. Let us learn a lesson from this, and our own experience in the "times of speculation." The mistakes and blunders of that period, have helped, in the minds of the ignorant, to injure the professional reputation.

That good and able men are to be found, no one doubts; let such only be employed, and the series of important works to be constructed in the next few years will be as profitable to the owners as they will be creditable to the constructors.

If men are chosen to manage the property of others—they are in duty bound to place in every department those who are capable of performing the duties assigned to them; and when the choice lies between several, they are bound to employ the one best qualified.

Let us add, too, that when an able and efficient engineer is employed, that non-interference in professional questions is as much a duty of the directors, as it is an evidence of good sense, in trusting to the skill of one whom they have engaged on account of his superior ability.

Get the best man you can find, and then let him labor without disturbance in his own department—is a rule which is as applicable in this case as in many others.

Continuous Line of Railway on the Atlantic Coast.

We have for some time past had occasion to examine into the relations of the Atlantic roads, considered as a whole. The immense importance to the southern states of their great lines of road now rapidly extending into the interior has forcibly impressed us with the great want in the interval without railway between Wilmington and Charleston. With this link in the chain supplied, the south will be the south no longer—so near will these two portions of our country be brought in facility of transport and time.

That the proper spirit exists we do not doubt, as the recent meetings held with a view to complete this line of road, have all testified to the unanimous desire to hasten an undertaking so essential to the true interests of the country.

The following article from the National Intelligencer, is so much to the purpose that we copy it. The suggestion that the United States should advance the mail pay for ten years, we have heard, has been favorably received—what authority there is for the report we cannot say.

To the Editors of the National Intelligencer:

In a former article we invited attention to the very great public importance of a continuous railway from the eastern extremity of the union, via the capital at Washington, to New Orleans; and, in progress of time, beyond that city to the most remote western portion of the confederation. In these days of telegraphic and locomotive dispatch for intelligence and passengers, it needs no argument to enforce the vast public benefit of such accommodation. Indeed, our citizens will not be contented with the old slow motion, with all its attendant delays and casual-

ties, when contrasted with the *speed, security* and *certainly* of steam. Much has been already accomplished on the great work, and our southern population have not been behind their eastern friends in their undertakings. In the two Carolinas and Georgia there are now *completed* and in *operation*, nine hundred and thirty-eight miles of railway, and there are one hundred and seventy miles more of railway now under progress of construction. The roads from Washington to Wilmington and Raleigh, in North Carolina, are continuous, and interrupted by a space of about one hundred and fifty to one hundred and sixty miles, when, from Charleston, there are continuous lines of railway for three hundred and eighty-eight miles in the interior. It is only necessary to fill up, by railway, the above one hundred and fifty miles, to secure a continuous route, by motive power, from Potomac creek to Atlanta, seven hundred and sixty-four miles in the direction to New Orleans, and to Oothcalouga, eight hundred and forty-four miles, in the direction to Memphis and Nashville, in Tennessee.

The question may be asked, why do not the Carolinians fill up, by railway, this vacuum or space of one hundred and fifty miles? The answer is, that the road will pass generally through a barren country, and sparsely populated, and, therefore, doubts are entertained whether it presents sufficient inducement for private enterprize. But as this barren space interposes between the richer and more populous portions of the union, interrupting its intercourse, and impeding the mails, it became a work of common benefit, in which all the other roads, states and communities, and the United States in particular, in relation to the mail, become unitedly interested. All interests, therefore, should cooperate, and, to the extent of benefits to accrue, contribute. Let this common action take place, and the vacuum now complained of could, in a short time and at a moderate cost, be constructed. We speak from observation and estimate when we say that the link in the great chain of railway between Wilmington and Charleston could be completed with a rail of fifty pounds to the yard, duty free, at less than \$1,500,000.

It is proposed, therefore, that if the United States will advance the mail pay for ten years to be paid as the road progresses, and remit the duty on iron for this link alone, provided the road is finished in eighteen months from January 1, 1847, that the states of South and North Carolina, their citizens, and Charleston and Wilmington, come under an obligation to finish the work. It is no subscription or contribution asked of the general government, but simply an advance on mail service performed, with ample security, and the remission of an exorbitant tax, which has done more to check enterprize than any policy which the general government has adopted. We hope "Observer" will second us in these views, so deeply connected with the public good, when he shall hear further from

A CAROLINIAN.

Boston, Northern New York, and the Lakes.
Our Boston neighbors are now kindly taking care of the interests of New York—determined that the "Empire State" shall not be without its much-needed lines of railroad, even if Bostonians have the trouble of building them and taking the profits. Well, we are glad that if the New Yorkers will not build their own roads, that the Bostonians will do so for them. Let the roads be built—the builders deserve the profit.

Some people may think this [an unnatural collocation of names, to form the subject of an article. We are of a different opinion. The time is not far distant when the whole chain of the great lakes will be connected with Boston by a railroad, from the St. Lawrence at Ogdensburg. This magnificent avenue will pass from that place through the northern counties of New York to Plattsburg—cross Lake Champlain to Burlington—intersect Vermont, and unite with the Northern railroad at the mouth of White river, or with the Cheshire railroad at some lower point on the Connecticut.—Probably there will be a connection at both these points. In the former case, the travel will take the Concord and Lowell routes—in the latter, the route through Keene and Fitchburg. When the Rutland road shall have been built, as contemplated, there will be still another avenue opened from Connecticut river to Burlington, thus offering a chain of roads from Boston to Ogdensburg, either of which will afford an expeditious and safe conveyance of the produce of the great west to Boston, and a most agreeable route for such as travel for pleasure. We confidently believe that this great project will be consummated in three years. Nothing but *war* can prevent or retard it; and in case of war with England—which, we trust, the good sense of the people will not suffer to exist, whatever the madness and foolishness of rulers may do to provoke it—it will be good policy in the national government to open this great thoroughfare with all possible expedition. Indeed, in the present peaceful posture of our political relations, it would be wise for the government to aid in the enterprize, or complete it wholly at the national expense.

We have before alluded to the importance of this road to northern New York. Every one who has had a personal inspection of this region will admit, that nothing is needed to render it one of the richest and most populous parts of the country, but a direct communication with a sea-port. Much of the land is yet uncultivated, and much of that which is cleared is still wild and rough, and needs the improving hand of enterprize to develop all its capacities. But the soil is rich, and will generously recompense all the labor bestowed upon it. The villages of Canton, Potsdam, and Plattsburg, must hereafter become the Lowells and Dovers of northern New York, and no man need to fear for his reputation as a sagacious observer, who should predict that each of them—with the projected railroad passing through them—would, in a few years, be equal in wealth and population to any of our New England manufacturing villages.

Plattsburg is the shire town of Clinton county—a county which, in 1800, had only 5,514 inhabitants. In 1840, it had 28,157. In 1850, the population, increasing only at its present moderate ratio, will exceed 40,000. From a statement in the Plattsburg Republican, it appears that there were in the county in 1845, 14 grist and flouring mills, 126 saw mills, 7 fulling mills, 5 woollen factories, 34 iron works, 16 asheries, and 20 tanneries.—The articles annually manufactured in these works, exceeded \$1,313,693 in value. There were also, that year, in the county, 3 wholesale and 95 retail stores, 33 churches, 3 academies, 11 private and 131 common schools. The number of pupils in the private and common schools was 6,047. By a comparison of the census returns of 1840 and 1845, it will be seen that the stock in the county, including hogs, sheep, horses and neat cattle, had increased in value \$55,562, and the grain and esculent roots \$117,541, or about 9 per cent. for the former, and twenty-five per cent. for the latter. The stock of the county comprises 13,475 swine, 63,434 sheep, 6,378 horses, and 24,006 neat cattle—which may be valued in round numbers at \$700,000.—Of grain and esculent roots, 1,324,189 bushels were raised in 1844, of which 265,258 bushels were oats, 37,998 rye, 104,834 corn, 620,028 potatoes, and one hundred and fourteen thousand five hundred and sixty-nine bushels were wheat.

By reference to the published report of the Clinton County Agricultural Society, for the year 1845, it appears that on the farms visited by the committee, in Peru, Plattsburg, Beekmantown, Chazy and Champlain, the average amount of corn raised was 87 bushels to the acre (shelled); of oats, 53 bushels to the acre. They also report 28 bushels of wheat to the acre on the farms visited by them. If such be the products in the present condition of the farms, we should think the amount would be doubled, when the stumps shall have been removed from the fields.

The same paper, giving an account of the iron business on the Saranac, states that—

The spring of this year will open with thirty-one fires in operation at the following places:

Plattsburg village.....	1	forge, with 4 fires.
Averill's.....	1	" 5 "
Cadyville.....	1	" 2 "
Ellsenore.....	1	" 3 "
Saranac.....	4	" 9 "
The Forks.....	1	" 6 "
Scripture's.....	1	" 2 "

Several other forges will be erected during the coming season, and additional fires will be put in some of those above enumerated.—There are also forges higher up the river, at Union Falls, besides many on smaller streams. The 10 forges referred to make weekly about 100 tons of iron, allowing a trifle over three tons a week to each fire. The forges upon the smaller streams increase the weekly supply about 25 tons; making 125 tons which can now be produced in a week upon the river, below "Scripture's" forge. The Saranac river, being the outlet of, and supplied by the two Saranac lakes—both large bodies of water—is a steady stream, not subject to

sudden rises in the spring, or low water in summer—an inconvenience greatly felt on rivers dependant on mountain brooks and streams for their supply.

The village of Plattsburg contains a population of 2500. It has one flouring mill, 2 saw mills, 2 woollen factories, 2 asheries, 3 tanneries, 1 foundry, 1 machine shop, 1 marble mill, 1 forge with 4 fires, 1 comb factory, etc.; 1 wholesale and 34 retail stores, 1 academy, 4 common schools, 5 churches, a public library containing over 1,300 volumes, 2 printing offices, etc. A large gang mill was erected last year, capable of sawing out 500,000 pieces of lumber annually, and another mill lot has lately been purchased, upon which the owners intend to erect a similar establishment. The United States have a military post within a mile of the village, on the shore of the lake. The Clinton state prison is located about fifteen miles west of the village. The Redford glass company are about to re-commence the manufacture of glass. The proprietors are making extensive preparations for that purpose. These works are located at Redford, on the Saranac, about 22 miles from its mouth.

This place possesses the natural advantages necessary to make it the seat of extensive business and wealthy population. Among these advantages the following are enumerated:

1. A convenient harbor, improved by a breakwater.
2. A direct water communication with Albany, Troy, and New York on the south, and a water and railroad communication with Montreal on the north.
3. A water communication with Burlington, Vt., the terminus of the lake Champlain and Boston railroads.
4. A direct communication, by a good turnpike, with the grain-producing counties of Franklin and St. Lawrence.
5. A large and steady stream of water, affording a full supply at all seasons of the year, for driving heavy machinery.
6. A proximity to the extensive timber lands of northern New York, and the ore beds and iron works of the Saranac.
7. A cheap and direct water communication with several of the most valuable ore beds in Essex county, etc.

The Republican of September 27, 1845, had the following statement:

We have taken some pains to ascertain the amount of business done at this port during the past five days of this week—more with reference to our business connected with Franklin and St. Lawrence counties, than for any other purpose. We do not include the business of the river—its iron or lumber.

Five steamers have arrived and departed daily; and in addition, on Thursday two iron steamers were in port. Nine sloops have also arrived during that time. From these vessels have been landed 393 packages merchandise—received for shipment from Franklin county, 8 bales of goods, 202 half barrels of butter, and 41 barrels of ashes. Also, arrived or embarked during the same time,

987 passengers, 260 horses, and over 200 wagons, most of them going west.

Vermont Central Railroad.

We had recently the pleasure of passing near the whole route of this road from Windsor to Burlington. It is a gigantic enterprize, but not too great for the energies of its friends and projectors to overcome. The excavation of a hill (or rather a mountain) called the Hour Glass, just above the village of Windsor, is a work not less in magnitude than the construction of the largest Egyptian pyramid, except that it may be somewhat easier to pull down than to build up. The most important part of the operation is performed by means of a lately invented machine, called *excavator*,* which is worked by steam, requiring only two persons to manage it.—The machine occupies a space about 20 feet square. The shovel is attached to a crane, is silently pushed forward to the bank which is to be removed, fills itself, swings round about a quarter of a circle, and empties itself into the cars which transport the contents to their appointed place. A cubic yard and a half of gravel is taken up at each operation. The whole operation of filling a cart was performed in 22 seconds. The earth, gravel and stones were thus removed from the bowels of the mountain as fast as a dozen cars, with a horse and man to drag the cars, could carry them to the embankment where they were deposited, not more than 20 rods distant. Another excavator is in preparation and will be ready in a few days to operate on the opposite side of the hill. These two enormous engines, working towards each other, will soon make a passage through a pile of earth and rock, which, to the eye of a common spectator, would seem to defy any power less than that of the Creator. The operation, which we saw, was carried on at least 100 feet below the summit of the mountain, leaving a perpendicular bank that is frightful to look at.

There are many other places on the route, especially between Windsor and the White river, through which it would seem impossible to make a road; but we have learned that Yankee ingenuity and enterprize can overcome all obstacles. They are all *but* omnipotent.

From White river village to Royalton the route proceeds along the bank of White river, and meets with no uncommon obstacles; nor do we recollect any remarkable difficulties to be overcome, between that place and the summit. Having attained the summit, the route proceeds for 12 or 15 miles on nearly a dead level, to a town called Roxbury, from whence there is a descent to Northfield, not exceeding 40 feet to a mile, through a region of hills, intersected by deep ravines—a wild and romantic region, which we will not attempt to describe. At Montpelier, 8 miles from Northfield, the route comes in contact with Onion river, and passes through the beautiful valley of that stream, till it approaches near to Burlington. There is here

* For a full description [with engraving] of this machine, see Railroad Journal for Sept., 1843, p. p. 261, 266.—Ed. R. R. Jour.

a deep cut, where the excavator may be advantageously employed.

Gangs of laborers are employed along the whole route, 2,500 in number. A thousand more are wanted, and could be furnished with work by the contractor, Mr. Belknap, "the Napoleon of railroads," who, so far as this enterprize is concerned, is literally fulfilling the prophecy, that "every valley shall be exalted, and every mountain and hill brought low;" and if he cannot make "the crooked straight," he will make the "rough places plain" enough for the iron horses to travel over them with ease and rapidity.

There are two or three beautiful villages in the town of Northfield, at one of which is the residence of Charles Paine, formerly governor of Vermont, where he has a large woollen factory, giving employment to about 200 persons. The father of the ex-governor was the late Judge Paine, who, we believe, was the first man who attempted to establish a woollen factory in Vermont. He will long be remembered as an active and vigorous advocate of the protective policy, and a successful projector and promoter of improvements which have added to the wealth and happiness of his fellow-citizens. The son seems to be determined to carry out the wise and judicious policy of the father. He is president of the Central railroad corporation, and gives his whole soul (not a small one) to the enterprize. Aided as he is by Mr. Belknap, the enterprize cannot fail, and it is confidently believed that in less than two years the entire road from Windsor to Burlington will be completed. If the Cheshire road should be finished within the same term, the journey from Boston to Burlington—two hundred and forty miles—can be made in 12 hours.

It is not yet determined whether the lower terminus of this road shall be at Windsor or at Cheshire bridge, some 12 or 15 miles lower down on the Connecticut. This will depend on the decision of the legislature of New Hampshire, before which a petition is pending from the directors of the Cheshire corporation, for liberty to extend their road from Cheshire bridge to a point in Cornish, opposite to the village of Windsor. Should this proposed extension be permitted, the Central road will unite with the Cheshire at that place. The editor of the Traveller, describing his late tour through this part of New England, says:

"Windsor, where at present commences the location of the Vermont Central railroad, is one of the most picturesque locations on the Connecticut. Its streets are lined with a profusion of that most beautiful tree, the rock or sugar maple, under the grateful shade of which no traveller can pass without feeling a strong disposition to be very thankful to somebody by whose thoughtful benevolence they were planted. The fertile meadows of the Connecticut beautify the township, and the lofty peaks of the Ascutney Mountain, which tower above it, give an additional charm to the spot. The town is not, evidently, in the vigor of life. Indeed, there is a decaying appearance about some of its handsome buildings

and estates which calls loudly for the reviving influences of the railroad. The small stream which runs through the town affords but limited power for manufacturing purposes. An establishment has just been erected upon it, by Mr. S. E. Robbins, an enterprising gentleman, formerly of this city, which will occupy the full capacity of the water power. It is for the manufacture of rifles. Mr. Robbins has contracted with the government to manufacture some twenty thousand rifles, which contract will employ about seventy hands for four years or more—the capacity of the factory enabling him to turn out twenty guns a day. His machinery is entirely new, and of the most approved construction, and the whole establishment is extremely neat and well ordered."

We quote this paragraph for the general accuracy of the statement, and to correct a mistake, inadvertently committed by our neighbor, the substance of which we have placed in italics. It might be supposed from his language that the water-power is much more limited than it really is. There is not only sufficient power for all the purposes of the rifle factory, but enough to accommodate a large cotton mill. The dam, which originally cost forty thousand dollars, a quarter of a mile above the rifle factory, creates a pond that covers one hundred and forty-three acres, and furnishes an almost inexhaustible supply of water, the full capacity of which cannot be put to the test by any mill or factory hitherto erected. When the full capacity of the power shall be called into action by the aid of that capital, which seeks investment in manufacturing stock—which we hope will be done in a few years—the town of Windsor may exhibit more activity, and indicate a more ambitious disposition to keep fences as well as houses in repair. It must be confessed that there is a lamentable want of something—as if the good people of the village thought its natural charms were attractive enough, without any aid from the hand of taste or cultivation. The Windsor House is a first rate hotel, where travellers, bent on business or recreation, may be sure of a welcome and good treatment.

If some of the many who spend the summer months, or a portion of them, in travelling for pleasure, could be persuaded to take a ramble among the Green mountains, they would never take the trouble of a voyage across the Atlantic, to see the Alps and the Glaciers, the lakes of Switzerland, or the rivers of Germany. Almost the whole state of Vermont is a region of romantic scenery.—The lover of nature may find sublime elevations and profound abysses—placid streams of water and terrific rapids—hills cultivated to the tops and intervalles luxuriant in all that can minister to the comfort of human beings—pastures covered with flocks and meadows vocal with the song of the laborer—enough to satisfy any one not sophisticated by fashion, and willing to believe that the Creator did not exhaust his energies on the eastern continent. The mere epicure need not fear the want of provocatives to appetite. He may find, at many of the villages among the Green

mountains, provisions enough to gorge the most voracious, and delicacies enough to satisfy the most fastidious. At the little village of Bethel—eight miles above Royalton, which, from the hum of its machinery, the flashing of its water-wheels, and the busy crowd attending them, might be termed a human bee hive—a dinner table was prepared which would deserve a compliment if imitated at the Tremont or United States Hotel. At Northfield, too, those who live to eat, may live forever, if they do not eat too much at the first meal. Go AND SEE!—Boston Courier.

Eastern Railroad.—The annual meeting of the Eastern railroad company was held on Monday at the Eastern Exchange hotel in Boston. The reports of the president and treasurer showed that the affairs of the company had been well managed, and were in a flourishing condition. By unanimous votes, the president and directors were authorized to make such arrangements as might be mutually advantageous with the Salisbury Branch, the Essex, and the Boston and Maine railroads.

The following directors for the year ensuing were chosen unanimously, viz: David A. Neal, of Salem; Isaiah Breed, of Lynn; Dan'l Adams, Jr., of Newbury; John Hooper, of Marblehead; Amos Binney, John E. Thayer and John Bryant, Jr., of Boston.

Essex Railroad.—It is expected that operations will be commenced in a week or two on the Salem end of the line of the Salem and Methuen railroad.

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shaiting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions.

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee.

G. A. NICOLLS, Reading, Pa.

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

PATENT INDESTRUCTIBLE WATER Pipes. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

J. BALL & CO.

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

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Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

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MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by **JOHN A. ROEBLING, Civil Engineer,** Pitsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 fe. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 feet two stories high, with a shed part 45x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

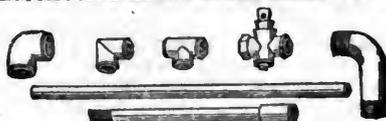
For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja47

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by MORRIS, TASKER & MORRIS, Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

TO LOCOMOTIVE AND MARINE ENGINEERS. Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

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LAP—WELDED WROUGHT IRON TUBES

FOR TUBULAR BOILERS, FROM 1 1/2 TO 5 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee. 23 Platt street, New York.

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP, 75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH.	
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	Tons.		
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.			
11	4 1/2	13 5	10	21 -	50	15-16	20		
13	3 1/2	8 3	8 1/2	16 -	27	11-16	13 1/2		
14	3 1/4	6 11	7 1/2	12 8	17	9-16	10 1/2		
15	2 3/4	5 2	6 1/2	9 4	13 1/2	1-2	7 1/2		
16	2 1/2	4 3	6	8 8	10 1/2	7-16	7		

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.

PETER COOPER, 17 Burling Slip. New York, January 23d, 1846. 1y 10

RAILROAD IRON—500 TONS OF 67 LBS. per yard—5 inches high—of the double headed pattern, which is now wholly used in England—now on the passage, and a further quantity will be contracted for. Also

500 tons T pattern, 56 lbs. per yard. for sale by BOORMAN, JOHNSTON & CO. 119 Greenwich street. 4t24

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/2 x 1/2 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/2 x 1/2 " Flange Iron Rails. 75 " 1 x 1/2 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, Albany Iron and Nail Works, 1y

CALIGRAPHIC BLACK LEAD PENCIL, Manufactured by E. Wolff and Son, 23 Church Street, Spitalfields, London.

The Caligraphic Pencils have been invented by E. Wolff and Son, after the expenditure of much time and labor. They are the result of many experiments; and every effort that ingenuity and experience could suggest, has been made to insure the highest degree of excellence, and the profession may rely upon their being all that can be desired.

They are perfectly free from grit; and for richness of tone, depth of color, delicacy of tint, and evenness of texture, they are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use.

The Caligraphic Pencils will also recommend themselves to all who use the Black Lead Pencils as an instrument of professional importance or recreation, by their being little more than half the price of other pencils.

An allowance will be made on every groce purchased by Artists or Teachers.

May be had of all Artists, Colourmen, Stationers, Booksellers, etc.

A single pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

Caution.—To prevent imposition, a highly finished and embossed protection wrapper, difficult of imitation, is put around each dozen of Pencils. Each Pencil will be stamped on both sides, "Caligraphic Black Lead, E. Wolff and Son, London."

The subscriber has on hand a full supply of Wolff and Sons celebrated Creta Loevis, or Colored Drawing Chalks, also their pure Cumberland Lead and extra prepared Lead Pencils, and Mathematical Lead Pencils.

P. A. MESIER, Stationer and Sole Agent, No. 49 Wall Street.

N. B.—A complete assortment of Steven's Genuine Inks, Fluids, Imitating Wood stains, and Graining Colours at the Manufacturers prices. 19t

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut, 1y10 near Third, Philadelphia.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

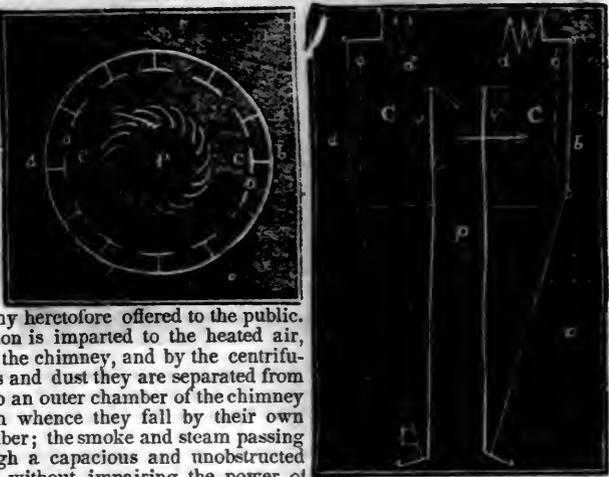
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

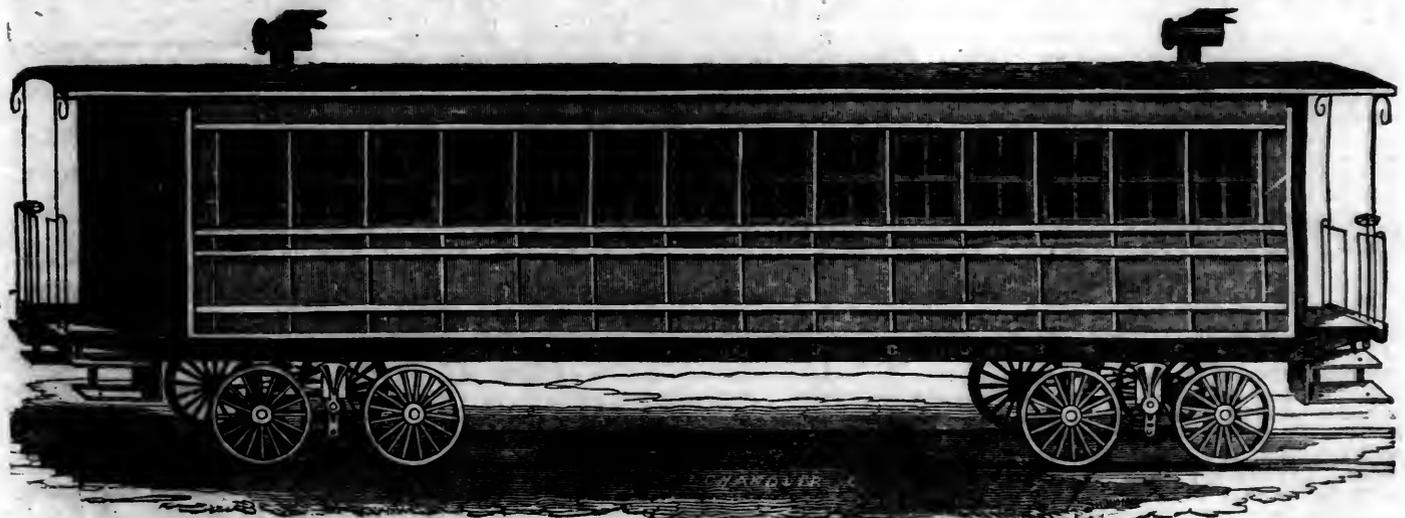
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45



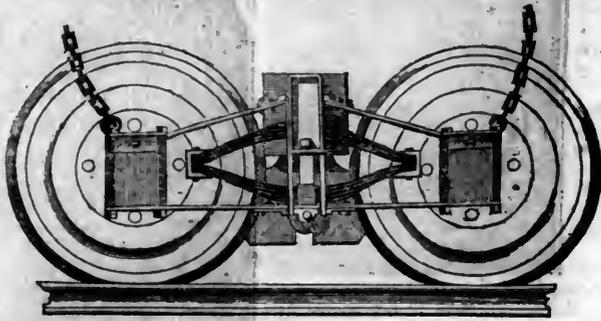
BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes. ly1

RAY'S EQUALIZING RAILWAY TRUCK—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

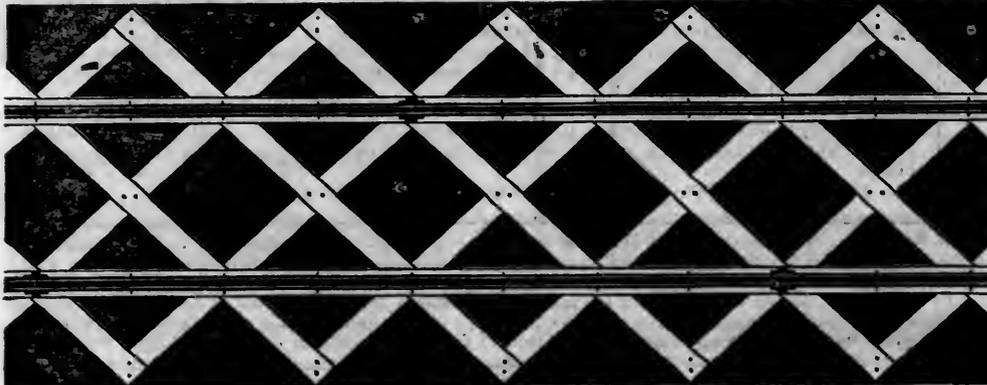
For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, }
Jamaica November 12, 1845. }

[Signed,] JOHN LEACH,

Sup't Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum. To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

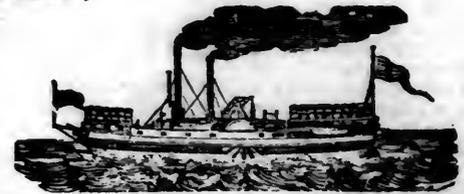
One page per annum.....	\$125 00
One column "	50 00
One square "	15 00
One page per month	20 00
One column "	8 00
One square "	2 50
One page, single insertion.....	8 00
One column " "	3 00
One square " "	1 00
Professional notices per annum...	5 00

ENGINEERS and MACHINISTS.

- THOMAS PROSSER, 23 Platt St. N.Y. (See Adv.)
- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- PHENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 31.]

SATURDAY, AUGUST 1, 1846.

[WHOLE No. 528, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.
Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.
Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.
Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7-20 a.m. and 3½ p.m.
All baggage at the risk of the owners thereof.
31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD and STAGES Connecting with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846. Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston. New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich. New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846. On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows: Boston for Portland at 7½ a.m. and 2½ p.m. Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m. Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m. Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m. Portland for Boston at 7½ a.m., and 3 p.m. Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m. Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m. Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.
CHAS. MINOT, *Super't.*

TROY AND GREENBUSH RAILROAD. Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at 6½ A.M.	Leave Albany at 7 A.M.
" " 7½ "	" " 8 "
" " 9½ "	" " 9 "
" " 10½ "	" " 10 "
" " 11½ "	" " 11 "
" " 1 P.M.	" " 12 M.
" " 2 "	" " 1½ P.M.
" " 3 "	" " 2½ "
" " 4 "	" " 3½ "
" " 5 "	" " 4½ "
" " 5½ "	" " 5½ "
" " 6½ "	" " 6 "
" " 7 "	" " 7 "

The 6½ a.m. and 2 o'clock p.m. runs from Troy, to Boston runs. The 12 m. and 6 o'clock p.m. trains from Boston runs.

Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT, Superintendent. Troy, April 1st, 1846. 14 ly

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A.M. and 4 P.M.
" Middletown at 6½ A.M. and 5½ P.M.
FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P.M.
" Middletown at 12 M.
The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P.M. in New York.
Apply to J. F. Clarkson, agent, at office corner of Duane and West sts.

H. C. SEYMOUR, *Sup't.*
March 25th, 1846.
Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 tf

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3 30, 4 30, 5, 6, and 6 30 p. m.
Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams' Bridge trains will be regulated according to the state of the weather. 18

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846. Spring Arrangement. 1846
Commencing April 1st.

Passenger trains leave daily, Sundays excepted—
Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6½ " and 2½ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.
Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.
Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.
Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.
Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES,
Superintendent and Engineer.

Western Railroad Office,
Springfield, April 1, 1846. } 14 ly

NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.

Passengers destined for Columbus and Cincinnati,

O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance 65 "

TIME.
From Buffalo to Sandusky 24 hours.
Leave Sandusky 5 a.m. to Columbus 14 "
From Columbus to Cincinnati 15 "
Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.
From Buffalo to Sandusky, Cabin \$6 00
" " " Steerage 3 00
" Sandusky to Columbus 4 50
" " through to Cincinnati 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Sup't, etc.
M. & S. C. R. R. Co.

Sandusky City, Ohio.

WILLIAM R. CASEY, Civil Engineer,
New York. Address Box 1078, Post-office,
New York. 21

THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mans-

field, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky \$8 00
" " Sandusky to Buffalo, Cabin 6 00
" " " " Steerage 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.,] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, Sup't, etc.
M. & S. C. R. R. Co.

Sandusky, Ohio.

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Balti-

more and York.—The Passenger trains run daily, except Sunday, as follows:

Leaves Baltimore at 9 a.m. and 3½ p.m.
Arrives at 9 a.m. and 6½ p.m.
Leaves York at 5 a.m. and 3 p.m.
Arrives at 12½ p.m. and 8 p.m.
Leaves York for Columbia at 1½ p.m. and 8 a.m.
Leaves Columbia for York at 8 a.m. and 2 p.m.

FARE.

Fare to York \$1 50
" " Wrightsville 2 00
" " Columbia 2 12½

Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg \$9
Or via Lancaster by railroad 10

Through tickets to Harrisburg or Gettysburg 3
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at 5½ p.m.
Returning, leaves Owing's Mills at 7 a.m.

D. C. H. BORDLEY, Sup't.
Ticket Office, 63 North st.

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

RAILROAD IRON—1700 TONS VERY

Best English Rails, ready to be delivered.—These Rails weigh 60 lbs., the lineal Yard, are 3½ inches deep; 4 inches deep at base; 2½ inches wide at top; 17½ feet long, except one-tenth of 15 and 12½ feet in length.

A first rate Steam Pile-Driver built by "Dunham & Co." has never been in use, is in perfect order, and for sale a bargain; also 12 Railway Passenger Cars that have never been used, which will be sold very low.

DAVIS, BROOKS & CO.,
June 1. 30 Wall Street.

BALTIMORE AND OHIO RAILROAD. MAIN STEM.

The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pitsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pitsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pitsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. \$13y1

SOUTH CAROLINA RAILROAD.—A

Passenger Train runs daily from Charleston, on the arrival of the boats from

Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily \$26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia 22 00

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent.

CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight.

Rates of Passage, \$8 00. Freight—
On weight goods generally... 50 cts. per hundred.
On measurement goods... 13 cts. per cubic ft.
On brls. wet (except molasses and oil) \$1 50 per barrel.
On brls. dry (except lime)... 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery 40 cts. per hundred.

On hhd. and pipes of liquor, not over 120 gallons \$5 00 per hhd.
On molasses and oil \$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission.
THOMAS PURSE,
40 Gen'l. Sup't. Transportation.

THE WESTERN AND ATLANTIC

Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 1y1

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.
AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture	per foot.....	16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs.....	.....	.95 "
" Sugar, coffee, iron, hardware, etc.....	.....	.65 "
" Flour, bacon, mill machinery, grindstones, etc.....	.....	.33 1/2 "
" Molasses, per hogshead \$9.50; salt per bus.20 "	.....	.....
" Ploughs and cornshellers, each.....	.....	.75 "
Passengers \$10.50; children under 12 years of age half price.		

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
Ch. Eng. and Gen. Agent.

Augusta, Oct. 21 1845 *44 1/2

LITTLE MIAMI RAILROAD.—1846.—
Summer Arrangement.

Two passenger trains daily. On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1 1/2 p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m.

On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m.

Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.

Tickets may be procured at the depot on East Front street.

The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount.

W. H. CLEMENT,
Superintendent.

GREAT SOUTHERN MAIL LINE! VIA
Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours, in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4 1/2 P.M., Philadelphia at 10 P.M., and Baltimore at 6 1/2 A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00
" " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to
STOCTON & FALLS, Agents.

RAILROAD IRON.—THE SUBSCRIBER'S
New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,
45 North Water St., Philadelphia,
or by their Agent, ROBT. NICHOLS,
79 Water St., New York.

284

RAILROAD SCALES.—THE ATTEN-
tion of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
Philadelphia, Pa.

MARAMEC IRON WORKS FOR SALE.

By Authority of a power of Attorney from Messrs. Massey and James, I will sell at Public Auction, at the Court House in the city of St. Louis, on *MONDAY, the 2nd day of November next*, the above named valuable **IRON WORKS**—together with **8,000 ACRES OF LAND**, more or less, on which there are several *valuable and productive Farms* open and in cultivation.

The Maramec Iron Works are situated at the Maramec Big Spring, in Crawford Co., Mo., and consist of **1 BLAST FURNACE; 1 AIR FURNACE; 1 REFINING FORGE**, with large Hammer for making Blooms and Anchovies; **2 CHEFFERY FORGES** for Drawing Bar Iron; **1 ROLLING MILL** for Rolling Blooms into Bars and Plates; **1 SAW AND 1 GRIST MILL**, All within 300 Yards of the head of the spring. There are 2 large frame Coal Houses, and all other Buildings necessary, such as Shops and Houses for the workmen.

This Spring is one of the largest in Missouri, discharging at the lowest time 7,000 cubic feet of water per minute. The Ore Bank from which the Ore has been heretofore taken is about 600 yards from the furnace; it is the *Specular Iron Ore*, the best for making Bar Iron, and the quantity inexhaustible.—It is an Iron Mountain, 400 feet above the level of the Maramec River; the ore is entirely uncovered, and there is an easy descent and a good road from it to the furnace.

The lands have been carefully selected by one of the owners with a view to the interest and convenience of the Works, and are situated principally on the Maramec River and its tributaries, embracing the best bottom lands and water powers. The following detached tracts, comprized in the above quantity, were selected for the advantages they possess;

183 1/2 ACRES in T. 40 N. of R. 8 W. in Sec. 3, near Wherry's Mill, in Osage Co.; entered to secure a very valuable Mill power on the Branca Spring and a good landing on the Gasconade River.

80 ACRES on Benton's Creek, 12 miles from the Works; entered to secure an extensive and valuable Ore Bank 2 1/2 miles from the Maramec, at a point where there is ample water power.

320 ACRES in T. 38 N. of R. 4 W. in Sec. 22 and 28, affording an extensive and valuable water power on the Maramec river.

160 ACRES in T. 37 N. of R. 3 W. in Sec. 4, embraces two inexhaustible and valuable Ore Banks and is 1 1/2 miles from Water power sufficient for a furnace and Grist Mill, and is distant 6 miles from the above site on the Maramec.

80 ACRES in T. 37 N. of R. 8 W. in Sec. 33, including an extensive bank of excellent Ore, and distant 1 1/2 miles from water power on the waters of the Gasconade River, in Pulaski Co., sufficient for Furnace and Mills. All those Banks are of the same kind as the one at the Works, and deemed inexhaustible.

1 LOT, containing nearly one Acre, on the South Bank of the Missouri River, 4 Miles above the town of Hermann, purchased for a warehouse and

landing, and is one of the best landings on the River.

The lands above described are well timbered, and have been selected with a view to have an ample supply of wood and coal, for fences, building and other purposes. There are on the land valuable quarries of Limestone well adapted for Fluxes for the Ore, and also good quarries of Rock suitable for building. There are also on the land a great number the finest kind of Springs. A large portion of the lands are bottoms well adapted to the production of Corn and other crops. The Works are situated in a very pleasant and healthful part of the country. The Maramec ore is believed to be admirably adapted to the manufacture of steel.

A further description of the property at this time is considered unnecessary, as those wishing to purchase will no doubt view the property, which will be shown by the Agent, residing at the works.

The terms of payment required will be one-third of the purchase money in hand and the balance in three equal annual payments, secured by mortgage on all the property.

A more particular description of the property will be given, and further conditions of the sale made known, on the day of sale.

JNO. F. ARMSTRONG, Agent.

St. Louis, June 6, 1846.

The Louisville, (Ky.,) Journal, Cincinnati Gazette, Tribune (Portsmouth, O.,) Nashville Whig, Pittsburg Gazette, National Intelligencer, United States Gazette, (Phila.) Railroad Journal (N. Y.,) and Boston Atlas, will publish the above once a week until the 20th day of October next, and send bills to this office for settlement, and mark price on first paper. 1825

BALLARD'S NEWLY IMPROVED
Patent Jack Screw.

The advantages of this Jack Screw for Stone quarries, Railroads, Steam Boiler Builders, and other purposes, are superior to any other machine.

The improvement consists in being able to use either end of the screw, as occasion requires.

It is capable of raising the heaviest Locomotive with ease, being portable, strong and powerful, and not likely to get out of order.

Many Railroad Companies and Boiler makers have them in use, by whom they are highly recommended.

JACK SCREWS of various kinds, sizes, power and price, constantly on hand at the manufactory,
No. 7 Eldridge street
near Division.

29

RAILROAD IRON.—THE "MONTOUR
Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to
MURDOCK, LEAVITT & CO.,
Agents.

Corner of Cedar and Greenwich Sts. 43 1/2

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,
445 N. E. cor. 12th and Market sts., Philad., Pa.

RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited. S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open. JOHN BATAILLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by extreme heat. RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards. (Signed.) WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by A. S. MARVIN, General Agent, 138 1/2 Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street Charleston, S. C. 16 of

CUSHMAN'S COMPOUND IRON RAILS.
etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having to use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer, Albany, N. Y.

Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

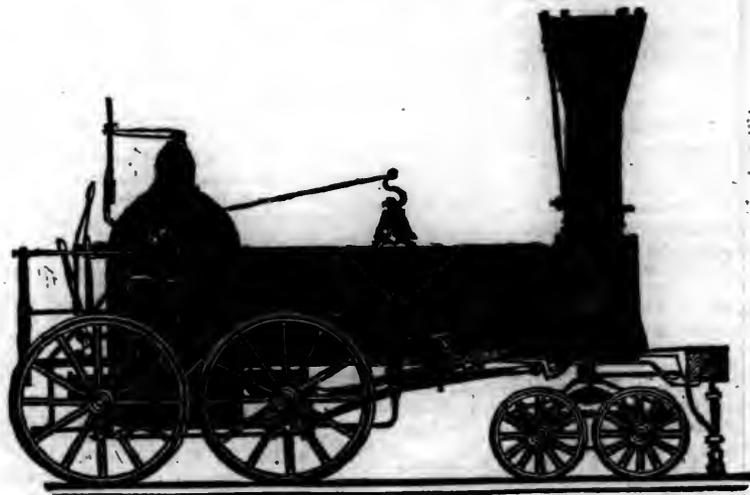
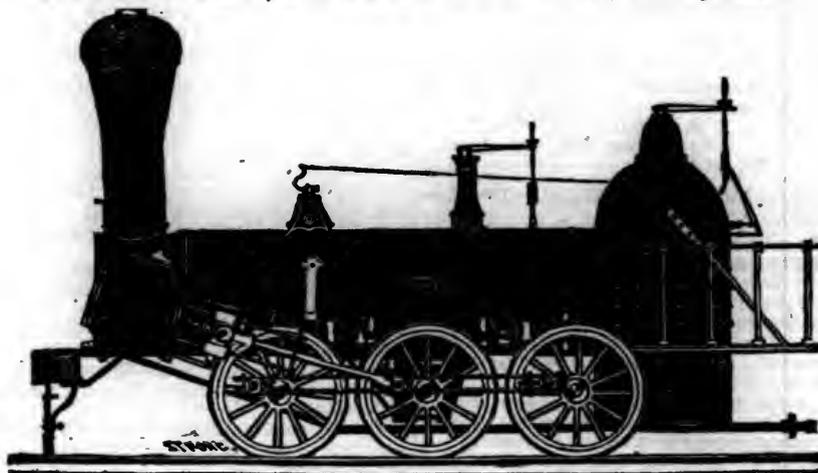
RAILROAD IRON AND LOCOMOTIVE
Tyres imported to order and constantly on hand by
A. & G. RALSTON
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY, President of the Newcastle Manuf. Co.

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of	Cylinder,	× 20 inches	Stroke.
" 2,	14	"	"	× 24	" "
" 3,	14 1/2	"	"	× 20	" "
" 4,	12 1/2	"	"	× 20	" "
" 5,	11 1/2	"	"	× 20	" "
" 6,	10 1/2	"	"	× 18	" "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars

NORRIS, BROTHERS

On the Manufacture of Steel.

By DR. CARL SCHAFHAEUTI.

(Translated from the *Revue Scientifique et Ind. du Dr. Quesneville, for the Lon. Jour. of Arts.*)

Iron, in the composition of which a portion of the silica is replaced by manganese will while being smelted, rather part with the latter than the former. From this it follows that at the moment when the iron is on the point of passing from a liquid to a solid state, it will retain sufficient silica to form steel.—For this reason, during the whole process of refining, the current of air is caused to act rather upon the surface of the metal than through the interior of the fluid mass, in order to avoid the combustion of too much carbon and silica; from which it follows that the casting becomes malleable without losing a sufficient quantity of silica to constitute iron, properly so called, and the product is raw or blistered steel. The casting which does not contain any manganese, loses by the effect of combustion, a portion of silica proportionable to the quantity of carbon burnt, and furnishes iron only, as a definitive product. It is simply to the mechanical action of the hammer that the distinctive features of steel, as compared with cast metal, are due. In order to effect this change, the blistered steel is broken into pieces and melted down; they are afterwards tempered—again broken into pieces, and welded together at a good welding heat. The steel will be more malleable, and possess more tenacity and uniformity of texture, in proportion to the number of times these operations are repeated. The product is called “wrought or shear steel.”

Steel of Cementation and Cast Steel.—When bar iron is heated to a white heat, or even melted in close vessels containing coal or carbonaceous substances, it takes up a certain quantity of carbon, and is transformed into castings of various kinds. If the iron contains, together with silica, phosphorus and arsenic in proportions suitable for softening the granular particles of iron during their combination with the carbon, by keeping it for a certain time at a red heat, with powdered charcoal, a casting is obtained, which, when submitted to the action of the hammer, or of rollers, furnishes a product known as “steel of cementation.” During this operation, the stratum of oxide which covers the particles of iron inside loses its oxygen, and passes again into a metallic state; but the vacant spaces occasioned by this are filled up, as the ferruginous particles, which are in a semi-fluid state re-assume the crystalline form. The carbonic oxide gas, in escaping, forms large blisters on the surface of the metal, under which the softened mass crystallizes. On being broken, the interior of these blisters, instead of appearing of a dark colour, indicating the presence of a stratum of protoxide, presents a brilliant and rainbow-tinted appearance, the yellowish and bluish tints distinguishing bronzed steel being observable. If this steel be wrought at a white heat, these blisters will weld in with the mass with the greatest facility. During cementation, the carbon combines with the component particles of the iron

in various proportions, depending in a great degree upon the chemical composition of those particles. It is therefore, a vulgar error to suppose that steel of cementation contains more carbon at the surface than in the interior, as stated in all technological treatises. Thus, in the best Dannemora steel, it very frequently happens, when the cementation is finished, that the centre of the metal contains a much greater quantity of carbon than the superficial portions. It may also happen that steel produced from the best Dannemora bar iron will differ in an extraordinary manner as regards hardness, in various portions of the bar; and for this reason, in steel works in England, the bars of steel are always broken into several pieces, in order to class those pieces together which are the most similar in quality.

If ordinary iron be submitted to cementation—that is to say, iron in which the proportion of silica is ordinarily insignificant, when compared with that of carbon—and that independently of this, the iron is deficient in the quantity of phosphorous and arsenic necessary for easily softening the metallic molecules—only carburet of iron and a little silicuret of iron are produced, but the carbon does not combine with the silica. In this case the steel obtained is deficient in malleability and tenacity—for this reason, that the molecules will not unite or crystallize until they have taken up a quantity of carbon, more than sufficient to produce steel. With regard to simple carburated iron (when it contains more carbon,) it either will not harden at all when tempered, or becomes friable and brittle when heated to redness, even when it does not contain more carbon than steel of good quality.

The fracture of the steel of cementation, now under notice, is gray and dull, while steel of good quality is of a silvery aspect, and presents cubical crystals. The best steel can only be obtained by the cementation of forged iron. Whilst the metal is combining with the carbon, the iron must not enter into a complete state of fusion, as in that case groups of crystals, each possessing a different degree of carbonization, would be formed; even the best Dannemora iron will not furnish a uniform product fit for purposes of commerce when melted with substances containing carbon. I am well aware that the experiments of Clouet, Hachette, and Breant, may be opposed to me, as set forth in various treatises upon chemistry; but these are unfortunately mere laboratory experiments, the authors of which have prudently concealed, or passed over in silence, all those which were unsuccessful.—When the operator has obtained a regulus at the bottom of his crucible, and when, after immense trouble, he has succeeded in extracting from it a small portion of steel capable of being worked, he immediately hastens to publish his pretended discovery in some journal, of which others become faithful and credulous echoes; thus, since the manufacture of steel has become the subject of chemical inquiry, complaints are daily becoming more frequent upon the difficulty of procuring steel capable of resisting the treatment to which it

is subjected in the arts. If the persons who preside over the coining department either at London or Munich, were consulted, they would all agree in saying, that it is now very difficult to meet with the quality of steel necessary for making the dies. Even in England good steel becomes more and more scarce. With regard to the manufactories of cemented or cast-steel established upon the continent they furnish products, the quality of which is so uncertain, that the workman is often reduced, after having lost his time and trouble, to throw certain portions away, as they want the necessary uniformity and tenacity.

All the artificial alloys of steel with silver of which so much has been said, are not fit for anything, and are never met with in commerce. When the steel has been withdrawn from the cementing furnace, and after it has been broken, and the pieces drawn out they are submitted to one of the two following operations: The pieces after being sorted are piled upon the other and welded together (this is called faggoting the steel;) or the sorted pieces are placed in clay crucibles of a nearly cylindrical form, and cast in a reverberatory furnace, in which two crucibles are placed, one behind the other, upon cakes of fire clay; the orifice of these crucibles is closed by a flat cake of fire clay. The bars of cemented steel, as above mentioned, are divided into pieces of one or two inches in length; these pieces are distributed, according to their degree of carbonization, in vessels fixed to the walls of the place in which the melting is carried on.

These different qualities of steel are generally combined in such a manner as to obtain a product the best suited for the purposes to which cast steel is ordinarily applied. In all treatises on practical chemistry it is asserted, that in order to melt steel, it is to be covered with a layer of glass or blast furnace slag; that the opening of the crucible is luted, or at least becomes firmly fixed during the operation; these assertions are however, erroneous. In the first steel manufactories in Sheffield, steel only is put into the crucibles. With regard to the cover, it is evident that it must not adhere to the crucible, as it is necessary the operator should remove it from time to time with a bar of iron, in order to ascertain the state of the metal.

In order to obtain steel of the best quality, it is not sufficient that the melted mass be run into moulds; the most essential point is to make the casting at the proper time, and for this purpose the operator must be guided by the quality of the steel. This is the duty of the workman, who from long practice can tell the suitable point of fusion, either by simple inspection, or by means of his bar of iron, with which he merely touches the surface of the metal, being most careful not to plunge it into the melted mass. As the quality and uniformity of the steel depend in a great measure upon the experience and judgment of the workman who directs the casting, it follows, that even in England, a good caster is much sought after and well paid. It is not difficult, therefore, to explain why so many of the attempts made to establish man

ufactories of cast steel in Germany have failed, and will again fail. Thanks to the errors propagated by technical works, and by the assertions of superficially informed travellers who had frequently been purposely deceived, it was imagined that in order to obtain English steel of good quality, it was only necessary to melt cemented steel in a crucible, and afterwards pour it into moulds, when in a state of fusion.

As soon as a crucible is emptied, it is replaced in the oven; each crucible serves for one day's work—i. e., four or five castings—after which it is thrown aside. For ordinary purposes, the steel is run into cast iron moulds of a prismatic form, previously heated and closed. When the steel is required for making saw blades, plates, etc., it is run into large moulds of a paralleloiped form. Steel which is very hard, and highly carbonized, contracts considerably in the moulds; great skill is therefore, required to run it into the moulds in such a manner that no vacuum may be produced. In that part of the prism corresponding to the jet, a funnel shaped aperture, from one to two inches deep is formed; this is detached and melted down with other pieces of steel. The transverse fracture of a prism of hard steel is silvery, and has a number of rays radiating from the centre; steel less hard in on the contrary of a uniform granular and crystalline texture. This steel possesses all the brittleness of cast metal. By fusion, steel of cementation acquires peculiar properties, and does not sweat so much as before casting. When steel is produced from iron of bad quality, and carburets of a different nature are produced during cementation the melting, instead of improving it, renders it much worse; as, in that case, the different carburets of iron, which are of inferior quality, separate still more during cooling. This has given rise to an old saying, well known among English founders, that "when the devil is put into the crucible, nothing but the devil will come out."

It is to the existence of these heterogeneous metallic carburets, which are produced during cementation in iron of inferior quality, and which form new combinations during the fusion of the metal, that the complaints of workmen working in steel are to be attributed. In fact, these carburets being only, so to speak, agglutinated, even in bars of forged steel, each of them, at the moment of tempering, is contracted or dilated more or less than the one immediately adjoining it—so that from that time a separation commences between the unequally carbonized layers; in other words, a flaw or crack is produced, which may be distinguished by a peculiar noise at the moment when the steel is plunged in the water, or at least, there is a tendency to separation, which only requires the co-operation of an exterior cause, such as a shock to effect it. This is often observed in razors, etc. The transverse fracture of cast steel ought to present a perfectly homogeneous surface, when the bar is broken by a sharp blow, after being cut or marked with a chisel. The slight inequalities which are perceptible ought to be undulating, and to blend

insensibly at their bases with the rest of the metallic surface. When, on the contrary, they stand out perpendicularly, the conclusion may be arrived at, that this portion of the bar was the point of contact of two unequally carbonized layers, which, by separating either at the moment of tempering, or at a later period, had inevitably given rise to this rupture. *Mining Journal.*

The receipts of railroads are ever increasing. Take for instance the Western—the increase for the first six months of 1846, compared with 1845, gives no less than \$71,000. The road from Detroit, called the Central Michigan, gave for June this year, an increase over June 1845, of \$14,769. We doubt there being an instance which can be cited of a diminution in any road. It has generally turned out that the most sanguine in estimations to encourage the building of a road, did not come up to the realization by nearly 100 per cent.

The Gauge Question.

We find the annexed statement on this subject in the Chronicle of 2d May. It shows the comparative length of the different gauges in Great Britain:

Return of Railways in Great Britain, furnished by the Board of Trade, July 1845.

Number of miles of railway completed in the United Kingdom.....	2,264
Of which on the wide gauge of 7 feet—	
Great Western.....	118½
Cheltenham Branch.....	42
Oxford Branch.....	10
Bristol and Exeter.....	76
Bristol and Gloucester.....	27½—274
On the gauge of 6 feet 2 inches, but intended to be altered to 5 feet 3 inches—	
Ulster.....	25
On the gauge of 5 feet 6 inches, but intended to be altered to 4 feet 8½ inches—	
Arbroath and Forfar.....	15½
Dundee and Arbroath.....	16½—32
On the gauge of 5 feet 3 inches—	
Dublin and Drogheda.....	32
On the gauge of 4 feet 8½ inches.....	1,901
Number of miles of railway sanctioned in 1844.....	787½
Of which on the 7 feet gauge—	
South Devon.....	63
On the 5 feet 3 inches gauge (Ireland)—	
Great Southern and Western.....	122½
On the 4 feet 8½ inches gauge.....	602½
Total made or sanctioned on the 7 feet gauge.....	366½
Ditto ditto on the 4 feet 8½ inches gauge.....	2,503½
Number of miles of projects for which plans and sections were deposited at the Board of Trade for 1845.....	8,000
Of which on the wide gauge of 7 feet—	658
Number of miles of railway comprised in bills which have passed the house of commons, and seem likely to be sanctioned by parliament this session, about.....	2,840
Of which in Ireland on the 5 feet 3 inches gauge.....	472
On the 7 feet gauge—	
Bristol and Exeter, branches.....	29
Cornwall.....	66
Exeter and Crediton.....	5½
South Wales.....	211
Wilts and Somerset.....	129
.....	440½
Exclusive of the	
Oxford and Rugby.....	50½
Oxford, Worcester and Wolverhampton.....	97½
.....	568½

Or inclusive of the Oxford and Rugby, etc.....	588½
On the 4 feet 8½ inches gauge.....	1,628
Grand total of railways made, sanctioned, or likely to be sanctioned, up to present time, July, 1845—	
On the narrow gauge of 4 feet 8½ inches	4,131½
On the wide gauge of 7 feet.....	777½

Accidents on Railways.

The following "abstract from the Reports of the Board of Trade," will be read with interest. It shows conclusively that the loss of life on railroads, in comparison with steamboat travelling, or even by stage coach, is very trifling when the number of passengers is taken into the account:

Statement of Accidents, abstracted from the Reports of the Railway Department of the Board of Trade, in which the Engine and Carriages, or some part of the train, have run off the line, without any known obstruction, from September 1840, to March 1845:

Date of Accident.	Name of Railway.	Breadth of Gauge.	Deaths and Injuries.		Nature and Cause of the Accident.
			Killed.	Injured.	
Oct. 19, 1840	East'n Counties	5 0	4	6	Excessive speed.
Nov. 8, 1840	Midland do.	4 8½	1	8	Ditto.
Sept. 7, 1841	Great Western.	7 0	1	1	Engine out of 2 off the line.
Oct. 2, 1841	London and Brighton....	4 8½	4	2	Bad road and excessive speed.
Nov. 15, 1843	South-Eastern.	4 8½	..	..	Cause not known
Oct. 31, 1844	Newcastle and Carlisle.....	4 8½	..	1	Excessive speed.

Similar Accidents which have occurred since the last Report of the Board of Trade, from March 1845, to January 1, 1846:

Date of Accident.	Name of Railway.	Breadth of Gauge.	Deaths and Injuries.		Nature and Cause of the Accident.
			Killed.	Injured.	
June 16, 1845	Great Western.	7 0	..	sevr'l	Express train—carriages only off the line.
June 1845	Great Western.	7 0	..	..	Ditto, a similar accident, not reported.
Aug. 4, 1845	Northern and Eastern.....	4 8½	2	sevr'l	Cause not ascertained.
Aug. 19, 1845	Northern and Eastern.....	4 8½	..	2	Supposed cause defective joint. Less speed recommended.
Aug. 18, 1845	Manchester and Leeds.....	4 8½	..	sevr'l	Express train thrown over an embankment.
Dec. 1845	Norfolk.....	4 8½	2	2	Experimental train; speed 48 miles.
Jan. 1, 1845	York and Darlington.....	4 8½	..	..	..

Speed on the English Railways.

The following table shows the speed of express trains on the following lines, as deduced from their respective time tables:

Name of Railway.	Station.	Dist.	Time.	Rate per hour.
GREAT WESTERN.				
<i>Broad Gauge.</i>				
Paddington.....to	Didcot.....	Mil's 53	h. m. 1 7	47.5 no stoppage.
Didcot.....to	Swindon.....	24	0 35	41.1 1 stoppage.
Swindon.....to	Bath.....	29.75	0 37	48.2 no stoppage.
Bath.....to	Bristol.....	11.5	0 20	34.5 1 stoppage.
Bristol.....to	Taunton.....	44.75	0 58	46.3 no stoppage.
Taunton.....to	Exeter.....	30.75	0 47	39.2 1 stoppage.
<i>Return.</i>				
Exeter.....to	Taunton.....	30.75	0 43	42.9 no stoppage.
Taunton.....to	Bristol.....	44.75	0 57	47.1 1 stoppage.
Bristol.....to	Bath.....	11.5	0 15	46 no stoppage.
Bath.....to	Swindon.....	29.75	0 48	37.2 1 stoppage.
Swindon.....to	Didcot.....	24	0 31	46.5 no stoppage.
Didcot.....to	London.....	53	1 10	45.4 1 stoppage.

The speeds as deduced from the engine driver's time table, are as below, exclusive of stoppages:

Name of Railway.	Stations.	Dist.	Time.	Rate per hour.
Paddington.....to	Didcot.....	46.7	Ref'n 45.4	no stoppage.
Didcot.....to	Swindon.....	45	do. 46.4	do.
Swindon.....to	Bath.....	46.1	do. 42.8	do.
Bath.....to	Bristol.....	38.8	do. 38.8	do.
Bristol.....to	Taunton.....	48.2	do. 45.6	do.
Taunton.....to	Exeter.....	39.5	do. 45.3	do.

Name of Railway.	Stations.	Dist.	Time.	Rate per hour.
Didcot.....to	Oxford.....	10	0 15	40 1 stoppage.
Oxford.....to	Didcot.....	..	..	Leaving time for up trains
Swindon.....to	Gloucester.....	37	1 10	31.7 2 stoppages.
Gloucester.....to	Swindon.....	..	..	Leaving time for up trains
BRISTOL AND BIRMINGHAM.				
<i>Broad Gauge to Gloucester.</i>				
Bristol.....to	Gloucester.....	37½	1 5	34.6 no stoppages.
Gloucester.....to	Bristol.....	37½	1 5	34.6 do.
SOUTH-WESTERN.				
<i>Narrow Gauge.</i>				
London.....to	Basingstoke.....	46	1 8	40.6 no stoppage.
Basingstoke.....to	Southampton.....	32	0 52	37 2 stoppages.
Basingstoke.....to	Gosport.....	42	1 12	35 do.
<i>Return.</i>				
Gosport.....to	Basingstoke.....	42	1 15	33.6 1 stoppage.
Southampton.....to	Basingstoke.....	32	0 50	31.4 do.
Basingstoke.....to	London.....	46	1 10	39.4 do.
NORTHERN AND EASTERN.				
<i>Narrow Gauge.</i>				
London.....to	Broxbourne.....	19	0 26	43.8 no stoppage.
London.....to	Bishops Stortford.....	32½	0 45	43 1 stoppage.
<i>Return.</i>				
Bishops Stortford.....to	London.....	32½	0 55	37 2 stoppages.
Broxbourne.....to	London.....	19	0 36	33.6 1 stoppage.
LONDON AND BIRMINGHAM.				
<i>Narrow Gauge.</i>				
London.....to	Tring.....	31½	0 48	39.6
Tring.....to	Wolverton.....	20½	0 40	30.75 1 stoppage.
Wolverton.....to	Coventry.....	41½	0 57	43.7 do.
Coventry.....to	Birmingham.....	18½	0 35	34.4 do.
<i>Return.</i>				
Birmingham.....to	Coventry.....	18½	0 30	37 no stoppage.
Coventry.....to	Wolverton.....	41½	1 10	35.6 1 stoppage.
Wolverton.....to	Tring.....	20½	0 40	30.75 do.
Tring.....to	London.....	18½	0 50	37.4 do.
GRAND JUNCTION.				
<i>Narrow Gauge.</i>				
Birmingham.....to	Stafford.....	29½	0 50	35.1 no stoppage.
Stafford.....to	Crewe.....	21½	0 45	23 1 stoppage.
Crewe.....to	Warrington.....	24	0 39	36.9 do.
<i>Return.</i>				
Warrington.....to	Crewe.....	24	0 44	32.7 1 stoppage.
Crewe.....to	Stafford.....	24½	0 48	30.4 do.
Stafford.....to	Birmingham.....	29½	0 56	31.3 do.
LONDON AND BRIGHTON.				
<i>Narrow Gauge.</i>				
London.....to	Reigate.....	21	0 45	28 no stoppage.
Reigate.....to	Brighton.....	29½	0 45	39.3 1 stoppage.
<i>Return.</i>				
Brighton.....to	Reigate.....	29½	0 45	39.3 no stoppage.
Reigate.....to	London.....	21	0 45	28 1 stoppage.

Cost of Locomotives and Carriages on two of the Principal English Railways.

The following table shows the enormous cost of machinery, on some of the English railways:

Table exhibiting the Expenditure of the Great Western and London and Birmingham Railways, for Locomotive Engines, Carriages and Wagons, from the commencement of the traffic to the present time; also, the Revenue Returns of each for the last two years, and the Expense of Locomotive Power, as deduced from the half-yearly Reports of each company:

Great Western—Total cost of locomotive engines, tenders, carriages, and wagons, to 30th June, 1845.....	£622,078 12 0
London and Birmingham, ditto.....	494,403 5 3

These sums are exclusive of the charges for locomotives, carriage and wagon repairs, included in the half-yearly accounts. These latter have amounted in the last two years to—

Great Western—From 1st July, 1843, to 30th June, 1845.....	56,932 17 9
London and Birmingham, ditto.....	57,578 8 5

The cost of locomotive power, including repairs of locomotive engines, coal, coke, wages, and all incidental charges, have amounted in the same period to—

Great Western—From 1st July, 1843, to 30th June, 1845.....	155,902 2 0
London and Birmingham, ditto.....	146,172 3 3

The revenue for the same two years, for the carriage of passengers, mails, goods, etc.—

Great Western—From 1st July, 1843, to 30th June, 1845.....	1,617,995 8 2
London and Birmingham, ditto.....	1,735,795 14 3

The total mileage of every passenger for the last two years amounts to—

Great Western—Total mileage from 1st July, 1843, to 30th June, 1845.....	128,524,232
London and Birmingham, ditto.....	121,529,606

	Gt. West.	Lon. & Bir.
Ratio of cost of engine and carriage plant.....	1	to .768
Do. of repairs of engine for two years.....	1	.. 1.011
Do. of cost of locomotive power for do.....	1	.. .049
Do. of passengers mileage for do.....	1	.. .945
Do. of total passengers revenues for do.....	1	.. 1.072

During the periods which these returns embrace, the lengths of line worked by the Great Western have varied by the opening of different lines and branches; but from the 30th of December, 1844, to the 30th of June, 1845, the number of miles worked have been constant, viz: 222 miles. The length worked by the London and Birmingham have also been constant during the same period, and Mr. Creed in his evidence states (excluding branches), that the distance worked was 113 miles, and the revenue and mileage on this length, that is still excluding the branches, he gives as below.

Similar statements are given in the appendix of the revenue, mileage, etc., on the Great Western for a like period; from which we have the following comparisons:

	Miles.
Great Western, length of line worked.....	222
London and Birmingham, ditto.....	113
Great Western, total passengers mileage.....	35,968,713
London and Birmingham, ditto.....	38,757,260
Great Western, miles run by passenger trains.....	761,483
London and Birmingham, ditto.....	456,596
Great Western, average number of passengers per trains.....	47.2
London and Birmingham, ditto.....	84.9
Great Western, average passengers revenue per trains per mile.....	9s. 0d.
London and Birmingham, ditto.....	14s. 9d.

Machine to Measure the Velocity of Railway Trains.

Mr. Ricard made a communication to the Society of Arts on the 29th of April last, in relation to a machine for measuring the velocity of railway trains:

"The machine consists of two parts; one receives motion from the carriage, the other by clockwork. They are arranged in the following manner: an eccentric is placed on the axle of the carriage, and gives motion by means of a connecting rod to a lever attached to the machine, and which lever acts upon a ratchet wheel, and is so arranged that each revolution of the wheel of the carriage advances the ratchet one tooth. An endless screw is turned on the spindle of the ratchet wheel, and gives motion to a small toothed wheel below, and on the spindle of which is fixed what may be termed a lateral eccentric (as one part projects more than the other on the side of the wheel); against this the short end of a horizontal lever is pressed by means of a spring. As the eccentric revolves from the projecting to the lower part, it moves the lever, and with it a pencil fixed at its other end, in one direction, till it reaches the lowest point, when, by a spring pressing upon it, it takes the opposite direction till it reaches the highest point, when it returns again. The wheels are so arranged that this eccentric makes one revolution in each mile that a train travels. The clockwork is used to turn a drum upon which a ruled paper is wound. When the train is stopping at a station the pencil is stationary, and marks only a straight line, but when in motion diagonal lines are drawn by the action of the lever as described. The extreme distance between the two points of the diagonal lines determines the velocity at which the train has been travelling. Thus the train is made by this apparatus to keep a perfect register of the work done, which would at all times indicate any neglect of either the engineer or the conductor.

Miscellaneous Items.

The New Jersey railroad and Transportation company have declared a semi-annual dividend of three and a half per cent. payable on and after the 1st day of Aug. next.

The Utica and Schenectady railroad company have declared a semi-annual dividend of four dollars on each share, payable on the 1st of August.

Vermont Central Railroad.—At the annual meeting of the stockholders in this company, at Windsor last week, the following gentlemen were elected directors for the ensuing year:—Charles Paine, Northfield; Jacob Forster, Charleston; Robt. G. Shaw, and Samuel S. Lewis, Boston; Dan'l White, Charleston; Lucius B. Peck, Montpelier; John Peck, Burlington.

We understand the work of grading, etc., is proceeding vigorously.—*Vi. Free Press.*

Rutland Railroad.—From the spirit that appears to prevail on the line of this road, we are happy to infer that the instalment called for on the 12th June will be very generally paid, and that this important work will be speedily placed under contract. The papers in western Vermont are in high courage and spirit.—*Vermont Free Press.*

Railroads.—A meeting of the directors of the Champlain and Connecticut river road, (the Rutland,) is notified for the 29th inst., at Bellows Falls.

The annual meeting of the Central railroad took place on Wednesday last, at Windsor.—The old directors were re-chosen, with the exception of Messrs. Langdon and Baldwin, of Montpelier. Mr. Peck of Montpelier, and Mr. White, of Charlestown, Mass., chosen. The reports were encouraging, it is said of the engineer and treasurer. Gov. Hubbard addressed the meeting in reference to the Sullivan road connecting charter, and we hear of no expression of dissatisfaction. It is to be presumed no efforts will be wanting to build this road seasonably to connect the Central with the Cheshire.

By the engineers report, there are now over 2,000 hands employed on the Central railroad. Distance from Windsor to Burlington 115 miles. The work appears to be going on with success.

The Vermont Journal says the occasion of the late row on the Central road was from a demand by 200 of the men for payment, or part payment, on the 4th, although by their own agreement, they were to be paid only on the 15th of each month; and that they have been punctually paid. This throws the whole blame upon the men, and exonerates entirely the contractors or sub-contractors.

The new railroad from Lexington to a junction with the Fitchburg, is now completed.—Medford also has a short road to connect with the Maine extension road.

Northern Railroad, (Concord and Lebanon.)—The first annual report of the directors of the company has been published. The road is 68 miles long, and the maximum grade is 50 feet. 1,200 men are at present engaged on the line, [says the report,] and it is expected that the first section of 18 miles from Concord will be completed this year. \$475,000 of the capital has been paid in. The directors have purchased 240 tons of railway iron of the Mount Savage co., and have contracted for 5,000 tons with the Tremont iron co.

Champlain and Connecticut River Railroad, [Rutland Road.]—A meeting of the N.

H. railroad commissioners, was held at Walpole on Friday of last week, [the 7th inst.,] to decide upon the point of termination of the Cheshire road. The following letter from the Hon. Wm. Henry, one of the directors of the Rutland road, which we find in the Middlebury Galaxy, communicates the result of their consultations:

BELLOWS FALLS, July 8, 1846.

Dear Sir: I have the pleasure to inform you, that this morning the N. H. railroad commissioners decided that they could not extend the Cheshire road above Bellows Falls, or above the proposed junction of the Rutland road—or, in other words, that they could not consent to a connection between the Cheshire and Central—and that they were ready to proceed to the location to such points only as was desired to connect with the Rutland. So the great battle ended.

In haste, yours truly, WM. HENRY.

C. Linsley, Esq., A meeting of the directors we understand, is to be held on the 29th inst. The engineers are engaged in locating the road south from Middlebury.

Railroads.—We understand a majority of the New Hampshire railroad commissioners decided on Wednesday, not to lay out the Cheshire road any farther, at present, than Bellows Falls, and that a meeting of the directors of the Rutland road to be called, to take measures to ascertain the point of connection with the Cheshire. The Cheshire was laid out and appraised to Walpole village. Commissioners will probably finish all in August. As soon as this is accomplished satisfactorily, we learn the road is to be put under contract at once to Rutland. The passage of the independent charter, from Windsor to the Cheshire road will equally secure the connection, also, of the Central road with the Cheshire.

We are glad to learn the passage of the charter prayed for, of a railroad from Keene, through Winchester and Hinsdale to the Connecticut; for although it cannot be immediately undertaken, we doubt not it is destined to be the connecting river link of a Connecticut river road, from Hartford to the mouth of the Passumpsic. We say this, in view of the comparative cheapness of building down the Ashuelot—the immense saving—and that the loss of time from a direct road down the Connecticut, will not exceed 15 minutes.

The new Sullivan charter, to connect with the Cheshire, will no doubt be as satisfactory to the Central, as it will be to the Rutland road. It cures all the troubles which our Rutland friends had, and it has not, according to all outward evidence, for a long time been contemplated as desirable, to extend the Central below Windsor, though their charter allows the extension (the old Passumpsic charter not interfering) on the Vermont side, to Bellows Falls, and even to the south line of the state. To the Central it can make no possible difference as to the extent, south of the Sullivan road, unless a Cheshire interest might be supposed to affect the amount of passengers and freight between Bellows Falls and Charleston. These great roads are built for generations to come, and a supposed temporary benefit has had quite too much influence already, we think, to deter the forward march of the Rutland road.

The work is going on as rapidly and successfully as could be expected, on the whole line, from Fitchburg to Walpole, and when finished, it will be the most romantic and attractive road in New England. The splendid scene, on breaking through the elevation in

view of Connecticut river, seen to some extent in the distance—the surrounding heights and the beautiful Putney meadows, is no where to be surpassed. The Surry summit pass, and the elevated views from Troy to Keene, will always be striking to strangers.

When we contemplate the great extent of this line of roads, reaching to the St. Lawrence at Ogdensburg, and the vast amount of business which must necessarily come over it, now that all obstructions to progress are apparently removed, we say to Cheshire stockholders, hold on in faith and your most sanguine expectations must be realized.

The great Portland road to Montreal has been contracted for as far as North Yarmouth. This is the direct road to Brunswick, Hallowell, Augusta and Bangor, and may be safely built.—*Keene Sentinel.*

Cleveland and Pittsburg Railroad.—We cut the following from the Ohio Star, and are pleased to see our Ravena neighbors agitating the railroad project. This road if completed will add twenty-five per cent. to the value of every acre of land in the counties through which it is to pass. To Clevelanders we can say, that attention is already diverted from this point, and yesterday one of our most intelligent steamboat captains informed us that the falling off in the travel through this city is very great—will not our rich men take heed.—*Cleveland Herald.*

Railroad Meeting.—All persons interested in the Cleveland and Pittsburg railroad will heed the call for a meeting on the subject, in another column. There is reason to expect that the means for completing the road may be obtained, if the people upon the route show reasonable confidence themselves in the value of the work.

The completion of the Baltimore and Ohio road to Pittsburg may now be looked upon as certain. The Cleveland and Pittsburg road will complete the connection between the lakes and the Atlantic.

The Pittsburg Gazette of Wednesday says: We have late advices from Baltimore, the purport of which is that the Pittsburg committee has had a satisfactory interview with the directors of the Baltimore and Ohio railroad company, and that the probability is, that a corps of engineers will be immediately placed on the Pittsburg and Connessville route to prepare the line for contract.

Pittsburg and Connessville Railroad.—The election for directors of this company, which took place at Pittsburg on Wednesday, resulted in the choice of the following named gentlemen: Wm. Robinson, Jr., Wm. M. Lyon, Harmar Denny, Jesse Carothers; Geo. Darsie, Jas. Kelly, Jas. Wood, N. B. Craig, Jos. Pennock, John Bissell, A. W. Loomis, J. K. Morehead. The Pittsburg Gazette remarks: "The ticket elected is a very good one, comprehending some of our most active business men and others of well known energy, prudence and perseverance."

The directors held a meeting on Thursday afternoon and organized the board by electing the following officers: Wm. Robinson, Jr., president; Wm. M. M. Lyons, treasurer; Jesse Carothers, secretary.

Among other important business transacted looking to an immediate commencement of operations on the road, a committee, consisting of Messrs. Denny, Darsie, Craig and Robinson, was appointed to proceed to Baltimore to confer with the directors of the Baltimore and Ohio railroad company. Provision was also made for re-opening the books shortly for

the subscription of further stock, of which due notice will be given.

The engineers have commenced a survey of the route intended to connect the Wilmington and Raleigh railroad, (N. C.) with the South Carolina road.

Macon and Western Railroad.—The brig *Excel* has been for three days engaged in discharging a cargo of machinery, intended for the Macon and Western railroad. There were in all something like fourteen hundred pieces, including wheels, axles, trucks, etc., etc. This looks something like preparing for business in good earnest. Our only regret is that all the machinery was not made nearer home, as it could have been, and would, no doubt have been, but for the fact that the company is anxious to put the road in complete operation, at an early day, in order to be ready for the growing crops, as well as for the transportation of the vast quantity of merchandize which is expected to pass over the road.—*Savannah Republican*.

The Columbus, Ohio Railroad.—The Cleveland Herald says, the commissioners appointed, under the law of last winter, authorizing the city to subscribe \$200,000 to the road, have agreed with the directors of the company to appropriate the whole of it, if it should be necessary, on a portion of not less than 40 miles of the route the directors may select—provided funds from other sources shall be obtained by the directors, adequate to the completion of so much of the road.

The Mad river railroad, says the Springfield [Ohio] Republic, has effected a loan of money sufficient to complete the road to Springfield, there to connect with the Little Miami road to Cincinnati.

The Whitewater canal is drawn off below the city for repairs and cleaning out. There is a prospect of its doing a largely increased business this fall, from its extension, and the heavy crops of eastern Indiana. From the late report made to the council, it appears the business of 1845 was more than double that of 1844—the tolls being:

For the year ending Nov. 30, 1844,	\$4,230 73
“ “ “ Nov. 30, 1845,	8,359 58
From Nov. 30th '45 to May 30, 1846,	4,309 81
“ Water rents to date,”	1,577 32

The total cost of the canal was \$838,108 27—of the stock of which, the city of Cincinnati owns \$400,000, and the state of Ohio, 150,000. *Cin. Gazette*.

New Furnaces.—We learn from the New castle Gazette that a new furnace is about to be erected in North Beaver township, in this county, by Mr. Aaron Bender, which it is expected will be in blast early next spring.

We also learn that the Messrs. Shoenberger of Pittsburg, have lately purchased land and obtained the water right at the Hard-scrabble dam, 16 miles up the Beaver, with the view of erecting a furnace. The location is said to be well adapted to that kind of improvement—having abundant deposits of iron and coal in the neighborhood.

These works we believe to be the beginning of an extensive iron business in Beaver county, if government would permit this important branch of domestic industry to prosper. No region in the state, probably, is richer in minerals than the northeastern portion of this county, where the coal and the iron are in close proximity, near to navigable streams with water power unequalled by any other section. Large bodies of land having these advantages

re now in the market; and capitalists will do well to give them attention. And while we note these things, will the farmer consider whether it would be better to have 10 or 20 furnaces erected among them with one or two thousand laboring men, (all too, with families) to consume all their productions, or that establishments should be sustained in foreign countries.—*Beaver Argus*.

The directors of the Wilmington and Raleigh railroad have appointed Robt. K. Paine, of Charleston, engineer and superintendent of the road, in the place of McRee Swift, resigned.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

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Saturday, August 1, 1846.

New York and Erie Railroad.

We learned from one of the commissioners, a few days since, that the surveys were so nearly completed that at their next meeting a full statement of the various routes might be expected.

We are, however, not quite convinced that sufficient energy is bestowed upon this affair. Who should make the movements for expediting business, we cannot say; but that it is high time for some decision and for the necessary steps towards the construction of the road, every one must admit.

Our eastern neighbors manage these things much better. By the way, would it not be a good thing for the directors of the New York and Erie to pay them a visit, and see what sort of roads are built in New England, and how rapidly they are finished?

Railroads and Common Roads.

The following statement, which we take from the Baltimore American, is a practical illustration of the advantages of railroads over common roads.

Under the head of “Western transportation,” it is stated that “the charges on the Baltimore and Ohio railroad, from this city to Cumberland, 178 miles, are as follows, viz: coffee and manufactured tobacco, 25 cents per 100 pounds, and groceries, dry goods and other merchandize generally, 32 cents per 100 pounds,” and by “wagons from Cumberland to Wheeling, 130 miles, it is 62½ cents per 100 pounds, and from Cumberland to Pittsburg, 112 miles, 50 cents per 100 pounds,” or more than twice as much for 130 miles by wagon, as for 178 miles by railroad—to say nothing about the difference in time.

By the Susquehanna railroad and Pennsylvania canals, the rates for transportation are,
 For dry goods, per 100 pounds.....87½ cents.
 For bales “ “75 “
 For groceries, “ “70 “
 For coffee, “ “50 “
 Surely railroads are monopolies.

Railroad Rates.

Why have some of our main lines of railroad failed to afford as much profit to their owners, and accommodation to the public, as might have been expected?

Were there any mystery in the answer to this question—did it need more than ordinary judgment to pronounce upon a matter of so much consequence to thousands, and we might say millions—we could well claim public honors for its solution. But with all due modesty, we must disclaim any desire for fame, and plainly tell the truth—that it needs no more than common sense, the use of one’s eyes and ears, to understand both the cause and the cure of the difficulty.

If we travel over a line of railway from a populous city, to and through a region of country, possessing ordinary natural advantages—and see houses “few and far between,” villages scant, dwellings of an inferior order, and passengers the fewest possible in number—need we wonder at all these things, when we hear that the charges on the road are high for all, and for all alike—that no inducements are offered for permanent residence or business along the line—that the company has looked to the through traffic, and disregarded, nay even discouraged all other?

To men of little minds, it has seemed impossible, that while two, three or five dollars were obtained from those passing over the whole line of a road, any profit could be derived from those who paid but twenty, thirty or fifty cents. The reasoning would be as good, were a merchant to refuse to deal in flour, coffee or cotton, and only sell diamonds, gold and silver, because the price of the former articles was so much less than that of the latter. If a man fail in business from the attempt to carry into practice such absurdities, few are disturbed by it; but when a railroad fails to accomplish what it ought to do, the loss is serious to the community, even if the stockholders receive a fair dividend.

On most well managed roads, we think it will be found that the local travel is an important part, if not the greater part of the whole trade. In such cases we are sure to find a liberal encouragement to residence upon the line. One family brings another—relations and friends visit—the household wants must be supplied, either directly or indirectly—and an increase of freight is sure to follow an increase of residence. In this manner, the true and permanent traffic of a road is augmented, without any determined limit.

Were the right policy adopted upon some works which we might name, the ride over the roads would be more enticing even to through travellers; and although the lovers of the picturesque might be dissatisfied at the disappearance of the wilderness and desert, the lover of humanity would be equally pleased at the change to the farm and garden.

We give, in this number, an article on “railroad rates,” signed “Baltimore”—the good sense and sound argument of the writer deserve commendation—while we are indebted to him for some details of the “magic” arts by which Massachusetts and her neighboring states have performed such wonderful things in the railroad line.

The design of this communication is to direct public attention to the present mode of managing our railroads—to contrast with this the manner of doing business on other roads—and thus to cause such changes to be made with us as experience elsewhere has shown to be beneficial. We have four lines of railroads leading from Baltimore, inclu-

sive of the Washington branch of the Baltimore and Ohio railroad. Let us suppose that along the lines of each of these railroads for the distance of thirty miles from the city of Baltimore, the whole country was cleared and improved, and residences built and occupied. What would be the effect of this? No citizen of Baltimore can doubt that the city itself would be greatly benefited. The country through which these roads pass would assume an appearance greatly different from its present condition. The operations of the railroads themselves would be vastly increased—their revenues greatly enlarged—and such a business would be secured as would be permanent and steady, and cause the dividends to be regular and large, and each year an improvement on these dividends might reasonably be expected.

Every person interested in these events, would greatly rejoice to see the result above described—all must consider this a great desideratum. But many will ask how can this be accomplished? They will doubt its practicability. They will fear the result of any experiment. To these we may say, this is no longer an experiment. The results elsewhere have proved the practicability of doing what is now suggested. The effects above described have been brought about along the lines of railroads constructed since ours have been made. These effects have been accomplished in a few years. We have nothing more to do than to pursue the same course; to follow the example which has already been so successful.

There has been no magic at work in Massachusetts. A little practical common sense has been employed. They have not adhered to a system because it was already in use;—they have watched the times and the onward progress of events. They have seen and felt the influence and effect which a large city has upon the surrounding country. They believed that by bringing the country as near the town as possible, by furnishing facilities of transportation between the two, the unavoidable effect must be to benefit both, as well as the parties granting these facilities. They knew that to do this to any great extent they must establish low tolls for passengers and transportation; that the way travel and trade must be fostered and encouraged—and that so far from looking exclusively to through trade and travel, the true policy is to promote each alike and to the full extent of their ability. They have not thought it wise or politic to make no difference between the person who uses a railroad once, or it may be oftener, or every day in the year, and him who it may be travels on it but once in his lifetime. No; their shrewdness taught them the wisdom of encouraging settlements along the lines of their railroads; they felt that the more extensive these became the better it would be for their works. Hence they have adopted the system of low tolls; they have encouraged the daily and constant use of their railroads, by disposing of tickets to passengers by the season, sometimes for the year, for six months or three months. As a further and additional encouragement, they will

sell tickets in large numbers to a single person, and as an inducement to the purchase, will make a large deduction or discount from the usual price or cost of tickets.

By such means they in Massachusetts have made their works most productive; they have been enabled to declare large dividends, and have caused these improvements to be a great benefit to all parts of the country into which they have been extended. The city of Baltimore now numbers nearly one hundred and twenty thousand inhabitants. The country around it, is true, is not densely inhabited. The effects of our railroads upon the country through which they pass have been inconsiderable. What is the cause of this? Why this great difference in the effects of the cause? The answer to these questions is obvious to all who have at all considered the subject. Little or no attention has heretofore been paid by our railroad companies to the way trade and travel. The inhabitants of the country through which the roads have been constructed have been accustomed to see the trains of cars pass along day by day for many years. They have felt no benefit from this; they have experienced no additional facilities; and if they have been tempted to use the cars, they too often find the charge so heavy that it is far better to employ their own conveyances as well in carrying their property as their persons. The Massachusetts system, if adopted here, could not fail to work good results. The first effects here would not equal those now realized there. But in a few years the people of Maryland—I mean those not stockholders—instead of being careless about these works, would find how immensely benefitted they are, and instead of speaking of them as too many now do, as injurious to the country in the vicinity of Baltimore, would declare that nothing could be a greater source of prosperity.

It is true that there is not much expectation of inducing the directors and managers of our railroad companies to adopt the Boston system. They are unwilling to admit that they have heretofore been pursuing an unwise and inexpedient course; that they have failed to produce effects in all respects most desirable. In fear and trembling they adopted a change of tolls on the Washington branch of the Baltimore and Ohio railroad company. This was literally forced upon them by public opinion. The result of this change has undoubtedly been good. The Baltimore and Susquehanna railroad company has benefited by reducing its tolls, but it has not, as it ought to have done, adopted such a system as that of Massachusetts. We ought, nevertheless, to urge the adoption of some plan similar to those which elsewhere have worked so well. A comparison between the country around Boston and along the lines of the railroads, with that around Baltimore ought to be made. The increase of Baltimore, which for the last few years has been so great, has not been felt in the surrounding country. We have enterprize and capacity sufficient to avail ourselves of all facilities which may arise, and are equal in that re-

spect to the people of Massachusetts. The natural advantages of our country for agriculture and manufacturing purposes are equal to those of the country surrounding Boston. All that we want is that our railroads should be conducted upon the same principles as to tolls and freights. Let these be reduced, and let the way travel and trade be encouraged as it should be, and no man can tell how great and beneficial will be the results thereof.

The following are the tolls paid by passengers on the railroads below specified, which are known to be correct, and which show what has been the system adopted by the Bostonians, to increase travel on their railroads.

Boston and Maine Railroad.

	Miles.	1 year.	6 m.	3 m.	Sing. tick.
Boston to Malden	5	\$35.	\$19.	\$10.	15 cts.
" N. Malden	7	40.	22.	12.	20 "
" S. Reading	10	45.	24.	13.	25 "
" Reading	12	50.	27.	15.	30 "
" Wilmington	16	60.	33.	18.	40 "
" Andover	23	80.	40.	20.	60 "
" Haverhill	32	100.	50.	25.	85 "

Boston and Providence Railroad.

	Miles.	1 year.	6 m.	3 m.	Sing. tick.
Boston to Jamaica Plain	4	\$25.	12.	6.	12 1/2 cts.
" Dedham	11	50.	27 1/2.	14.	25 "
" Canton	14	65.	35.	18.	40 "

Boston and Worcester Railroad.

	Miles.	1 year.	6 m.	3 m.	Sing. tick.
Boston to Brighton	5	\$35.	\$23.	\$15	not ascer.
" Newton	9	40.	25.	16	tailed.
" Needham	13	50.	30.	22	

Boston and Lowell Railroad.

	Miles.	6 m.	3 m.	Sing. tick.	
Boston to Lowell	26	\$65.	\$32	50	65 cts.

and in the same proportion for less distances.

Eastern Railroad.

	Miles.	1 year.	6 m.	3 m.	Sing. tick.
Boston to Lynn	9	\$50.	\$35.	\$20.	25 cts.
" Salem	13	75.	50.	30.	40 "
" Ipswich	24	100.	75.	45.	not asc'd.

On the Eastern railroad single tickets by the quantity may be purchased at the following rates of discount:

100 to 200 tickets	at 12 1/2 per cent. discount.
200 to 300	" 25 "
300 to 400	" 33 1/2 "
400 to 500	" 40 "
500 to 600	" 45 "

A season ticket entitles the purchaser on all these roads to two passages a day, and of course is not transferable. By comparing the prices above mentioned, it will be seen that the price of a single passage to a person having a season ticket, is from one-half to one-quarter of the ordinary rate. These companies have found it to be their best policy to put their prices low, and that the reduction of the fare has been followed by an increase of travel more than sufficient to compensate the loss on each ticket. On the Lowell railroad, the price of single tickets was formerly \$1, but it has been gradually lowered, till now it is but 65 cents, and so on the other roads.

It is hoped that the example of the Bostonians will be followed here, and that a reduction will shortly be made on the lines of all our railroads, not only with respect to passengers, but to all articles of merchandize; that the local travel will be encouraged and supported, and the result cannot fail to be greatly beneficial to the railroad companies, to Baltimore and the adjoining country.—*Balt. American.*

A Memoir on the Resistances to Railway Trains at Different Velocities.

Institution of Civil Engineers, May 26.—

Sir John Rennie, president, in the chair.—The paper read was "A Memoir on the Resistance to Railway Trains at Different Velocities," by Wyndham Harding, C. E. He commenced his paper as follows:

In 1837, the speed attained on railways was a recent subject of wonder. No sooner was the fact of the daily attainment of speed which then appeared extraordinary, established, than the following questions presented themselves and became of practical interest. What were the resistances experienced at these high velocities? Were they solely those due to friction and the gravity of the train when ascending an inclination which experiments showed to be independent of the velocity of the moving mass, or were they resistances which varied with the velocities, and if so, from what cause did they arise, and what ratio did they bear to the velocity? The introduction of a smooth iron rail and an iron wheel running upon it bid fair to reduce materially the surface resistance, which had hitherto been the retarding force most felt in the traction of wheel carriages. But it was clear that a railway train, impelled as it was by the action of a limited quantity of steam (a vapor used at an elasticity only about four times that of air,) would still have to encounter a formidable resistance from the atmosphere, as this resistance makes itself seriously felt in the motions of all bodies, light or heavy, passing through it, and increases rapidly with the velocity. The existence of this retarding cause was of course not overlooked by the engineers engaged in the working of railways, and the development of the new system of locomotion, but they had something else to do at that time, than to sit down and write on that or any other subject. So far as has come to my knowledge, Mr. Herapath in the *Railway Magazine* of 1836, was the first writer who drew attention to the practical effect which the resistance of the atmosphere would have upon railway trains moving at high velocities; giving a table founded, not on experiments, but, to use his own words, on deductions from physical principles, and showing a computed arithmetical value of the retarding force, in pounds, at various velocities. No recent experiments were at that time extant on the resistance offered by the air to bodies moving through it, and the experiments recorded by Dr. Hutton and Smeaton, were, I believe it may be said, not satisfactory, especially at high velocities. It was therefore a matter of much importance and interest to measure and determine the value of the resistances, whether from the air or other causes, which exhibit themselves in railway trains moving at various velocities.

I. At the meeting of the British association for the advancement of science, held at Liverpool, in 1837, the subject was accordingly discussed, when much discordance of opinion was found to prevail with regard to it among the members of the Mechanical section, which included several railway engineers. A committee was therefore appointed to investigate the subject, consisting of Mr.

Rennie, Mr. (now Sir John) Macneil, Mr. Locke, Dr. Lardner, Mr. Harman Earle and Mr. E. Woods; and under their superintendence an elaborate experimental inquiry was commenced, and continued during 1838 and 1839. In the autumn of 1838 it fortunately happened that the question of resistance of trains became the subject of discussion between Mr. Nicholas Wood and Mr. Brunel, on the occasion of the deliberation of the proprietors of the Great Western railway as to the expediency of altering the gauge of 7 feet to that of 4 feet 8½ inches, Mr. Nicholas Wood adopting a much higher estimate of the increase of resistance with the velocity than Mr. Brunel would admit. Mr. Brunel maintained that the result arrived at by the experiments of the committee of the British association and Mr. N. Wood were altogether fallacious, adducing arguments to invalidate the conclusions to which they pointed, based on the modes of conducting the experiments, and describing the arrangement by which he intended to diminish whatever objectionable amount of resistance (arising from the passage of the train through the air) might be found to exist in practice, viz: by shaping the front of the engine on a principle analogous to that of the bow of a boat. The committee accordingly, in 1839, varied the modes of making the experiments which had been pursued in 1838, in order to check the first experiments, and to ascertain how far any of the objections raised to the mode of conducting these experiments were of force. In this series of experiments the measure of the force of resistance was in each case obtained by a comparison with the standard afforded by the effect of the action of gravity on trains of known weight passing over portions of railway of known inclinations. The results of the experiments I propose to give in the present paper, and shall refer for the details to the printed reports and tables in the reports of the British association.

II. In 1843, Mr. Scott Russell undertook some experiments on the Sheffield and Manchester railway, with a view of ascertaining, himself, the resistances to trains at various velocities. Mr. Scott Russell communicated the result of these experiments to the British association in 1844; but as the details were not printed, I have given those of the experiments on which I argue, as well as the general results: Mr. Russell having afforded me such details.

III. In 1844 and 1845 a new and very satisfactory instrument, for measuring the resistance of trains, was afforded in the atmospheric apparatus erected on the Kingstown and Dalkey line. The resistances of trains indicated by that apparatus are referred to in Mr. Robert Stephenson's printed report on the atmospheric system; this particular branch of the subject was also especially brought under the attention of the members of this institution by Mr. Bidder in 1845, who contributed a table of resistances compiled from the experiments detailed in Mr. R. Stephenson's report.

IV. In May, 1845, the writer of these remarks made a few experiments on the inclined plane of the Bristol and Gloucester

railway (1 in 74) with a view to ascertain the resistances of trains in descending that incline freely. The details and results of these experiments will be given in the following remarks. These are, so far as the writer is aware, the only experiments of the sort on record as to the resistances on trains running on a railway of 7 feet gauge—all the other experiments named having been made on railways of the 4 feet 8½ gauge.

V. In the commencement of the present year, 1845, the writer made some experiments on the Croydon atmospheric railway; the details of those experiments, which are treated of in the following remarks, will be given.

VI. At the end of the year 1845, the gauge commissioners ordered experiments to be made on railways of either gauge. In these experiments all the circumstances were carefully noted; they, therefore, afford the means of comparing the effect due to the water evaporated, under the known conditions, with the work actually performed, in drawing trains at various velocities from 20 to 60 miles per hour.

VII. Mr. Scott Russell, in the commencement of this year, made experiments on trains of the Southeastern railway with Morins' dynamometer. This beautiful instrument, which Mr. Russell lately exhibited to the institution, promised to supply the want, so long experienced by railway engineers, of a dynamometer whose indications can be trusted to. The details and results of these experiments will be given in the following remarks.

The measure of the resistances in the series of experiments I, II, IV, V, is the effect of gravity on descending plains of known inclinations. In the series III. and V., the measure is the pressure on the travelling piston of the atmospheric apparatus indicated by the travelling barometer, less an allowance for the friction contingent on the travelling piston and accessories. In the series VII., the measure is the self-registered indication of the dynamometer.

In the series VI., the measure is the effect due to the quantity of water converted into steam at a certain known pressure, acting in a locomotive engine, of which the dimensions are known. We have thus recently been put in possession of two dynamometers, which promise to be trustworthy, whereby to measure the resistance to railway trains at different velocities, namely, the difference of pressure on either side of the travelling piston on the atmospheric apparatus and Morins' dynamometer. We are, now in a position to compare the resistances, measured by four different means.

The object of this paper is, out of this large collection of experiments, to present in the simplest form those results which afford the means of measuring the resistances of passenger trains, of different weights, running at different velocities, on a railway in good repair, with no fortuitous circumstances tending to increase the resistance, as it is thus only that we may hope to obtain a series of facts which may enable us to determine prac-

tically the law of the resistances. It is clear that in such an inquiry, while our experiments must be made on ordinary trains, it is at the same time necessary to exclude carefully all casual circumstances, such as wind, sharp curves, unusual want of repair in the rails or carriages, as the resistances arising from such disturbing causes can be expected to follow no law. It should be remembered that all such fortuitous circumstances as we have named, with the exception perhaps of a wind right abaft, will tend to magnify the apparent resistance to the train, and we have therefore to guard against rating the resistances too high. Acting on this principle, I have gone through the different series of experiments enumerated, and have selected all those cases (and those only) which come under the following simple conditions. *A uniform velocity maintained for a distance sufficient to assure us that it is really a uniform and not a retarding or accelerating velocity; on a line free from sharp curves on a calm day.* In dealing with such a mass of figures as the various experiments which I have mentioned exhibit, some principle of selection must be determined upon, and I venture to think that the presentation of those results only which are exhibited under the above conditions, will simplify* the subject we have to consider, and assist us in arriving at the general law of resistance to trains of varying velocities.

Before analysing, as I propose to do, the experiments *seriatim*, it may be right to mention that Mr. Brunel, Mr. D. Gooch and Mr. Samuda, one of the patentees of the atmospheric system, differ widely from other engineers on the amount of resistance at high velocities. Mr. Brunel and Mr. Samuda have in the inquiry before the committee of the Newcastle and Berwick railway last year, stated that the resistance to an ordinary passenger train at 60 miles an hour would not exceed 17 lbs. per ton. On this assumption their calculations were made as the tractive power necessary to be provided in the case of that line, and Mr. D. Gooch, taking the resistance to an ordinary passenger train to be 18 lbs. per ton at 60 miles an hour, made this the basis of an elaborate table of the comparative power of narrow gauge and broad gauge engines, laid before the gauge commissioners, and printed in the minutes of evidence taken by the commissioners. Other engineers, as Mr. Stephenson, Mr. Locke, Mr. Bidder, Mr. Scott Russell, have estimated the resistances at 60 miles an hour, to be at least upwards of 40 lbs. per ton, or nearly three times as much as the three gentlemen first named considered it to be.

Under these circumstances it is unnecessa-

* By only regarding uniform velocities, we get rid of the correction necessary on account of the rotation of part of the moving mass of a train, viz: the wheels and axles, and as it appears upon the face of the experiments that the resistances increase with the velocities, we also get rid of the doubt as to whether the mean resistance which only can be ascertained in the case of varying velocities is referable to the mean velocity or not. There are also other reasons for preferring as measures of resistance results obtained from uniform velocities to those obtained from varying velocities.

ry to say that it is a question of much interest and importance to ascertain the true law of resistance to trains at various velocities.

Mr. Harding then proceeded to discuss the various experiments *seriatim*, and exhibited all the results in a series of valuable tables, which will soon, we hope, be published by the institution for the benefit of the profession. He also gave a formula, which actually represented all the experiments, which were now for the first time thus brought together; and he showed by various diagrams the degree of coincidence between this formula and the results of experiment. The formula which he gave is—

$$R = 6 + \frac{V}{3} + \frac{(V \times 0.025 \times n)}{T}$$

where R is the resistance per ton in pounds, V the velocity of motion, and n the number of square feet of frontage of the train. These are all taken on the level. The discussion will be renewed next meeting.

Report on the Vibration produced by Trains in passing through the Tunnel of Kensal Green.

To R. STEPHENSON, Esq., Sir: I have the honor, to submit to you the results of the series of experiments performed at Kensal Green, with the view of ascertaining to what distance the vibration produced by a train in passing through the tunnel may be sensible.

In these experiments, I employed a basin of quicksilver, which was placed on the ground and fixed as firmly as possible. A lens carrying a set of cross wires was attached, in such a manner that the image of the wires could be reflected in the mercury, and therefore any vibration of the mercury could be easily detected by the oscillation of the reflected image. A piece of glass effectually protected the mercury from currents of wind, and the experiments were thereby rendered very satisfactory. In observing the reflected wires, I did not employ a telescope, as a previous trial had convinced me that no material advantage would arise from the use of a telescope, since the sensibility of the eye in detecting the least vibration of the mercury was far greater than I could have expected, and more than sufficiently delicate for the purpose in view.

The situation selected was a field belonging to Mr. Sullon, on the north side of the tunnel. The distances were measured with a land chain from the northern side, as nearly as its position could be ascertained.

April 16th.—The day cloudy, but without rain, a moderate breeze blowing from the eastward.

Distance 60 ft. Down train very great vibration, the reflected image of wires was quite invisible from agitation as the train approached the centre of the tunnel; the vibration commenced immediately the train entered the tunnel, and ceased the moment that it left.

Distance 138 ft. Down train—the vibration began about two seconds after the train entered, and ceased about the same time before it was out of the tunnel; though the

amount of oscillation was much less than at 60 ft., it was still considerable.

Distance 300 ft. Down train—the vibration began immediately the train was in the tunnel, and continued about ten seconds after it had left; the train was in the tunnel twenty seconds.

Distance 472 ft. A heavy down train—thirty-two seconds in passing through the tunnel. The vibration was seen about seven seconds after it was in the tunnel, and ceased four seconds before it left. The amount was rather considerable.

Distance 572 ft. Up train—twenty seconds in tunnel. The oscillation of the mercury was sensible five seconds after the train entered, and ceased ten seconds before it emerged from the tunnel. Another up train produced the same effect.

Distance 644 ft. A down train—twenty seconds in the tunnel—produced *not the slightest effect*. The observation very satisfactory.

Distance 609 ft. A down train—twenty-seven seconds in the tunnel. The vibration so excessively small as to be visible only by transient glimpses when the train was fairly in the tunnel. *I consider this to be the distance where the vibration becomes sensible, and beyond it the trains will have no perceptible effect in this locality.*

The following estimated values for amount of vibration, though necessarily very rude approximations, may still be interesting:

Distance	Amount of vibration
60 feet	100
138 "	40
300 "	25
472 "	10
572 "	5
609 "	1
444 "	0

On April 11th, some observations were attempted in a field adjoining that belonging to Mr. Sullon, at a distance from the tunnel of about 400 feet but the perpendicular drawing from the place of observation to the tunnel, would fall not more than 50 feet from the entrance, and this circumstance, in addition to most unfavorable weather, probably prevented my seeing any vibration. An objection being raised on this day against the performance of the experiments on Mr. Sullon's property, I was unable to proceed until the 15th, when that gentleman was kind enough to allow the use of the field on the north side of the tunnel, a most favorable locality for the purpose.

On April 15th, I made some experiments to ascertain whether a horizontal wire of a transit telescope placed at different distances from the tunnel to bisect a distant object would show the vibration at those distances to be sensible. I very soon found that this method was not sufficiently delicate, as no vibration could be detected even at 60 feet distance from the side of the tunnel. The experiments with mercury on the following day were made under very favorable circumstances, and the results are I believe, worthy of great confidence.

J. R. HIND.
Mr. Bishop's Observatory, Regents Park,
April 17, 1846.—*Railway Chronicle.*

Railroads and Milk.

In the "new company," mania of 1845, a project was started for supplying London with pure milk. One of George Cruikshank's caricatures of the day represented the stock as consisting of one cow and two pumps. But now it seems railways are about to do what was twenty years ago sneered at as a joke. An Essex paper states that the neighborhoods of Romford, Brentford, etc., on the Eastern Counties line, the inhabitants of which would probably, not many years ago, have laughed at the idea of sending their milk to the metropolis, now carry on a very considerable and daily increasing trade in that article. Travellers can hardly fail to see a number of huge canister-shaped tin vessels, used for the purpose of transit; and these having a van specially appropriated to them, the milk reaches London in prime condition. At Chelmsford, one extensive grazier at least, is preparing to enter into the same trade. This promises a complete revolution, not only in the price, but the composition and quality, of the above extensive article of consumption.—When each railway from the grazing districts into London shall have become "a milky way," there will no longer be the temptation which at present exists, to resort to artificial ingredients; and people—even milkmen, will be content to leave the manufacture of their commodity to the proper artificers—the cows.

We suspect that the "discovery" announced below has, to speak technically "a screw loose" somewhere. If the last sentence means anything it should read—*decreases inversely as the square of the thickness—a very material and fatal alteration.*

Important Discovery in the Perfection of the Principles of the Atmospheric Railway.—A gentleman of long standing as a first rate mechanic, of very great practical experience and of the highest attainments in chemical science, has just completed a large working model, which he is about to exhibit in the principal towns in England, clearly demonstrating this extraordinary new principle, which does away with the slit or opening in the tube, and, of course, with all the expense, trouble, and loss of power, occasioned by the top valve. This perfection of the application of steam power to locomotion, is attained by electro-magnetism, by means of a curious new metallic compound for the piston, and an equally novel, but most effective, compound to act on the outside of the valve, which at once completely attaches, or rivets it, always opposite the piston, whatever the weight of the train or the speed may be. It also possesses the singular property, that its power of attraction increases as the square root of the thickness of the tube.—*Mining Journal.*

Atmospheric Engine Improvements.—Mr. R. Atha, engineer, of Walton, near Wakefield, has recently patented some improvements in atmospheric engines. The arrangement of apparatus, he proposes, to consist of four or more sails, fixed upon "a stationed supporter," and driven or moved by the power of the wind; two force pumps are attached to the shaft or fulcrum of the sails, for the purpose of forcing air into a cast iron box or

boxes, termed the main receiver or receivers; each receiver is provided with a safety valve, to prevent an explosion occurring from the air being too much compressed, and also with a pipe, furnished with a stop-cock; the outer end of the pipe is suitably formed for being attached to another receiver, called a minor receiver, which is fixed upon the frame of a locomotive engine, and connected by a pipe with the working cylinders of the same; the engine is constructed in the same manner as the locomotive engines worked by steam.—When the pipe from the main receiver is connected to the minor receiver, the stop-stock is opened, and the air rushes from the former into the latter, which thus becomes filled with compressed air: the stop-cock is then closed, and the pipe released; and the communication between the minor receiver and the cylinders being opened, the engine is put in motion.—*Mining Journal.*

RAILROAD IRON.
 50 Tons 2½ x ¼ Flat Bar Railroad Iron.
 8 " 1½ x ¼ " " " "
 15 " 2½ x ¼ " " " "
 15 " 1 x ¼ " " " "
 with Spikes and Plates, for sale by
A. & G. RALSTON & CO.,
 4 South Front st., Philadelphia.
 lm30

BOILER IRON.—55 TONS ASSORTED
 Boiler Iron, Nos. 3, 4 and 5, and of widths of 26, 32 and 36 inches, random lengths, in store, and for sale by
A. & G. RALSTON & CO.,
 4 South Front st., Philadelphia.
 lm30

GEORGE VAIL & CO., SPEEDWELL IRON
 Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions.

NICOLL'S PATENT SAFETY SWITCH
 for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee.
G. A. NICOLLS,
 Reading, Pa.
 ja45

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

PATENT INDESTRUCTIBLE WATER PIPES. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly *indestructible*. The prices are less than those of iron or lead. We also manufacture Basons and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.
J. BALL & CO.
 284

MACHINE WORKS OF ROGERS,
 Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.
 Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.
Cotton, Wool and Flax Machinery
 of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
 a45 Paterson, N. J., or 60 Wall street, N. York.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to
 James P. Allaire, }
 Peter Cooper, } New York.
 Murdock, Leavitt & Co. }
 J. Triplett & Son, Richmond, Va.
 J. R. Anderson, Tredegar Iron Works, Richmond, Va.
 J. Patton, Jr. } Philadelphia, Pa.
 Colwell & Co. }
 J. M. L. & W. H. Scovill, Waterbury, Con.
 N. E. Screw Co. } Providence, R. I.
 Eagle Screw Co. }
 William Parker, Supt. Bost. and Worc. R. R.
 New Jersey Malleable Iron Co., Newark, N. J.
 Gardiner, Harrison & Co. Newark, N. J.
 25,000 to 30,000 made weekly. 35 1y

THE SUBSCRIBERS, AGENTS FOR
 the sale of
 Codorus, }
 Glendon, } Pig Iron.
 Spring Mill and }
 Valley, }

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L KIMBER, & CO.,
 59 North Wharves,
 Jan. 14, 1846. [1y4] Philadelphia, Pa.

MANUFACTURE OF PATENT WIRE
 Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by
JOHN A. ROEBLING, Civil Engineer,
 Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.
 2v19 1y

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

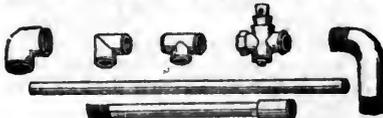
Blacksmith shop, 49 feet long by 20 feet wide. For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by

MORRIS, TASKER & MORRIS.
Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture! and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 1tf

LAP—WELDED WROUGHT IRON TUBES

FOR

TUBULAR BOILERS, FROM 1 1-2 TO 5 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentec.

28 Platt street, New York. 1y

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	Tons.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4½	13 5	10	24 -	50	15-16	20	
13	3½	8 3	8½	16 -	27	11-16	13½	
14	3¼	6 11	7½	12 8	17	9-16	10½	
15	2½	5 2	6½	9 4	13½	1-2	7½	
16	2¼	4 3	6	8 8	10½	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.

PETER COOPER, 17 Burling Slip.

New York, January 23d, 1846. 1y 10

RAILROAD IRON—500 TONS OF 67 LBS. per yard—5 inches high—of the double headed pattern, which is now wholly used in England—now on the passage, and a further quantity will be contracted for. Also

500 tons T pattern, 56 lbs. per yard, for sale by **BOORMAN, JOHNSTON & CO.** 119 Greenwich street. 4c24

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by **JOHN W. LAWRENCE,** 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 17

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long. 25 " 2½ x ½ " Flange Iron Rails. 75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 1tf

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, Albany Iron and Nail Works,

CALIGRAPHIC BLACK LEAD PENCIL, Manufactured by E. Wolff and Son, 23 Church Street, Spitalfields, London.

The Caligraphic Pencils have been invented by E. Wolff and Son, after the expenditure of much time and labor. They are the result of many experiments; and every effort that ingenuity and experience could suggest, has been made to insure the highest degree of excellence, and the profession may rely upon their being all that can be desired.

They are perfectly free from grit; and for richness of tone, depth of color, delicacy of tint, and evenness of texture, they are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use.

The Caligraphic Pencils will also recommend themselves to all who use the Black Lead Pencils as an instrument of professional importance or recreation, by their being little more than half the price of other pencils.

An allowance will be made on every groce purchased by Artists or Teachers. May be had of all Artists, Colourmen, Stationers, Booksellers, etc.

A single pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

Caution.—To prevent imposition, a highly finished and embossed protection wrapper, difficult of imitation, is put around each dozen of Pencils. Each Pencil will be stamped on both sides, "Caligraphic Black Lead, E. Wolff and Son, London."

The subscriber has on hand a full supply of Wolff and Sons celebrated Creta Loewis, or Colored Drawing Chalks, also their pure Cumberland Lead and extra prepared Lead Pencils, and Mathematical Lead Pencils.

P. A. MESIER, Stationer and Sole Agent, No. 49 Wall Street.

N. B.—A complete assortment of Steven's Genuine Inks, Fluids, Imitating Wood stains, and Graining Colours at the Manufacturers prices. 19tf

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of **STANCLIFFE & DRAPER.**



No 23 Pear street, below Walnut, 1y10 near Third, Philadelphia.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merriitt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

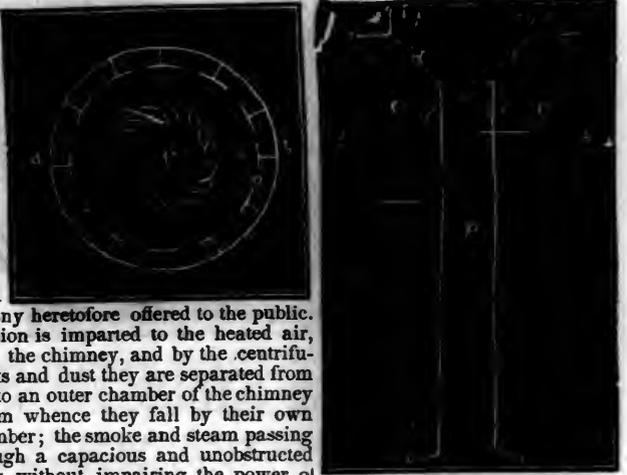
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

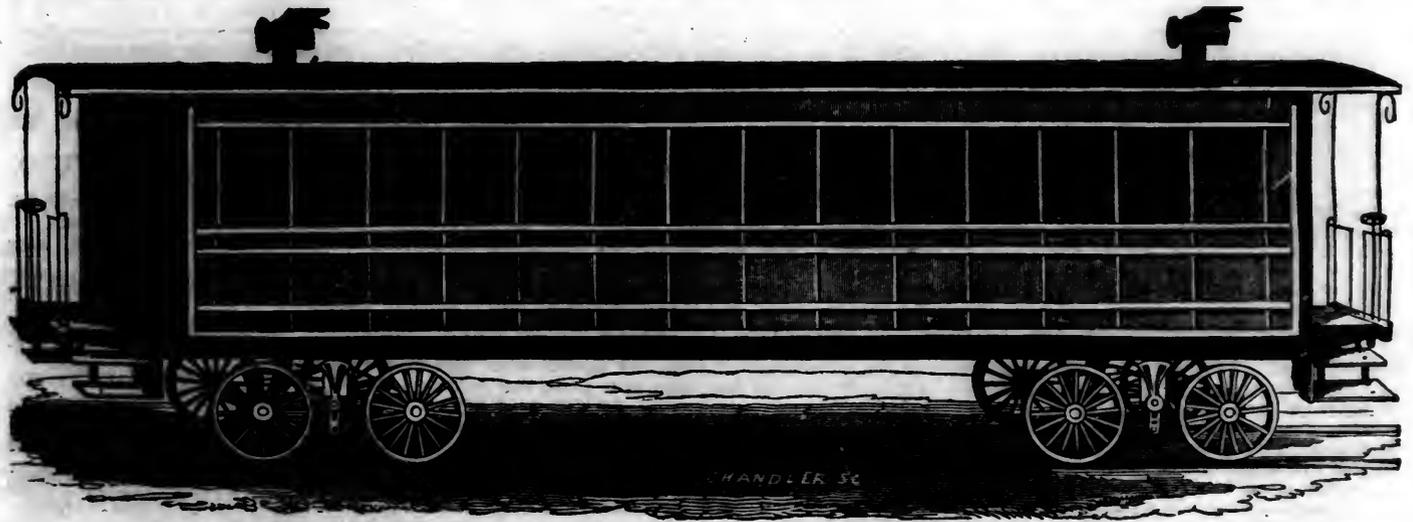
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45



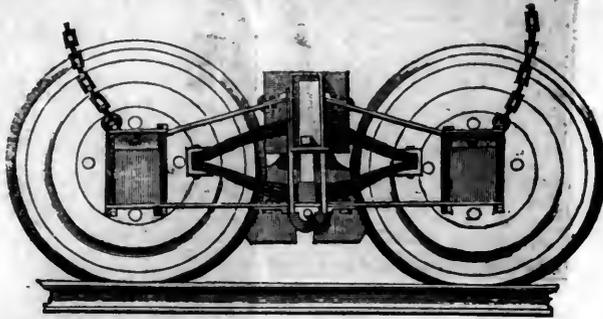
BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes. 1yl

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

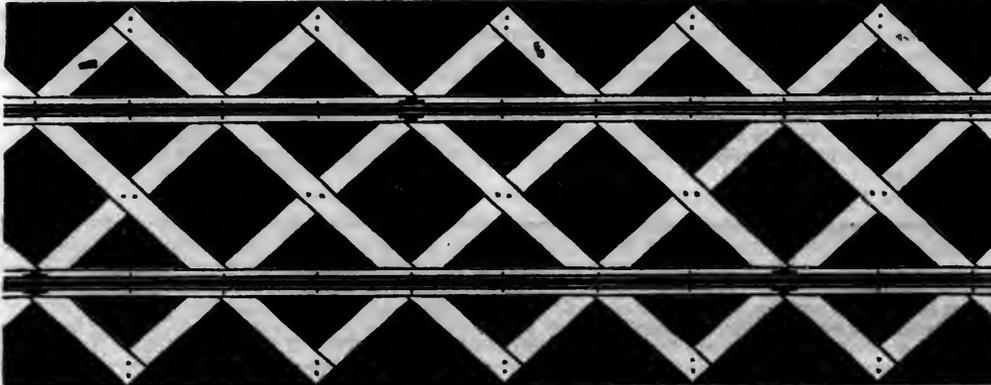
Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Sup't Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount with interest, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD

JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

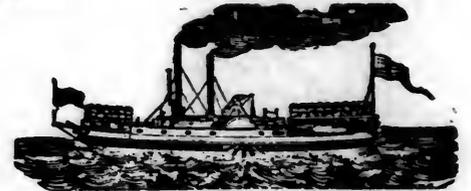
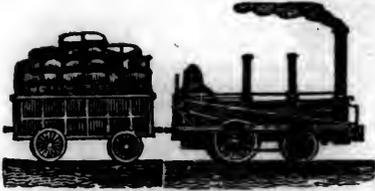
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ENGINEERS and MACHINISTS.

- THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)
- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM AND GROSVENOR, Paterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- PHENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 32.]

SATURDAY, AUGUST 8, 1846.

[WHOLE No. 529, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m. Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m. Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3½ p.m. All baggage at the risk of the owners thereof.

31 1y W. RAYMOND LEE, Sup't.

BRANCH RAILROAD and STAGES Connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich. New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 32 1y J. W. STOWELL, Sup't.

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m. Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m. Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m. Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m. Portland for Boston at 7½ a.m., and 3 p.m. Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m.

Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, Super't.

TROY AND GREENBUSH RAILROAD. Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at 6½ A.M.	Leave Albany at 7 A.M.
" " 7½ "	" " 8 "
" " 8½ "	" " 9 "
" " 9½ "	" " 10 "
" " 10½ "	" " 11 "
" " 11½ "	" " 12 M.
" " 1 P.M.	" " 1½ P.M.
" " 2 "	" " 2½ "
" " 3 "	" " 3½ "
" " 4 "	" " 4½ "
" " 5 "	" " 5½ "
" " 5½ "	" " 6 "
" " 6½ "	" " 7 "

The 6½ a.m. and 2 o'clock p.m. runs from Troy, to Boston runs.

The 12 m. and 6 o'clock p.m. trains from Boston runs.

Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT, Superintendent. Troy, April 1st. 1846. 14 1y

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M. " Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED to \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M. " Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts.

H. C. SEYMOUR, Sup't. March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 1y

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams' Bridge trains will be regulated according to the state of the weather. 18

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846.. Spring Arrangement... 1846
Commencing April 1st.

Passenger trains leave daily, Sundays excepted—
Boston 7 1/2 p. m. and 4 p. m. for Albany.
Albany 6 1/2 " " and 2 1/2 " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1 1/4 " for Boston.

Boston, Albany and Troy:
Leave Boston at 7 1/2 a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6 1/2 p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12 1/2 m.

Leave Albany at 6 1/2 a. m., arrive at Springfield at 1 1/2 m., dine, leave at 1 1/4 p. m., and arrive at Boston 6 1/2 p. m.

Leave Albany at 2 1/2 p. m., arrive at Springfield at 8 1/2 p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES,
Superintendent and Engineer.

Western Railroad Office,
Springfield, April 1, 1846. } 14 ly

NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.

Passengers destined for Columbus and Cincinnati,

O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance..... 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance..... 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

TIME.

From Buffalo to Sandusky..... 24 hours.
Leave Sandusky 5 a.m. to Columbus.... 14 "
From Columbus to Cincinnati..... 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.

From Buffalo to Sandusky, Cabin.....\$6 00
" " " " Steerage..... 3 00
" Sandusky to Columbus..... 4 50
" " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Sup'l, etc.
M. & S. C. R. R. Co.

Sandusky City, Ohio.

WILLIAM R. CASEY, Civil Engineer,
New York. Address Box 1078, Post-office.
New York. 21

THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mans-

field, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00
" " Sandusky to Buffalo, Cabin..... 6 00
" " " " " Steerage.... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.,] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, Sup'l, etc.
M. & S. C. R. R. Co.

Sandusky, Ohio.

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Balti-

more and York.—The Passenger trains run daily, except Sunday, as follows:

Leaves Baltimore at.....9 a.m. and 3 1/2 p.m.
Arrives at.....9 a.m. and 6 1/2 p.m.
Leaves York at.....5 a.m. and 3 p.m.
Arrives at.....12 1/2 p.m. and 8 p.m.
Leaves York for Columbia at..1 1/4 p.m. and 8 a.m.
Leaves Columbia for York at..8 a.m. and 2 p.m.

FARE.

Fare to York.....\$1 50
" " Wrightsville..... 2 00
" " Columbia..... 2 12 1/2

Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg..... \$9
Or via Lancaster by railroad..... 10

Through tickets to Harrisburg or Gettysburg.. 3
In connection with the afternoon train at 3 1/4 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5 1/4 p.m.
Returning, leaves Owing's Mills at.....7 a.m.

D. C. H. BORDLEY, Sup'l.

31 ly Ticket Office, 63 North st.

L EXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

R AILROAD IRON--1700 TONS VERY

Best English Rails, ready to be delivered.—These Rails weigh 60 lbs.; the lineal Yard, are 3 1/2 inches deep; 4 inches deep at base; 2 1/2 inches wide at top; 17 1/2 feet long, except one-tenth of 15 and 12 1/2 feet in length.

A first rate Steam Pile Driver built by "Dunham & Co." has never been in use, is in perfect order, and for sale a bargain; also 12 Railway Passenger Cars that have never been used, which will be sold very low.

DAVIS, BROOKS & CO.,
30 Wall Street.

June 1.

BALTIMORE AND OHIO RAILROAD. MAIN STEM.

The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburg and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburg \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburg \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

SOUTH CAROLINA RAILROAD.—A

Passenger Train runs daily from Charleston, on the arrival of the boats from

Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily..... \$26 50

Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

1y25 JOHN KING, Jr, Agent.

CENTRAL RAILROAD-FROM SAVAN-

nah to Macon. Distance 190 miles. This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.
On measurement goods..... 13 cts. per cubic ft.
On brls. wet (except molasses and oil)..... \$1 50 per barrel.

On brls. dry (except lime)... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.

On hhd. and pipes of liquor, not over 120 gallons..... \$5 00 per hhd.
On molasses and oil..... \$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE,
40 Gen'l. Sup'l. Transportation.

THE WESTERN AND ATLANTIC

Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 1y1

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.
AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHICALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanta River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot.....16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs.....95 "
" Sugar, coffee, iron, hardware, etc.....65 "
" Flour, bacon, mill machinery, grindstones, etc.....33 1/2 "
" Molasses, per hoghead \$9.50; salt per bus. 20 "
" Ploughs and cornshellers, each.....75 "
Passengers \$10.50; children under 12 years of age half price.

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
Ch. Eng. and Gen. Agent.

Augusta, Oct. 21 1845

*44 ly

LITTLE MIAMI RAILROAD.—1846.—
Summer Arrangement.

Two passenger trains daily. On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1 1/2 p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m. On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m.

Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.

Tickets may be procured at the depot on East Front street.

The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount.

W. H. CLEMENT,
Superintendent.

19

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4 1/2 P.M., Philadelphia at 10 P.M., and Baltimore at 6 1/2 A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00
" " " Richmond.....6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to 1y14 STOCTON & FALLS, Agents.

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,
45 North Water St., Philadelphia,
or by their Agent, ROBT. NICHOLS,
79 Water St., New York.

28ft

RAILROAD SCALES.—THE ATTEN- tion of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
Philadelphia, Pa.

1y25

MARAMEC IRON WORKS FOR SALE.

By Authority of a power of Attorney from Messrs. Massey and James, I will sell at Public Auction, at the Court House in the city of St. Louis, on MONDAY, the 2nd day of November next, the above named valuable IRON WORKS—together with 8,000 ACRES OF LAND, more or less, on which there are several valuable and productive Farms open and in cultivation.

The Maramec Iron Works are situated at the Maramec Big Spring, in Crawford Co., Mo., and consist of 1 BLAST FURNACE; 1 AIR FURNACE; 1 REFINING FORGE, with large Hammer for making Blooms and Anchovies; 2 CHEFFERY FORGES for Drawing Bar Iron; 1 ROLLING MILL for Rolling Blooms into Bars and Plates; 1 SAW AND 1 GRIST MILL,

All within 300 Yards of the head of the spring. There are 2 large frame Coal Houses, and all other Buildings necessary, such as Shops and Houses for the workmen.

This Spring is one of the largest in Missouri, discharging at the lowest time 7,000 cubic feet of water per minute. The Ore Bank from which the Ore has been heretofore taken is about 600 yards from the furnace; it is the Specular Iron Ore, the best for making Bar Iron, and the quantity inexhaustible.—It is an Iron Mountain, 400 feet above the level of the Maramec River; the ore is entirely uncovered, and there is an easy descent and a good road from it to the furnace.

The lands have been carefully selected by one of the owners with a view to the interest and convenience of the Works, and are situated principally on the Maramec River and its tributaries, embracing the best bottom lands and water powers. The following detached tracts, comprized in the above quantity, were selected for the advantages they possess;

183 1/2 ACRES in T. 40 N. of R. 8 W. in Sec. 3, near Wherry's Mill, in Osage Co.; entered to secure a very valuable Mill power on the Branch Spring and a good landing on the Gasconade River.

80 ACRES on Benton's Creek, 12 miles from the Works; entered to secure an extensive and valuable Ore Bank 2 1/2 miles from the Maramec, at a point where there is ample water power.

320 ACRES in T. 38 N. of R. 4 W. in Sec. 22 and 28, affording an extensive and valuable water power on the Maramec river.

160 ACRES in T. 37 N. of R. 3 W. in Sec. 4, embraces two inexhaustible and valuable Ore Banks and is 1 1/2 miles from Water power sufficient for a furnace and Grist Mill, and is distant 6 miles from the above site on the Maramec.

80 ACRES in T. 37 N. of R. 8 W. in Sec. 33, including an extensive bank of excellent Ore, and distant 1 1/2 miles from water power on the waters of the Gasconade River, in Pulaski Co., sufficient for Furnace and Mills. All those Banks are of the same kind as the one at the Works, and deemed inexhaustible.

1 LOT, containing nearly one Acre, on the South Bank of the Missouri River, 4 Miles above the town of Hermann, purchased for a warehouse and

landing, and is one of the best landings on the River.

The lands above described are well timbered, and have been selected with a view to have an ample supply of wood and coal, for fences, building and other purposes. There are on the land valuable quarries of Limestone well adapted for Fluxes for the Ore, and also good quarries of Rock suitable for building. There are also on the land a great number the finest kind of Springs. A large portion of the lands are bottoms well adapted to the production of Corn and other crops. The Works are situated in a very pleasant and healthful part of the country. The Maramec ore is believed to be admirably adapted to the manufacture of steel.

A further description of the property at this time is considered unnecessary, as those wishing to purchase will no doubt view the property, which will be shown by the Agent, residing at the works.

The terms of payment required will be one-third of the purchase money in hand and the balance in three equal annual payments, secured by mortgage on all the property.

A more particular description of the property will be given, and further conditions of the sale made known, on the day of sale.

JNO. F. ARMSTRONG, Agent.

St. Louis, June 6, 1846.

The Louisville, (Ky.,) Journal, Cincinnati Gazette, Tribune (Portsmouth, O.,) Nashville Whig, Pittsburg Gazette, National Intelligencer, United States Gazette, (Phila.) Railroad Journal (N. Y.,) and Boston Atlas, will publish the above once a week until the 20th day of October next, and send bills to this office for settlement, and mark price on first paper.

18r25

BALLARD'S NEWLY IMPROVED Patent Jack Screw.

The advantages of this Jack Screw for Stone quarries, Railroads, Steam Boiler Builders, and other purposes, are superior to any other machine.

The improvement consists in being able to use either end of the screw, as occasion requires.

It is capable of raising the heaviest Locomotive with ease, being portable, strong and powerful, and not likely to get out of order.

Many Railroad Companies and Boiler makers have them in use, by whom they are highly recommended.

JACK SCREWS of various kinds, sizes, power and price, constantly on hand at the manufactory, No. 7 Eldridge street near Division.

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RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sts. 48 ly

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,
45 N. E. cor. 12th and Market sts., Philad., Pa.



RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed, and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATAILLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied No. 46 Broad street, was entirely consumed; the safe fell from the 21 story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed,)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street Charleston, S. C.

16 11

CUSHMAN'S COMPOUND IRON RAILS.
etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
Albany, N. Y.

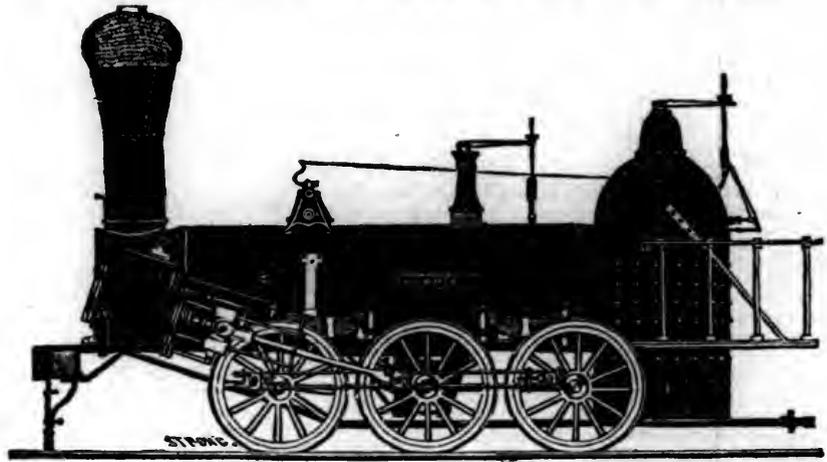
Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

RAILROAD IRON AND LOCOMOTIVE
Tyres imported to order and constantly on hand
A. & G. RALSTON
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following description, viz:

Class	1,	15 inches	Diameter of	Cylinder,	× 20 inches	Stroke.
"	2,	14	"	"	× 24	"
"	3,	14½	"	"	× 20	"
"	4,	12½	"	"	× 20	"
"	5,	11½	"	"	× 20	"
"	6,	10½	"	"	× 18	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS

Monster Train.—The Eastern Counties railway company had an excursion train from Yarmouth and Norwich on Monday last.—Upon the arrival of the train at Shoreditch station, it consisted of fifty-one carriages, all quite full, drawn by two of the most powerful engines of the company. The number of passengers [exclusive of children under 3 years of age, amounting to about 200, who travelled free] was 1,871, making a total of more than 2,000 persons. The cheapness of the fare, and the option allowed all persons of returning any day during the present week, were the inducements that led so many to avail themselves of it.—*English paper.*

Clearing System.

Our attentive correspondent, Mr. G. Ralston, has called our notice to the following account of the clearing system, with a request for us to bring the matter before the American public.

The principle is so evident that it is not necessary to insist upon its application here.

“No sooner had the railways which extend from London to Liverpool been completed and connected in 1838, than it became evident that arrangements must be adopted to facilitate the passage of the through traffic at the points where the three railways joined. It was found that not only must passengers be permitted to perform any journey within the limits to which continuous communication by railway extended, without being required to change their carriage, but that a similar principle must pervade the arrangements for working every description of through traffic if the public were to be conciliated, and the resources of the railway system developed to their full extent. The expediency of taking this course in relation to the through traffic became still more evident at a subsequent period, when the chain of railways, which connect the metropolis and York, was opened throughout. On both occasions, the directors of the respective railways yielded to the necessities of their position, and endeavored to comply with the wishes of the public as far as the incomplete state of the works at the opening of the lines permitted, and thus originated what has been since termed the clearing system. The system, in the simple form in which it was first reduced to practice, produced unforeseen results, the tendency of which was to create dissensions between the companies, and to prove injurious to their interests. In the first place, the methods of keeping accounts adopted by the several railway companies were in no two cases exactly similar; and this diversity of system caused much difficulty and confusion when the accounts came to be compared for the purpose of effecting a settlement. Long delays occurred, and much angry correspondence not unfrequently passed between the managers, before payment of the sums due by one company to the other could be obtained. In the next place although all the connected companies had entered into an agreement to render accurate returns of the use they respectively made of one another's carriages and wagons, and to pay a fixed rate per mile, for whatever distance they ran—still the conditions of the agreement were from the first very imperfectly fulfilled, and some of the companies came, in

the end, to make an acknowledged use of the carriages and wagons of others to an extent which amounted to a positive grievance. It was while the measures best adapted for obviating these admitted evils were under consideration, that it occurred, about the same time, to Mr. Robert Stephenson and the present manager of the railway clearing house, that a central office constituted on the principles of the city clearing house would furnish the remedy sought. When the idea was suggested to Mr. Glyn, he saw at a glance its practical bearing, lent the whole weight of his great influence to procure its being realized in practice, and was mainly instrumental in accomplishing that object. Mr. Hudson likewise gave the proposed establishment his powerful support; and both Mr. Creed and Capt. Laws entered warmly into the plan and took an active part in removing the objections which the superior officers of some of the railways at first entertained to the system. But notwithstanding the influence and efforts of the gentlemen just named, a considerable period elapsed before every obstacle was removed and every arrangement completed. Finally however, on the 2d of January, 1842, the system of the railway clearing house came into operation on the railways extending from London to Darlington in one direction, and from Manchester to Hull in another. It was adopted at subsequent periods by the companies whose railways extend from Darlington to Carlisle, Sunderland, Hartlepool and Scarborough, and from Birmingham to Gloucester, Birkenhead, Liverpool, Fleetwood, Lancaster and Manchester; and in a few months it will be in force on all the railways included in the area defined by a line passing from London through Gloucester, Liverpool, Fleetwood and Glasgow, to Edinburgh:—and returning by Berwick, Newcastle, Scarborough, Hull, Yarmouth and Cambridge to the metropolis, or in other words, on all the narrow guage railways in Great Britain lying north of the Thames, with the exception of the few short lines which are beyond the limits of the area just described. The main principles of the system thus widely diffused, are at first, that passengers shall be booked through at all principal stations, and conveyed to their destination without change of carriage; that horses and cattle shall likewise be sent through without change of conveyance, and that goods shall, in the same way, be carried through without being either shifted or re-assorted. Secondly that the companies respectively shall pay a fixed rate per mile for such carriages and wagons, not their own property, as they may use, and a further sum per day by way of fine or demerage for detention, if kept beyond a prescribed length of time; and lastly, that no direct settlement shall take place between the companies in respect of any traffic, the accounts of which have passed through the railway clearing house. These are the fundamental principles of the clearing system; and though the regulations based on them are occasionally deviated from, the portion of traffic subjected to such deviation is insignificant when compared with the immense ex-

tent of the traffic in relation to which the regulations are strictly observed. That these regulations are departed from at all, is the result less of necessity than of defective arrangements, which invariably disappear when the traffic reaches a point that compels the application of a remedy. The re-arrangement of trains which, in the evidence already referred to, is represented as being indispensable at the points at which railways converge, is never adopted in practice; on the contrary the main design of the clearing arrangements is to prevent recourse being had to a plan which, as is well known to practical men, would act as a serious impediment, and cause great delay and confusion. It is true that re-assortment of goods does take place to a limited extent at one or two points of convergence: but at the greater number of such places such an operation is never known to occur, and never will occur to any extent, because the expense, the loss of time, and the damage to the load which it necessarily involves, will prevent its being resorted to, if it can by possibility be avoided. In short, the tendency of the clearing arrangements is, and judging from what they have already accomplished, their ultimate result will be, to give to all the connected railways of Great Britain, as far as regards the working of the through traffic, the character of one concern, conducted on a uniform system, the chief aim of the system being to prevent delay or disturbance of the load during the journey. The portion of the clearing system which relates to the settlement of accounts, consist of arrangements which are simple in character, and capable of unlimited extension. From each of the clearing house stations there are sent daily to the central office in London:—1. A return of the passengers booked through. 2. A return of the horses, private carriages, and cattle booked through. 3. A return of the parcels booked through. 4. A return of all the carriages, wagons, etc., which have arrived or been dispatched, either loaded or empty. Along with these returns are sent all the through tickets collected, and all the parcels' way bills received during the day. From the returns thus transmitted, after they have been examined, compared and analyzed, other returns are drawn up in the railway clearing house, and forwarded to the respective companies in a form which admits of their being verified by the parties receiving them, and exhibiting in detail the portion of the receipts of the through traffic to which each company is entitled, and the liabilities it has incurred by using the carriages and wagons of others.—The final settlement of the accounts is effected by the railway clearing house paying, or receiving the balance, as the case may be, through the hands of the bankers who act as agents in London to the several companies. In this way all the transactions of one company with all the other companies, amounting frequently to many thousand pounds per week are cleared weekly, by the remittance of a sum seldom exceeding a few hundred pounds. The railway clearing house is under the control of a committee, composed of the chairmen of all the railway companies, who are

parties to the clearing arrangements. The committee holds two general meetings in the course of the year, and special meetings as often as there may be occasion. The resolutions of the committee are passed in the form of recommendations to the companies, to adopt the measures proposed, and have no force until they obtain the confirmation of the respective boards of directors. The expense of maintaining the establishment is divided rateably among the companies, in the ratio of the extent of business transacted for each, after a fixed sum has been first carried to the debit of each company, for each of its stations from which accounts are sent to the clearing house. It will not be out of place here to notice a few of the more remarkable effects which have proceeded from the clearing system since the railway clearing house was instituted, and to advert to some objects not yet included in its arrangements, but for which it may be made available. Reference was made in the foregoing part of these observations to the difficulties which, in the first stage of the clearing system, retarded the settlement of the accounts of the through traffic, and to the asperities which found their way into the correspondence of parties, each of whom believed himself right, and whose pecuniary interests might possibly be affected by a contrary admission. This fruitful source of dissension and ill-will has been removed, and whatever slight differences do now occasionally arise, are adjusted without difficulty by the intervention of the railway clearing house. Allusion was also made to the practice of making an extensive use of carriages and wagons without acknowledgement, which had grown into a serious evil. The means which are possessed in the railway clearing house of tracing each vehicle from the moment it leaves the parent line until it returns to it, and of obtaining payment of the sums in which the railway companies become reciprocally indebted under the regulations of mileage and demurrage, soon checked, and has now put a complete stop to this practice. Further, the large sums which many of the companies found themselves under the necessity of paying when these regulations came to be strictly enforced, induced them to add to the number of the railway vehicles which they previously possessed. The larger number of the companies on whose lines the clearing system is in operation, have now a sufficient number of the various kinds of conveyances required for working railway traffic; and those companies whose stock is still inadequate to their wants are rapidly supplying the deficiency. The value of the large accumulation on the connected railways of carriages wagons and other vehicles, which thus resulted from the clearing arrangements, was fully appreciated last year, when the great augmentation of nearly every description of through traffic, which rapidly took place, would have seriously embarrassed the executive departments of the several companies, had they not, as regards their carrying stock, been so well prepared. In estimating the advantage of the system under consideration, it would be a great oversight if no notice was

taken of the beneficial results which flow from the *occasional meetings of gentlemen whose position at their respective boards is the best proof of their influence.* At these meetings there is generally present a number of the superior officers of the several companies.—The large amount of practical knowledge which is thus brought to the discussion of whatever questions may be under review, and the opportunities of mutual explanations which are afforded, have often the very best effects, in clearing up misconceptions, in reconciling differences, and in leading to the adoption of measures which have frequently an important bearing on the interests both of the railway body and of the public. But the great, the crowning achievement of the clearing system is the facility, the economy and the expedition with which it enables the railway companies to work the through traffic. The exceptional cases in which the clearing regulations are infringed, demonstrate more clearly their value and importance, for whenever such infringement takes place, public dissatisfaction is excited, and the development of the traffic is checked. One needs but to reflect on the incalculable benefits which the proprietors of great undertakings derive from concentration of management and unity of system, to be convinced of the utility of an institution, the object and tendency of which is, to promote and establish uniformity of arrangements on the great network of British railways, and to impose a check on the disposition to introduce diversities of system, which, from some motive or other, the managers of railways have not unfrequently evinced. In fact, the advantages of the clearing system, in relation to the influence which railways exert on all the great national interests, cannot be over estimated. It had its origin, as has been shown, in the desire of railway companies to promote their own interests, in the only way in which they can be effectually promoted, or placed in a position of permanent security; that is, by consulting public opinion. It has grown with the growth of the railway system—and unless the public accommodation be restricted, and the exigencies of the commercial, manufacturing and agricultural interests disregarded, it must advance to the limits to which continuous communication by railway extends. It will suffice to advert briefly to the objects not yet included in the clearing arrangements, for which they may be made available. By a simple and inexpensive plan, they may be applied to the recovery and restoration of lost luggage. According to the proposed plan, the owner of luggage, lost within the limits to which the clearing system reaches, would have simply to apply to the central office in London, where his instructions would be taken as to the mode of returning the luggage if found, or from which inquiries would be addressed to the proper parties with the view of tracing it, if it had not been previously reported. Hitherto, the accounts of the through traffic in goods have not been passed through the railway clearing house, because the traffic is almost entirely in the hands of the established carriers, who settle their accounts

with each company separately and directly. But when the period arrives, and it is believed to be rapidly approaching, when all railway companies will themselves become carriers of goods, and when an uniform scale of charges shall have been adopted throughout the kingdom; then these accounts may be subjected to the process of examination and adjustment pursued in the railway clearing house, with as great ease and regularity as any other division of railway accounts. The reader may remember it was stated that the portion of the clearing arrangements which relates to the settlement of accounts, may be expanded indefinitely. So true is this, that passengers may, when the opportunity offers be booked through, not only between all the towns in the United Kingdom, which may possess the advantages of communication by railway, but between those towns, and all the larger towns on the continent, which may be equally fortunate, the railway clearing house being in both cases the medium of communication between companies, and the channel through which a settlement of accounts will be effected. Another most important purpose for which the clearing arrangements may be more extensively used than they are at present, is the collection and arrangement of statistical information on all the points in the railway system regarding which it is of moment that such information should exist in an authentic form. Finally, it has been suggested that the principle of centralization involved in the clearing arrangements might be extended with advantage to matters bearing exclusively on the private interests of railway companies, such as the supply of carrying stock; but this is a question too large and complex to enter on here, especially as such a course would in no way promote the design with which this brief account of the clearing system is presented to the public.—In conclusion, it remains to invite attention to the tables of the through traffic in 1845, which are annexed. These tables furnish the best refutation of the evidence which led to the publication of the foregoing remarks. It will be found, on reference to the tables, that in the year named, 517,888 passengers were each conveyed through an average distance of 146 miles. That the average length of the railways on which the clearing system is in operation is 41 miles; and that consequently each passenger travelled over nearly 4 railways on the average, and must have passed three junctions, or points of convergence.—To accommodate these passengers, 59,765 railway carriages, and 5,813 trucks with private carriages were sent through, in addition to the large number of wagons used for the conveyance of coke, coal, and other minerals of which no record is kept in the railway clearing house. These striking facts will enable the reader to form an adequate conception of the present magnitude of the through traffic, and of the degree of accommodation which is given to the various classes of the community, and to all the great national interests. Further, they cannot fail to impress deeply on the public mind, the grave evils which must inevitably result from any cause

tending to impede or interrupt the transit of a traffic, which, large as it is, can only be considered as a fraction of the extent to which the traffic of future years will attain.

A return of the number of passengers booked through on the railways with which the railway clearing house is connected, in the year 1845.

OWNER OF THE VEHICLES.	Carriages.	Trucks for private carriages.	Horse boxes.	Post offices.	Goods wagons.	Number of passengers booked through.			Total number of passengers booked through.	No. of miles travelled by passengers booked through.
						CLASSES.				
						1st class.	2d class.	3d class.		
London and Birmingham.....	7,087	2,080	2,058	650	17,639	83,199	61,728	19,992	164,919	31,009,298
Midland.....	10,960	1,076	1,524	595	38,723	36,143	45,154	5,590	86,887	10,610,614
Manchester and Leeds.....	2,492	101	293	.....	34,943	8,898	15,781	4,501	29,180	2,250,972
York and North Midland, and Hull and Selby.....	14,543	359	610	8	27,896	19,671	28,116	9,790	57,577	5,960,615
Great North of England.....	5,431	453	494	595	9,605	7,350	9,370	8,223	21,943	2,508,087
Newcastle and Darlington.....	3,168	231	752	1	8,698	14,269	21,250	7,738	43,247	5,567,045
Stockton and Darlington.....	7	11	27	.....	869	753	1,264	167	2,184	150,265
Stockton and Hartlepool.....	12	4	2	.....	578	2,863	7,467	2,080	12,410	449,278
Newcastle and Carlisle.....	6	24	2	.....	338	493	304	.....	797	142,862
Birmingham and Gloucester.....	557	159	239	.....	4,025	3,931	3,290	.....	7,221	921,420
Manchester and Birmingham.....	5,605	199	291	.....	14,629	10,698	1,876	450	13,024	2,998,673
Grand Junction and Liverpool and Manchester.....	8,574	909	1,079	655	22,707	34,799	12,708	9,452	56,959	10,425,925
Chester and Birkenhead.....	8	1	6	173	.....	2,440	1,010	.....	3,450	553,428
North Union.....	532	67	70	.....	.....	2,595	3,001	608	6,204	628,976
Lancaster and Preston.....	781	111	107	.....	.....	4,387	1,636	.....	6,023	1,029,864
Preston and Wyre.....	2	28	19	.....	495	1,521	1,342	.....	2,863	575,827
Total.....	59,765	5,813	7,573	2,607	180,606	324,010	215,297	68,581	517,888	75,753,149

Average mileage of each passenger. 146 miles
 Average length of the railways connected with the clearing house..... 41 "
 Average number of junctions passed by each passenger..... 3.61

A return of the number of loaded carriages, trucks for private carriages, horse boxes, post offices, and goods wagons, which went through on the lines of the railway companies' parties to the clearing arrangements, in the year 1845.

Miscellaneous Items.

Copper Rock.—A correspondent of the Detroit Advertiser, gives the following description of an enormous rock of copper recently found on lake Superior:

"At Eagle harbor, commencing at the shore of the lake, is an open cut 12 feet wide, 15 feet long, 7 to 8 feet deep, in which is found this enormous mass of copper.

"The sheet, which is 90 per cent. pure copper, is in the centre, running the entire length of the cut, varying in thickness from 6 inches to two feet, having branches of from 1 to 2 inches in thickness, shooting from it east and west, and varying in length from 1 to 2 feet.—The interstices are filled with sand and trap rock, charged with native copper—say 50 to 75 per cent.; also small masses of beautifully crystalized marcasite or spar, with what has the appearance of copper filings—being quite rich.

"This is what is called the copper rock.—As unlike a rock as possible; it looks more like a large tree that has fallen and turned to metal, with this exception, that its depth is not in proportion. Large detached masses of native copper, weighing from 50 to 300 pounds, are taken from alongside of this sheet, and the vein stone up to the wall rock is richly charged with copper in its native state."

Breaking Ground.—The ceremony of breaking ground for the branch of the New York and Erie railroad took place on Tuesday, on the land given to the company by Capt. Robinson, within the corporation limits. The work, therefore may, be considered as begun; and soon we may expect to see numerous laborers at work in excavating, filling, and grading, on the route of the Newburg branch.—Success to the enterprize.—*Newburgh Telegraph.*

Philadelphia and Reading Railroad.—Third week in July.

	1844.	1845.	1846.
Receipts, \$	12,606 27	29,496 11	52,345 57
Coal, tons,	8,878	24,300	32,519

Quebec and Halifax Railway.—Extract of a letter from Halifax to a gentleman in this city, of the 11th inst:

"I have seen the two officers who have come by the last boat, with a body of sappers to conduct the survey—Capt. Pison and Lieut. Henderson. They act under an independent commission, free from all control here. They intend to start at Canseau, and to go to the bend of the Peticodiac taking the route also of Halifax, to see if the line be practicable. They are to take what they call a reconnaissance only—not to conduct the survey of a working line—making an estimate of the probable cost. Before finally deciding upon their plan of operation, they wait their instructions from the ordinance by next boat. A late letter from London says—"it is to go on. Sans doute." *Quebec Gazette.*

The following intelligence is communicated by the Sherbrooke, Canada Gazette:

Our Railroad.—We learn from a gentleman connected with the surveying party, that the survey of the line between Melbourne and Montreal is nearly completed, and that a much more favorable route has been found than the one surveyed last summer. The new line, which leaves the St. Francis a few miles below Melbourne, runs in almost a direct course to St. Hyacinthe, without scarcely any elevations or curves, and with a gain of several miles in distance. The survey from Montreal to St. Hyacinthe is already completed, and

will be finished from Melbourne to that place in about a week, when the survey from Melbourne to the province line will be commenced. We understand that the line from Montreal to Melbourne is to be located and ready to be put under contract by the 30th, when the stockholders meet in Montreal.

Portland and Maine Railroad.—Arrangements are making by the contractors to commence on the railroad immediately. Shantees are building along the line, for the accommodation of the laborers, and in the lower part of the city, a large building has been rented for those who are to be employed at this end of the route. Some 4 or 500 Irishmen have been engaged in New York for the work, who, with their barrows and implements, are expected to arrive here within a day or two. It is said that the contractors intend pushing the work vigorously, so as to get the first section to North Yarmouth graded by December.—*Portland Bulletin.*

Boston, Concord and Montreal Railroad.—The stockholders to this road held a meeting at Plymouth last Thursday, which we are informed was fully attended. A vote was taken instructing the directors to go on and contract for building the road from this place to Sanbornton bridge without delay. The friends of the road will be glad to learn that the enterprize is now considered beyond contingency:—many of the obstacles which have heretofore obstructed its progress, having been entirely removed. The grading of the first 18 miles will we understand, be put under contract immediately.

Railroad Meeting.—There is to be a convention at Woonsocket, R. I., on the 12th of August, in reference to the construction of the proposed railroad from Woonsocket to Boston. The meeting is called by a committee representing the towns of Newton, Needham, Medway, Dover, and Woonsocket. In their circular, they say,

"The object of the meeting is to enable the citizens of New York, Connecticut, Rhode Island, and Massachusetts, to be made acquainted with the peculiar merits of the foregoing project, and also to interchange views in relation to the great central line of railroads now in the progress of being established between the cities of Boston and New York. Although no railroad line has ever been projected of such moment to the states through which it passes, and to the two great cities chiefly interested in its success, yet in proportion to the magnitude of the undertaking have been the opposing efforts of parties interested in lines already established.

"To aid in the prosecution to complete success of this great project is the design of the meeting at Woonsocket."—*Jour. Com.*

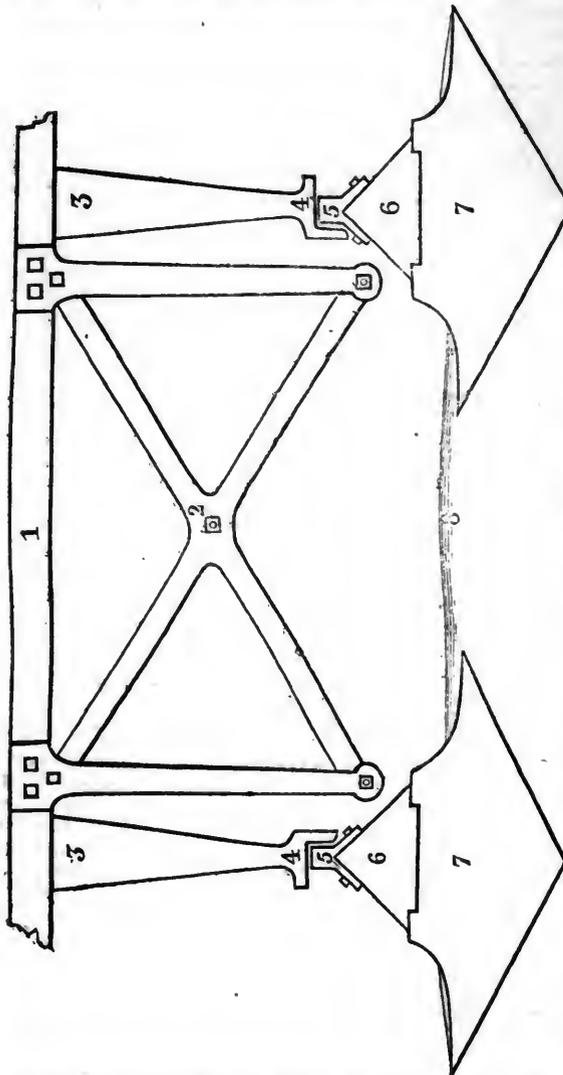
Cheshire Railroad.—This work is going on with much activity on the whole road. The rock at the summit beyond Keene has been laid bare, and has a most forbidding aspect, although considered more favorable than was anticipated. The route through the village of Keene has not yet been laid out, but this will however, shortly be done.—*Sentinel.*

Connecticut River Railroad.—The rails on the extension to Greenfield are laid about 8 miles, and a locomotive, with a load of rails, went up about that distance yesterday. The road will probably be completed to South Deerfield, and the cars running to that place, about the 15th or 20th of August. The remaining 7 or 8 miles to Greenfield will not be done until late in the fall.—*Northampton Gazette.*

Improved Upper Works for Railroads.

We find the following description of a new form of rail and upper works for railroads in the London Mining Journal of 23d May, and give it, with the engraving, for the consideration of our readers.

"Having for many years taken much interest in the introduction and progress of railways, permit me, through your Journal, to lay before your readers and the public, some suggestions, which, I humbly conceive, may be deemed improvements in what is termed the upper works of railways. It has often occurred to me, that it would be desirable, for the preservation of the timber bearers, to contrive some method of keeping a free circulation of air as entirely around it as possible, so as to prevent the tendency which moisture and continual dampness has to produce decay. The annexed engraving will enable your readers better to understand the improvements I propose. No. 1 represents the axle of the carriage; 2, guard or fender; 3, spoke of the wheel; 4, tire and flange of wheel; 5, section of rail; 6, timber longitudinal bearers; 7, cast iron, or timber bearer, or sleeper; 8, surface of the ballasting. I now proceed to show wherein consists the advantages likely to be derived by the several plans, as above represented. 1 and 2 represents the axle, to which is firmly attached the guards or fenders to each pair of wheels, connected to each other by horizontal tie bars in the centre, and at the extreme points; and as these



points will be 4 or 5 inches lower than the surface of the rail, should the wheel by any accident be lifted higher than the flange, the guard would come in contact with the rail, and, therefore, prevent the possibility of running off the line. 3 and 4 represents the spoke of the wheel tire and flange, which, owing to the peculiar form of the rail, may be made at least 1 inch deeper than is usual, and, therefore, give increased security against the wheel running off. 5 represents a section, of what may be properly termed a saddle rail, in contradistinction to the bridge rail. 6 represents a section of the longitudinal bearer, which I propose to be of a triangular form, viz: by cutting a 16 inch square balk from angle to angle, so as to produce four bearers of pyramidal form, on the top of which the saddle rail is fastened by screw or nut bolts. 7 represents cast iron chairs, or sleepers, made as light as consistent with required strength, about 3 feet by 18 to 24 inches wide, and about 12 inches deep in the middle; the centre part of the sides to be about 3 inches higher than the ex-

treme ends, in which is a recess, into which the timber is inserted, and secured to the sleeper by one or more bolts through the bottom; the inside of the chair to be filled with broken stone or gravel, and concrete, so as to form a uniform bearing for the timber; it will be perceived that the peculiar form of the chair, or sleeper, will keep the timber from 2 to 3 or more inches above the surface of the ballasting. If, however, timber sleepers be adopted, it would be needful, in order to obtain that object, to fix a 3 or 4 1/2 inch block or plank in the middle of the sleeper, on which to fix the timber bearer; I propose these sleepers to be fixed about two yards apart. 8 represents the surface of the ballasting, which is supposed to be 2 or more inches under the timber bearer, and thereby keeping a free circulation of air around it.

The advantages may, I think, be thus briefly stated: 1. A saving of at least one-fourth, or 25 per cent. in timber. 2. A like saving in iron. 3. The peculiar form of bearer and rail, affording the opportunity of a deeper flange to the wheel, and, thereby,

greater security. 4. Greater durability to timber. 5. A saving of at least one-half the labor required for keeping the rails in working order, on account of the peculiar form of the sleeper, affording a ready means of packing, without disturbing the ballasting.—THOMAS MOTLEY, C. E.—Bristol, May. 22.

P.S. I was informed, at the Dowlais iron works, that a 40 lb. rail of the saddle form would be equal for firmness to a 60 lb. bridge rail, and I am fully persuaded that the form of timber bearers would affect an equally proportionate saving of material.

Coal.—The quantity of coal brought to market during the past week by the Lehigh canal and the Reading railroad, amounts to 54,419 tons, being the largest week's business ever done upon these great improvements. The quantity transported upon the railroad was 39,075 tons, and by the canal 19,344 tons. At the present wholesale prices the cost of this coal would be about \$220,000.—Phila. North American.

Eastern Railroad.—The experiment of reducing the fares on the Eastern railroad does not seem to have resulted quite so much to the advantage of the company as of the passengers. The annual report of the directors reminds the stockholders that, in comparing results with the year previous, it should be borne in mind that during the 9 months of the year ending June 30, the fares have been nearly 20 per cent. lower than during the corresponding months of the previous year.

The receipts have been, \$348,384 68—1845-6
against, 351,328 61—1844-5

The expenses have been, 123,614 04—1845-6
against, 113,014 48—1844-5

Number of passengers, 735,452—1845-6
against, 602,715—1844-5

Number of miles run, 240,077—1845-6
against, 207,881—1844-5

It will be seen therefore, that the company have run 20 per cent. more distance, and carried 20 per cent. more passengers for somewhat less money, and at about 8 per cent. more expense, to say nothing of the additional risk. Salem Gazette.

Receipts of the Housatonic railroad for the month of June, 1846:

For freight, - - - -	\$8,576 15
Passage and mail, - - - -	3,227 29
Total, - - - -	11,803 44
Same month last year, - - - -	10,780 89
Increase, - - - -	\$1,022 55

Ohio River and Lake Erie.—The Mad River and Sandusky railroad will be opened in a few days from Tiffin, on Sandusky river, to Canton, in Hardin county, on the Scioto river. Thence to the northern termination of the Little Miami railroad at Xenia, is 56 miles. In about two weeks, this will be the whole amount of stage travel between Cincinnati and lake Erie—all the rest being railroad or navigable water. By the 1st of October, it is expected the Mad River railroad will be completed to Bellefontaine, Logan county; after which the amount of stage travel between Cincinnati and the lake will be reduced to 25 miles. By mid-winter, it is thought, the line will be completed to the lake, thus opening a route from Cincinnati to Boston and New York, that

will be travelled wholly by railroad and steam boats, in between 70 and 80 hours. The business of the Little Miami railroad is rapidly increasing.—*Jour. Com.*

The last Pittsburg Gazette announces that the directors of the Pittsburg and Connellsville railroad company have elected B. H. Latrobe of Baltimore, engineer in chief of that road, and that he will enter upon his duties immediately.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N.Y.

Saturday, August 8, 1846.

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

TROY AND SCHENECTADY RAILROAD.
 This road is laid its entire length with the heaviest H rail—which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

TROY AND SARATOGA RAILROAD.
 THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug. 3, 1846.

ly 32

For the American Railroad Journal.

Sir: The many attempts that have been made, lately, by the most wanton of all assassins, to commit wholesale murder by placing obstructions on railroads, has induced me to suggest a plan, which, I think, would effectually check them. I say many attempts, for not one-fourth of them, from some

cause, are made public. I, accidentally, hear of ten attempts to every one that I see published.

It is well known that dogs may be easily trained to trail twelve hours after a man has made a track, through, and over all difficulties; and will follow the trail first taken across thousands of others—nay they have been known to select the right man out of large assemblies. Indeed with their instinct they may be taught to do almost anything in their vocation.

My plan, then is, to have two, or more, good dogs with every train, and when an obstruction occurs, take them out and put them on the scent, and if they are well trained, there is no doubt but that they will find and bay the villain. One reason why they could hardly ever fail, is that the trail must always be fresh, for the obstruction will be placed within a few hours, at farthest, of the time for the passage of the train.

I have never suggested this plan to any one, conversant with well trained dogs, who did not concur with my views as to the success of the plan. At any rate, assassins knowing the danger of detection would hardly risk the consequences.

PHILANTHROPIST.

The suggestion in the above communication is deserving of notice. This is a service in which the blood hound may be made eminently useful. The bare idea that such a pursuit would be sure to follow an attempt to obstruct the passage of the train, would, we should think, deter the most daring villain from his purpose—and we consider it well worth the attention of those who are troubled in this way.

English Iron Trade.
 (Per Steamer Hipernia.)

FROM LONDON MINING JOURNAL, July 17th.

	£.	s.	£.	s.	d.
Bar a Wales—ton	0	0—8	0	0	0
“ London	0	0—9	0	0	0
Nail rods	0	0—10	0	0	0
Hoop (staf.)	0	0—11	5	0	0
Sheet	0	0—12	10	0	0
Bars	10	10—11	0	0	0
Rails, average	9	0—9	10	0	0
Welsh cold blast foundry pig ...	0	0—5	5	0	0
Scotch pig b Clyde	3	12 6 3	15	0	0
Russian, CCND c	0	0—16	0	0	0
“ PSI	0	0—16	0	0	0
“ Gourieff	14	5—14	10	0	0
“ Archangel	0	0—13	12	6	0
Swedish d, on the spot	11	0—11	10	0	0
“ Steel, fagt	0	0—15	10	0	0
“ kegs e	14	0—14	5	0	0

a, discount 2 1/4 per cent.; b, net cash; c, discount 2 1/2 per cent.; d, ditto; e, in kegs 1/2 and 1/4 inch.

From our correspondent.

IRON.—Welsh and Staffordshire continue in good demand, and large sales of Scotch pig have been made at quotations. In foreign iron and steel nothing new to report since the publication of last week's Mining Journal.

Communicated by Messrs. Whitcomb & Barton.

English bar iron continues very firm. The demand has increased considerably, and higher prices talked of. Welsh and Staffordshire pig iron steady at last week's quotations. In Scotch pig iron business doing at 72s. 6d., cash, and 72s., bill at three to four months for mixed numbers. In rails, contracts have been made this week at 9l. 10s. for specification in February next.

From a correspondent.

In spelter a few transactions have taken place during the week at 18l. 5s. per ton, at which there are still sellers. English bar iron has been in great demand during the week at 8l. per ton, delivered in Wales—the trade being the principal buyers. Rails are firm at 9l. 10s. per ton, and large orders are in the market at a shade under. Welsh and Staffordshire pig iron continue firm at quotations, with good business doing. Scotch pig iron has advanced to

75s. since last week for No. 1, and 72s. 6d. for mixed numbers—at which prices many thousand tons have been sold, and many of the makers are asking 80s. per ton at Glasgow. Swedish iron and steel without demand.

Glasgow Pig Iron Trade.—July 10.—We have had a very lively demand for iron this week, and, within the last two days, prices have advanced several shillings per ton, with a considerable inquiry by purchasers at our quotations. We quote 68s. to 70s. for No. 3; to 72s. 6d. for mixed Nos.; and 72s. 6d. to 75s. for all No. 1—cash, free on board.—National.

July 11.—During the week we had an extensive business in iron, and prices have advanced nearly 5s. per ton, and the market has closed very firm at the quotations of 69s. to 70s. for No. 3; 72s. 6d. mixed Nos.; and 75s. for all Nos.—cash, free on board.

July 14.—We have had an extensive business the last few days for iron, and prices have gradually stiffened. The market closed very firm at 70s. for No. 3; 72s. 6d. mixed Nos., to 75s. for all Nos.—cash free on board.

Liverpool, July 9.—There are plenty of buyers at 68s. for immediate cash for half No. 1 and half No. 3, but no sellers under 70s., and only one or two at this—all being more anxious to buy than sell. A sale was made of 2,000 tons, half No. 1 and half No. 3, at 70s.—three months.

The quarterly meeting of the Staffordshire iron-masters went off with a decided tendency to higher future prices, and the transactions in rails and Welsh and Scotch pig iron have since been at advanced rates. This prosperous state of the iron trade, emanating from actual demand for the various requirements connected with, as well as distinct from, railway enterprise, is portrayed in a letter inserted in our journal of last week from a correspondent—“A looker on”—whose views of the future are based on facts that are slowly, but securely, developing themselves; and, as the railway companies, whose works are advancing to require iron at near the same time, apply for their respective wants, such simultaneous demand will realize, to a certain extent, the prediction of our correspondent, that “The money may be found; the iron cannot be supplied”—seeing how widely distributed the lines in progress are from each other, and how essential many of them have become to the prosperity of their respective neighborhoods. To the home demand this week for rails, there is, likewise, an inquiry from the continent; and not much disposition evinced by makers to take contracts at an advance of 10s. per ton. Scotch pig has been sold to some extent, and 75s. is obtainable for mixed numbers. Welsh pig in better demand, and higher prices offered for some descriptions.—Mining Journal, July 18th.

Cleveland and Pittsburg Railroad.

This company was incorporated in 1836, but seems not to have organized, and last year a revival of its charter was obtained, and every indication is now given of a speedy construction of the road.

From a report of Col. Dodge we learn that the line from Cleveland to Wellsville, the termination on the Ohio river, will be about 97 miles in length; the maximum grades may be reduced to 40 feet per mile, the greater part of the line not requiring more than 20. The estimated cost, with a flat rail, \$1,006,068, including the machinery, etc.

It will be seen, on reference to the map, that this road forms a connection between lake Erie and the Ohio at the place of nearest approach, and in almost a direct line with the great routes to Philadelphia and Baltimore. The importance of such a line of railroad cannot be doubted—and although this region is well supplied with canals, the success of the only line of railway must be certain. In their report, the directors prove satisfactorily the superiority of this line over other means of communication with Cincinnati and other places on the Ohio—but we think the greater value of the route depends upon its opening of the commerce of the lake to the seaboard.

From the report of the directors we give several

extracts showing the advantages and contemplated traffic of what must soon be one of the great roads of the country.

The Cleveland and Pittsburg railroad company was organized under the following charter, at Ravenna, Ohio, 29th of October, 1845, by the election of the following named gentlemen as directors for the ensuing year.

John M. Woolsey, Thomas Bolton, Reuben Sheldon, of Cleveland; Cyrus Prentiss, of Ravenna; Zadok Street, of Salem; Jas. Stewart, James Aten, John S. M'Intosh, Daniel T. Lawson, Henry Cope, Alexander Wells, A. G. Catlett, of Wellsville.

The board was organized by the election of James Stewart, president; Cyrus Prentiss, treasurer; and A. G. Catlett, secretary. The president and secretary were directed to have the reports of preliminary surveys, and the charter of the company published, together with such facts and arguments as might in their judgment be best calculated to bring fairly before the public and capitalists the advantages of the proposed work.

In discharge of this duty, we can but briefly advert to the vast advantages that a certain and uniform means of communication between our northern lakes and western and southwestern rivers, would secure to the inhabitants of that portion of our country, which borders on more than seven thousand miles of navigable river and lake shore.—That facilities of intercourse would lead to a great extension of trade and business between the lake and river, will be readily conceded, when the diversity of the productions of agriculture and manufacture, of the sections of country thus united, are taken into account. Nor will it be necessary for us to enter into an argument, to show that the work contemplated by this company will be advantageous in a national, commercial and social point of view. It is of national advantage and importance, as strengthening the ligaments that bind together the several states, by an extended intercourse between her citizens—affording facilities for the transportation of troops and military stores from one point to another for the common defence—and offering the best possible conveyance to the mails. It is of commercial advantage and importance—furnishing the cheapest and quickest means of transportation for the productions of one section to supply the wants of another; and of social advantage and importance, as offering a convenient and rapid mode of travel, by which personal acquaintance is extended, and that feeling of common brotherhood diffused, which so largely conduces to our union and happiness as a people.

As it is manifest from the large outlay of money which has attended the construction of four lines of canal, and the progress of two lines of railroads, for the purpose of connecting the Ohio river and lake Erie, that the advantages of uniting by the improvements of art these immense natural channels of trade, is well understood and justly appreciated by the community at large, it will only remain for us to show to capitalists that this work will be able to successfully compete with the other improvements, and be a safe,

permanent and profitable investment. In order to do this, without intending to be invidious, we would claim a pre-eminence for this over any other work completed, in progress, or contemplated, for the purpose of uniting lake Erie and the Ohio river in these prominent points—first, the character of the work—second, its geographical position—and third its adaptation to the character of the navigation it is intended to connect with.

On the first point—the character of the work—it is only necessary to call attention to the well known fact, demonstrated by experience, that where railroads have been constructed on the same lines of communication, they have superseded every other mode of travel and transportation furnished by the improvements of art.

On the second point—its geographical position—much might be said of the rapidly improving country through which the contemplated road will pass, and the immense productions which demand such a means of transportation; but as these advantages are enjoyed in common with the other works, we will pass to those points in which this excels all the others. It proposes to unite the Ohio river and lake Erie at the points where they approximate nearest each other, and on a line as nearly direct as any other can be run towards Pittsburg, Philadelphia and Baltimore, affording the advantages of the valley of the Ohio river for a continuous railroad, via Pittsburg and Wheeling, to Philadelphia or Baltimore, thereby securing it from the danger of being superseded by any shorter route. By the lower rates at which goods can be profitably carried on this route, it will secure the entire trade from the lakes to the southwest during the navigation of the Ohio; and in the spring, before the New York canals and the harbors on the lake below Cleveland are opened, and in the fall, after they are closed, it will secure, by the longer season of navigation on the Ohio river and the Pennsylvania canals and railroads, and the Monongahela Slackwater and Baltimore and Ohio railroad, the entire travel and transportation to and from Cleveland, the ports above on the lake, and Baltimore, Philadelphia, New York and Boston.

Another important advantage to the company, will be the opening up within an available distance, the almost inexhaustible beds of coal in the River Hills and adjacent country, to the already large and increasing demand for it on the lakes; this will be a source of steady and unflinching profit, as more than twenty miles of the road will be laid through a section abounding in coal. It is also a point not unworthy of notice, that the entire line of the road is within the state of Ohio—thus securing the company from the harassing action of different and often conflicting interests of legislation.

The points of termination on the lake and river are unequalled for the facilities they afford to commerce and trade. The city of Cleveland has already taken the first rank among the cities of the lakes, for the amount and importance of her commerce; having an import trade of nearly six millions annually,

and an export trade of more than five and a half millions, and arrivals and departures of steamboats and vessels, for one year, numbering 5,328. Her harbor opens earlier in the spring than any of those lower down the lakes and almost simultaneously with those higher up, as the ice on its first breaking is soon carried, by the current and the winds prevailing during that season of the year, to the lower end of the lakes, leaving the navigation from Cleveland to the ports above uninterrupted for a considerable time before the harbors below can be entered.

Wellsville, the proposed termination on the river, from its superior natural landing and favorable location on a bend of the river, commanding the business of a large radius of country, now enjoys an amount of trade unequalled by any other town between Pittsburg and Cincinnati, that is not the terminus of some public improvement.

The report next proceeds to a detailed estimate of the freights on other lines, giving a difference of 89 cents to \$8 31 per ton in favor of this route to Cincinnati. The report proceeds:

It will now be necessary to inquire whether an amount of business can be concentrated on this road to justify its cost of construction, and remunerate those who invest their capital in this enterprise. In entering upon this part of their duty, the undersigned would remark that the estimates have not been arrived at without much inquiry, and the collection of many statistics, too voluminous for publication; nor have they concluded upon submitting them without endeavoring to divest themselves of all local interest, and conscientiously regarding it as a species of fraud to induce any one to invest capital ostensibly for a public good, and with a view to remuneration where none but a private advantage or local interest is promoted; they would, therefore, ask a candid investigation of the estimates, and such reliance as their sources of information and views in forming them will warrant.

Eighty through passengers, each way, per day,	
160 passengers, at \$3.....	\$480
For carrying the mail.....	20
	500
Cost of train daily, \$75 each way.....	150
	350
Net receipts for passengers and mail.....	350
Sixty tons freight, daily, each way, 120	
tons, at \$4 85.....	\$582
Cost of freight trains, \$60 each way.....	120—462
	812
Receipts per day.....	812
“ week.....	4,872
Net earnings per annum.....	\$253,334

Estimated cost with T or U rail, \$1,500,000. Exhibiting earnings equal to nearly 17 per cent. per annum, and leaving all the earnings of the road in the transportation of coal out of the estimates entirely.

In reference to the estimates of cost, it may be proper to remark, that they are undoubtedly safe data for calculation, as a more thorough examination of the route will enable the company to find a better location to shorten the distance, and reduce the cost of the work. On the route first surveyed, a change in the direction of the road in order to pass by Salem, and another to include Hudson, is sup-

posed to have resulted in an increase of from five to seven miles in the distance. * * *

The foregoing facts and estimates are derived from the best sources of information available, and are submitted to the public with a view to the strictest scrutiny, and a thorough conviction that they are not calculated to mislead any one in forming a correct judgment of the importance of the proposed work, or the value of the stock of the company, if it is prosecuted to completion.

JAMES STEWART, *President.*

A. G. CATLETT, *Secretary.*

The South and her Railroads.

We think there are signs not to be mistaken, of a change in the aspect of affairs in the southern states, which, in a very few years, will fill with astonishment the inhabitants of the whole union.—Georgia and South Carolina are within a very little of a complete communication with the great west, with prospects of a trade which will certainly elevate their seaports to a rank with the most flourishing in the country.

A reference to the articles on the Macon and Western, and on the Southern, or, more properly, Western and Southern, railroads, will convince our readers that we indulge in no unreasonable expectations.

Southern Railroad Company

Extract from the Report of the Committee appointed by the Citizens of Vicksburg to obtain a Charter from the Legislatures of Alabama and Mississippi; together with the Documents accompanying the same.

The committee appointed by a meeting of the citizens of Vicksburg, on the 6th of December, 1845, to solicit charters from the legislatures of Alabama and Mississippi for the Charleston and Western railroad,

REPORT:

That those states have, by concurrent acts, chartered the Southern railroad company for the objects in view, and a copy of these acts is hereto appended.

The capital is \$3,000,000 divided into shares of \$100 each; on which \$5 must be paid at the time of subscription, \$5 at six months, and \$5 at 8 months, and \$5 at 10 months afterwards, and the residue as the same may be called for by the company, not exceeding \$10 a share in 60 days. The company is to be organized as soon as \$500,000 shall be subscribed, for which purpose books of subscription will be opened in May next.

The company has all the necessary powers to construct, use, and receive the income of the road perpetually, between West Point and the eastern line of Alabama, and Jackson, Mississippi, with provisions to connect with, or in certain contingencies to own, on the same terms, the links between West Point and Montgomery, and between Brandon and Jackson, and with powers to acquire any connected road by purchase and with the assent of the proper authorities.

The part of the two per cent fund of Alabama set apart for this route, was by law of last year loaned to the Montgomery and West

Point railroad company, to aid in completing that link.

The two per cent fund of Mississippi, amounting to near \$300,000, and most of it now subject to draft on the United States treasury, is granted to the Southern railroad company on certain terms securing its application, as a gift, to encourage subscriptions of stock. These terms are:

1st. That the company be organized. 2d. That an amount of stock equal to the fund be subscribed in Mississippi, and either paid or well secured. And, 3d. That the fund be paid over to the company no faster than equal sums shall have been expended by the company in its road, or else that guarantees satisfactory to the governor shall have been given that it will be faithfully applied in making the road to which the act of congress appropriates the fund.

The management rests with nine managers elected by the stockholders, one appointed by the state of Alabama, and one by the governor of Mississippi. The latter is in addition required to report to the governor as to the application of the two per cent fund, from which he receives \$500 per annum for these services until the road shall be completed.

The tolls are to be fixed annually by the company, published, and "not changed oftener than once a year," with a restriction that the annual net profits shall not exceed "25 per cent."

The company, its capital and property, are exempt from taxation until a portion of the road be completed and brought into actual use, and then "such portion may be taxed the same per centage, and no more upon the capital expended in the construction thereof, as lands in the state shall be taxed."

The Alabama subscriptions are to be applied first to making the road in Alabama, and the Mississippi subscriptions first towards making the road in Mississippi. Other subscriptions may be applied to such part of the work as the company may prefer. Provision is made for the immediate progress and completion of the road between Jackson and Brandon, and for its becoming part of the Southern railroad company's line, upon their repaying the expenditure to be made for its completion; in which event, the state releases and transfers to that company its entire interest in that road.

The above is a summary of the acts. In the selection of the route, there is no designation of points between Brandon and Montgomery, and all the advantage is secured which a choice of routes on a line of 200 miles in length gives, in the way of favorable surface and cheap rights of way.

We proceed to consider this railroad in reference to—

1st. Its connection with other railroads.

This road will extend from Jackson, Mississippi, to Montgomery, Alabama, a direct distance of 103 miles in Mississippi, and 124 miles in Alabama, or total air line 227 miles, or about 240 miles on any probable location of the railroad.

From Jackson it connects with the Missis-

sippi river at Vicksburg, by means of the railroad now in use. Eventually, it will probably have a branch to Natchez, and extensions westward from the Mississippi river towards Texas.

At Montgomery it connects with the Montgomery and West Point railroad, of which about 45 miles are completed, and the remainder of 45 miles principally graded, and the work in active progress. It is the expectation of the managers to have it completed to West Point next year.

From this point to the Macon and Western railroad is a distance of 53 miles. The right to construct that connection, as well as one to Columbus, and thence to intersect the Montgomery and West Point road, have been granted; and there is no doubt that in one or both these modes, Montgomery will be connected with the Macon and Western railroad. This road binds together the Charleston and Savannah lines, and is within a few months of entire completion, 101 miles from Macon to Atlanta. For all practical purposes, therefore, we may consider the Southern railroad as the only wanting link in the chain to bind the Mississippi river to the Atlantic ocean, both at Charleston and Savannah.

The distance from Savannah to Vicksburg may be set down at 670 miles.

2d. The uses of this road.

When completed and connected with the Atlantic and Mississippi termini, it reduces the time of travel from end to end to about two days. It reduces travel between Charleston and St. Louis to six days—New Orleans, three days—Galveston, five days. It brings down the time of travel between Vicksburg and Washington city to a little over four days, and New York five days. And, on the completion of the Chatanooga and Nashville railroad, this will be the ordinary route of travel to Nashville, which will be reached from Vicksburg in 48 hours.

In regard to freight; it will reduce the time of conveyance from New York to Vicksburg to about ten days, of which six days are allowed to the sea trip to Charleston and four for railroad conveyance to Vicksburg. It will reduce insurance from at least 7 per cent. from New York or Boston to Vicksburg down to 1 per cent. or less to Charleston, and none thence to Vicksburg. If the goods be worth 50 cents a pound, this would be more than half the railroad charge—leaving a profit to the road.

It would enable a merchant whose packages are usually valuable, (much beyond 50 cents per pound on the average) to save in direct expenditure, to have his orders promptly supplied, to maintain a large business upon comparatively light stocks, and to exclude from the western markets all persons who shall persist in continuing the risks, delays, and loss of capital by the cape of Florida route.

It will open a direct avenue for western supplies for the interior of Alabama, Georgia and the Carolinas.

It gives us interior communication between the most important highways in the world,

which is not subject to the casualties of storms, wrecks, pirates or war.

It makes the south Atlantic states, identified, as they are, with us in all respects, to be neighbors to the great west; and by this means gives assurance of an equitable management of the government of the United States, by which our interests will be protected and our prosperity promoted. It gives to public force that rapidity of motion, which is the great element of its efficiency, either to "suppress insurrection or repel invasion."

These things and more does it accomplish in its general uses. To the country in which it runs it brings navigable waters without their overflows, and commerce without hazard or interruption. To that country all times of the year are thus rendered times of commerce and travel; supplies from other places are cheapened, and its own productions can reach the market at small cost and at times to suit the owner.

3d. The *probable cost.*

On such subjects certainty and exactness cannot be attained. We can but use the experience we have to lead us to rational estimates of the future. Such is our daily habit in all matters of business.

But we are not treading a new path.—Twenty years ago, a short road at Quincy, to carry marble, was all the pioneer we had. Now we have nearly 4,000 miles of railroad in actual daily operation in the United States; and a great deal more in the rest of the world. The materials of experience are therefore sufficiently abundant. The cost of 79 railroads in the United States is given in the table published in the American Railroad Journal. The aggregate length of them is 3,723 miles, and the cost is \$109,841,460; or \$29,325 85 per mile.

In the Carolinas and Georgia 785½ miles cost but £14,063,175, or \$17,919 per mile; those of North Carolina and Georgia 583½ miles long, cost \$8,391,723; or \$14,387 72 per mile; those of Georgia, 337½ miles cost \$5,231, 723, or \$15,489 per mile, the Central railroad in Georgia, 190½ miles, cost \$2,551,723; or 13,570 72 per mile; and that part of the Georgia railroad of 65 miles, which has been constructed of late years, is said to have cost less than \$12,000 per mile, including an edge rail; or as commonly called, a T rail.

The residue of the railroads on the list, in the northern and eastern states, amounting to 2,937½ miles in length, cost \$95,788,295; or \$32,633 23 per mile.

The reason of this difference of cost in favor of the southern states, is mainly in the abundance and cheapness of timber, the absence of rock excavations, and the low cost of right of way. In all these points, as well as in the suitability of surface for a railway, the route from Jackson to Montgomery for the same length is *unequaled*. To Brandon the road is almost entirely graded. Beyond Brandon to the Alabama line it has been surveyed, and (although from want of time, but little care could be bestowed on the selection of the line, and it can therefore be improved) the whole estimate of the engineer for gra-

ding, including culverts, and bridges, is but \$343,439, or 97½ miles, for \$3,552 44 per mile. Appended is a copy of that report in which the whole cost of the 97½ miles is estimated at \$1,083,428; or \$11,112 per mile which estimate includes \$668,507 or \$5,856 48 per mile for *iron* only; leaving for all other items of expenditure \$414,921; or \$1,225 60 per mile. This report, although we might not rely entirely upon its estimates, at least establishes beyond a doubt that the part of the route surveyed will admit of the *cheap* construction of a railroad.

Two of this committee, when in Alabama made diligent inquiry as to the surface of the probable route of this road from the state line to Montgomery, and not only inspected the profiles and maps of surveys of several railroads in this region heretofore surveyed but also procured useful details as to the route generally. These means of information enable us to affirm with great confidence, that the route in Alabama is more favorable than it is upon the surveyed line in Mississippi, and presents no unusual difficulty, with the exception of the crossing of the Tombigbee and Alabama rivers; the cost of which, they suppose, cannot exceed, but will probably be much short of \$60,000, in addition to the usual outlay. The committee therefore, do not hesitate to express the belief that this road can be made at as small cost per mile as any railroad of its length which has heretofore been examined and presented to the public.

At \$8,000 per mile with heavy flat bar, or \$13,000 with Huron, 45 to 50 pounds to the yard, the whole cost of 240 miles between Jackson and Montgomery would be \$1,920,000 on one plan and \$2,880,000 on the other, to which must be added for bridges, and the necessary locomotives, cars, etc., and from it must be deducted for the parts already graded on that line.

4th. The *income.*

On this point the railroads in use furnish much experience, of a part of which a table is appended. It contains all the full statements of length of road and gross income, which are exhibited in the American Railroad Journal—being 28 railroads in the northern and eastern states, including Pennsylvania, and 9 in the southern states. The 28 in the north and east in the year 1844 produced a gross income on 1,320 miles, of \$6,190,649; or \$3,693 per mile; while the southern railroads, of 922½ miles long, yielded \$2,313,623, or \$2,507 31 per mile, those of the cotton states of South Carolina and Georgia have yielded \$1,109,392 or 539½ miles: or \$2,055 per mile.

These results were upon 37 companies, with 2,241½ miles of railroads of an average length of only a fraction over 60 miles each, while the Boston and Albany railroad of 200 miles length connecting with western trade, received us much as \$5,910 a mile within the year; thus manifesting from experience, (what is so very obvious on abstract reasoning) that the receipts per mile of railroad are immensely increased with the increased line of railroad placed in connection. As this line will be 650 to 890 miles long, the most fa-

vorable experience of the shortest lines now in use could be fairly applied to an estimate of income for this work.

But waving these considerations, and adopting for an estimate the business of [the two states of Alabama and Mississippi, the *less* favorable results indicated by the Georgia and South Carolina railroads, (which are also subject to the disadvantage, that the Savannah competes with the Charleston line for the traffic of the same country, and thus divides the business) and we make the following results:

Item 1st.—240 miles of road, at a calculation for the local income of \$2,055 per mile gross annual receipts, (the same as those of the South Carolina and Georgia roads, and \$1,081 less than the Vicksburg and Jackson railroad, as per tables annexed).....	\$493,200
Item 2d.—Through travel added, (see note,).....	40 pass each way daily at 4 per cent. premium.....
Item 3d.—Through freights added, (see note,).....	180,000
Item 4th.—Increased mail pay, (see note,).....	36,000
Gross annual receipts.....	\$999,520

From the gross annual receipts must be deducted for expenses. The tables annexed show upon the northern 28 roads an expense of 47-62 per cent. on the gross income, and upon the 9 southern roads 53-13 per cent. on the gross income. At the rates furnished by southern roads on \$989,525 of gross income the 53-13 per cent. for expenses is \$525,913—leaving a net annual income of \$463,607, which on \$3,000,000 of cost would be \$15-45 per annum on each share of \$100.

If the experience of the Vicksburg and Jackson railroad were assumed as the basis of calculation, for the first item, the

Gross annual income would be.....	\$4,848,960
and deducting the 53-13 per cent. for expenses.....	663,573

there would be a net annual income of.. \$585,387 which on 3,000,000 cost would be 19-50 on each share of stock.

These estimate pretend to no higher certainty than belongs to reasonable conjectures derived from experience in like items of detail. The first, founded on the less favorable experience, is believed to be lower than the working results of this road will prove with ordinary good management.

Demand for Swedish Iron.—In anticipation of not only a continuance, but a great increase, on the present unprecedented demand for iron, in all parts of the continent of Europe, the Swedish government is bestirring itself to obtain for that kingdom a share of the advantages arising from increased manufactures and extended commerce: in order that the quality of this far famed iron may be duly appreciated in France, the government of Stockholm has determined that 10 cases, containing samples of different sorts, shall be sent to France, without paying any export duty. The excellent quality of this iron in the making of steel is well known and appreciated in this country; and enterprising manufacturers and speculators have entered into binding engagements with the iron masters

of Sweden, for some years to come, that more than two-thirds of their produce of that metal shall be sent over to England. This iron is extensively used in the steel manufactories of Sheffield, Birmingham, and other large cutlery and hardware districts, and a large portion exported to India, where it is in good demand. The steel manufacturers of France have for many years, been extremely jealous of the progress making in the steel and cutlery of this country, and the general demand there is for it in every quarter of the globe, and which has induced them to endeavor to enter into some arrangement with the Swedish iron masters to furnish them annually a certain quantity of this metal, so as, in a measure to compete with the factories of England. This first attempt, on the part of the government of Stockholm, in allowing its free exportation as specimens, is only to induce the French chambers and the government, if not entirely to take off the import duty on British and northern iron, at least to materially reduce it—as the tax is so onerous to the prosperity of the iron ship builders, railway contractors, and machine manufacturers of every description, that they cannot obtain a sufficient quantity, and of sufficiently good quality, in France, to meet the demands. There is very little doubt that this obnoxious duty on foreign iron, will eventually, be repealed, as the ministers of public works, commerce, finance, and marine, are strongly in favor of its reduction.—*Mining Journal.*

Progress of Mining in France, Belgium and Germany.—The following is the last current price of shares of several of the companies of the forges and furnaces in the above named countries: Alais, 2,300 fr.; Aveyron coal mines, 6,350; Loire and Ardeche, 5,970; Zinc (the Vielle Montagne,) 6,100. The general meeting of the society of Antinous and the United Mines, took place on the 25th inst. The object of this company is the working of 81 zinc mines (blende,) lead, silver, copper, and iron ore, situated in the judiciary circle of Cologne. The grant is a perpetual one, and the capital 80,000. The report of M. Rochaz, the acting manager, was received with great applause by the shareholders; after which, a new director was elected. M. Simon, who is director general of the tobacco manufactures, was unanimously called to the board. Mining operations in France, Belgium, and Germany, are rapidly on the increase, particularly the two latter, in the working of the extensive zinc and iron mines.—*Mining Journal.*

Railway Legislation.—Perhaps the best method of dealing with the subject of railway legislation would be to pass an act of oblivion, of which, in humble imitation of the legislative conciseness of lord Brougham, we beg leave to suggest the following short form: Whereas, it is expedient to expunge and entirely obliterate certain circumstances that have happened within the last year with reference to railway speculation: And whereas, it is desirable that certain individuals should be placed in the position in which they were this time 12 months: Be it therefore enacted

by and with the consent of parliament, that so much of the last 12 months as relates to the railway mania should be repealed, and the last year, so far as railway liabilities are concerned, is hereby repealed accordingly.—Provided always, that nothing in this act contained shall be construed into a permission to any person or persons, to forget himself or themselves on any other subject whatever.—And be it further enacted, that this act shall be known by the name of Lethic's act, or the act of oblivion. And be it further enacted, that any one possessed of scrip to the amount of £20, or being a provisional director of any railway, shall be allowed to claim the benefit of this act, which shall be a sufficient answer to all his railway liabilities. There should, of course, be the usual clause, that the act may be amended in the present session.—*Punch.*

80 TONS RAILROAD IRON.
 50 " 1½ x ½ Flat Bar Railroad Iron.
 8 " 2½ x ½ " " "
 15 " 1 x ½ " " "
 with Spikes and Plates, for sale by
A. & G. RALSTON & CO.,
 4 South Front st., Philadelphia.
 lm30

BOILER IRON.—55 TONS ASSORTED
 Boiler iron, Nos. 3, 4 and 5, and of widths of 26, 32 and 36 inches, random lengths, in store, and for sale by
A. & G. RALSTON & CO.,
 4 South Front st., Philadelphia.
 lm30

GEORGE VAIL & CO., SPEEDWELL IRON
 Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective iron and Brass Castings of all descriptions.

NICOLL'S PATENT SAFETY SWITCH
 for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee.
G. A. NICOLLS,
 Reading, Pa.
 ja45

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

PATENT INDESTRUCTIBLE WATER
 Pipes. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.
 J. BALL & CO.

MACHINE WORKS OF ROGERS,
 Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.
 Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
 a45 Paterson, N. J., or 60 Wall street, N. York.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Allaire, } New York.
 - Peter Cooper, }
 - Murdock, Leavitt & Co. }
 - J. Triplett & Son, Richmond, Va.
 - J. R. Anderson, Tredegar Iron Works, Richmond, Va.
 - J. Patton, Jr. } Philadelphia, Pa.
 - Colwell & Co. }
 - J. M. L. & W. H. Scovill, Waterbury, Con.
 - N. E. Screw Co. } Providence, R. I.
 - Eagle Screw Co. }
 - William Parker, Supt. Bost. and Worc. R. R.
 - New Jersey Malleable Iron Co., Newark, N. J.
 - Gardiner, Harrison & Co. Newark, N. J.
- 25,000 to 30,000 made weekly. 35 1y

THE SUBSCRIBERS, AGENTS FOR
 the sale of
 Codorus, }
 Glendon, } Pig Iron.
 Spring Mill and }
 Valley, }

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Wat'son's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L. KIMBER, & CO.,
 59 North Wharves,
 Philadelphia, Pa.
 Jan. 14, 1846. [1y4]

MANUFACTURE OF PATENT WIRE
 Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by
JOHN A. ROEBLING, Civil Engineer,
 Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.
 2v19 1y

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 63,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 1/2 feet two stories high, with a shed part 45 1/2 x 20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide

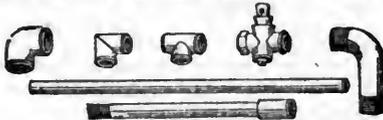
For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by MORRIS, TASKER & MORRIS. Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS, Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 11f

LAP—WELDED WROUGHT IRON TUBES

FOR TUBULAR BOILERS, FROM 1 1/2 TO 5 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee. 28 Platt street, New York.

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

For sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP, 75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

Wire gauge number.	WIRE ROPES.		HEMPEN ROPES.		CHAINS.		STRENGTH. Tons.
	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.	
11	4 1/2	13 5	10	24 -	50	15-16	20
13	3 1/2	8 3	8 1/2	16 -	27	11-16	13 1/2
14	3 1/4	6 11	7 1/2	12 8	17	9-16	10 1/2
15	2 3/4	5 2	6 1/2	9 4	13 1/2	1-2	7 1/2
16	2 1/2	4 3	6	8 8	10 1/2	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

RAILROAD IRON.—The subscriber having taken contracts for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.

PETER COOPER, 17 Burling Slip. New York, January 23d, 1846. 1y 10

RAILROAD IRON—500 TONS OF 67 LBS. per yard—5 inches high—of the double headed pattern, which is now wholly used in England—now on the passage, and a further quantity will be contracted for. Also

500 tons T pattern, 56 lbs. per yard, for sale by BOORMAN, JOHNSTON & CO. 119 Greenwich street. 4:24

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/2 x 1/4 inch Flat Punched Rails, 90 ft. long. 25 " 2 1/2 x 1/4 " Flange Iron Rails. 75 " 1 x 1/4 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, Albany Iron and Nail Works, 1y

CALIGRAPHIC BLACK LEAD PENCIL, Manufactured by E. Wolff and Son, 23 Church Street, Spitalfields, London.

The Caligraphic Pencils have been invented by E. Wolff and Son, after the expenditure of much time and labor. They are the result of many experiments; and every effort that ingenuity and experience could suggest, has been made to insure the highest degree of excellence, and the profession may rely upon their being all that can be desired.

They are perfectly free from grit; and for richness of tone, depth of color, delicacy of tint, and evenness of texture, they are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use.

The Caligraphic Pencils will also recommend themselves to all who use the Black Lead Pencils as an instrument of professional importance or recreation, by their being little more than half the price of other pencils.

An allowance will be made on every groce purchased by Artists or Teachers.

May be had of all Artists, Colourmen, Stationers, Booksellers, etc.

A single pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

Caution.—To prevent imposition, a highly finished and embossed protection wrapper, difficult of imitation, is put around each dozen of Pencils. Each Pencil will be stamped on both sides, "Caligraphic Black Lead, E. Wolff and Son, London."

The subscriber has on hand a full supply of Wolff and Sons celebrated Creta Loewis, or Colored Drawing Chalks, also their pure Cumberland Lead and extra prepared Lead Pencils, and Mathematical Lead Pencils.

P. A. MESIER, Stationer and Sole Agent, No. 49 Wall Street.

N. B.—A complete assortment of Steven's Genuine Inks, Fluids, Imitating Wood stains, and Graining Colours at the Manufacturers prices. 19tf

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut, Philadelphia. 1y10 near Third,

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. **JOHN F. WINSLOW, Agent.**

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

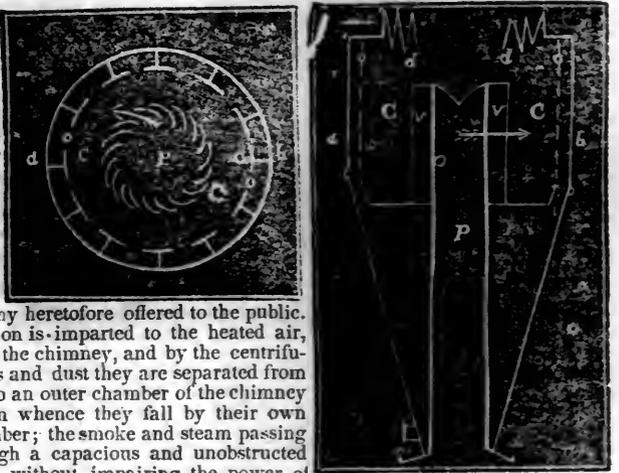
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. **FRENCH & BAIRD.**

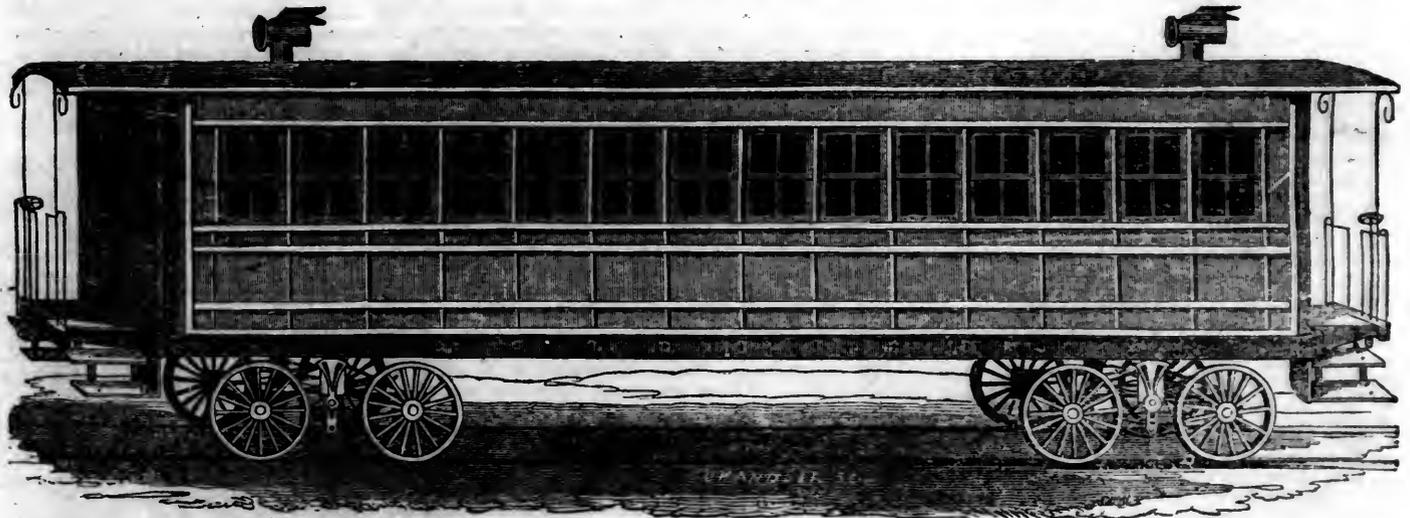
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45



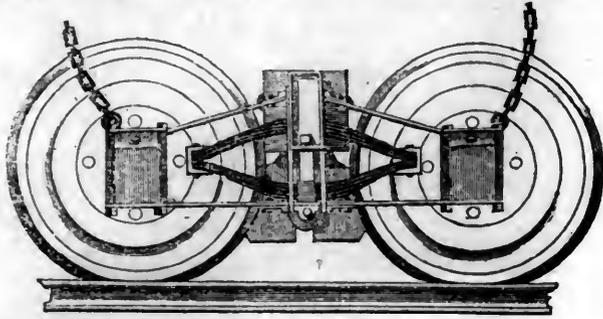
BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes. 1y1

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

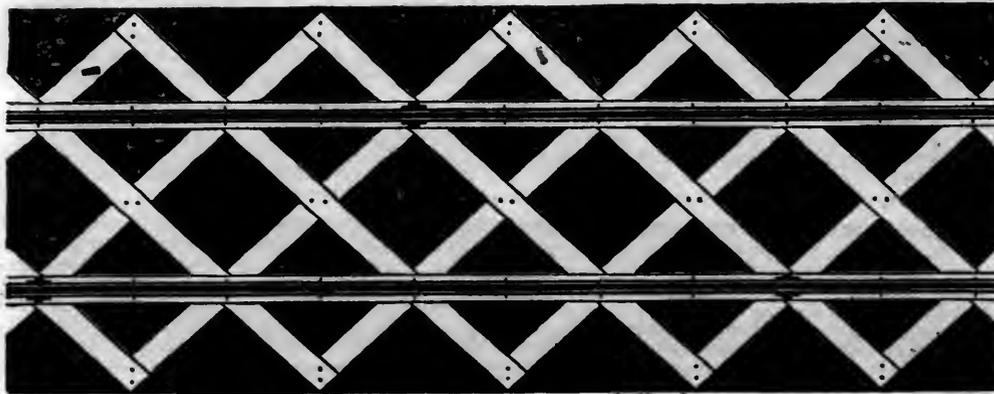
Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Sup't Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column "	50 00
One square "	15 00
One page per month	20 00
One column "	8 00
One square "	2 50
One page, single insertion.....	8 00
One column " "	3 00
One square " "	1 00
Professional notices per annum...	5 00

ENGINEERS and MACHINISTS.

- THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)
- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. BURDEN, Agent. (See Adv.)
- ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- PHENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

HERRON'S IMPROVEMENTS IN RAILWAY Superstructure effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.
Civil Engineer and Patentee.

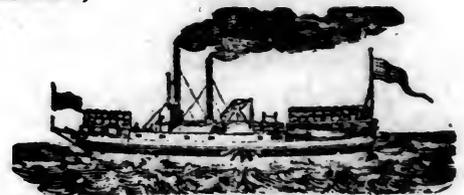
No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

1y1

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

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SATURDAY, AUGUST 15, 1846.

[WHOLE No 530. VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD.

Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3½ p.m.

All baggage at the risk of the owners thereof.

31 ly W. RAYMOND LEE, Sup't.

BRANCH RAILROAD AND STAGES

Connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD.

Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad:

Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars.

32 ly J. W. STOWELL, Sup't.

BOSTON AND MAINE RAILROAD.

Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North

Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.

Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m.

Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m.

Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, Super't.

TROY AND GREENBUSH RAILROAD.

Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at 6½ A.M. Leave Albany at 7 A.M.

" " 7½ " " " " 8 " "

" " 8½ " " " " 9 " "

" " 9½ " " " " 10 " "

" " 10½ " " " " 11 " "

" " 11½ " " " " 12 M.

" " 1 P.M. " " 1½ P.M.

" " 2 " " " " 2½ " "

" " 3 " " " " 3½ " "

" " 4 " " " " 4½ " "

" " 5 " " " " 5½ " "

" " 6 " " " " 6 " "

" " 6½ " " " " 7 " "

The 6½ a.m. and 2 o'clock p.m. runs from Troy, to Boston runs.

The 12 m. and 6 o'clock p.m. trains from Boston runs.

Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT, Superintendent.

Troy, April 1st, 1846.

14 ly

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE,

from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.

" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts.

H. C. SEYMOUR, Sup't.

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 lf

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4, 30, 5, 6, and 6, 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6, 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7, 10, 8, 10, 9, 10, 11, 10 a. m., and at 12, 40, 2, 3, 10, 5, 10, 5, 30, 6, 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6, 45, 7, 45, and 10, 45 a. m., and at 12, 15, 2, 45, 4, 45, and 5, 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5, 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams' Bridge trains will be regulated according to the state of the weather.

18

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1816.. Spring Arrangement. 1816
Commencing April 1st.
Passenger trains leave daily, Sundays excepted—
Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6¼ " and 2¼ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6¼ p. m.
Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12¼ m.

Leave Albany at 6¼ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6¼ p. m.

Leave Albany at 2¼ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.
Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES,
Superintendent and Engineer.

Western Railroad Office,
Springfield, April 1, 1846. } 14 1y

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston

to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1½ p. m. and 6 p. m., or on arrival of the trains from Boston; leave Troy at 7½ a. m. and 4¼ p. m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail—which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7½ a. m. and 1 p. m. and 6¼ p. m., or to connect with the trains for the west; leave Schenectady at 2¼ a. m., 8½ a. m., 1 p. m. and 3¼ p. m., or on arrival of the trains from Buffalo and intermediate places.

**TROY AND SARATOGA RAILROAD.
THE ONLY DIRECT ROUTE.**

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7½ a. m., (arriving one hour in advance of the train from Albany,) and at 3¼ p. m. Returning, leave Saratoga at 9 a. m. and 3¼ p. m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burroughs at 3¼ p. m. and 7 p. m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 41 hours.

N. B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug. 3, 1846. 1y 32

BOILER IRON.—55 TONS ASSORTED
Boiler Iron, Nos. 3, 4 and 5, and of widths of 26, 32 and 36 inches, random lengths, in store, and for sale by
A. & G. RALSTON & CO.,
1m30 4 South Front st., Philadelphia.

NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.

Passengers destined for Columbus and Cincinnati, O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance..... 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance..... 56 "
Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 "
Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

TIME.
From Buffalo to Sandusky..... 24 hours.
Leave Sandusky 5 a. m. to Columbus.... 14 "
From Columbus to Cincinnati..... 15 "
Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.
From Buffalo to Sandusky, Cabin.....\$6 00
" " " Steerage..... 3 00
" Sandusky to Columbus..... 4 50
" " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Sup't, etc.
M. & S. C. R. R. Co.

Sandusky City, Ohio.

THE BEST RAILROAD ROUTE TO THE
L. Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00
" " Sandusky to Buffalo, Cabin..... 6 00
" " " " Steerage.... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.,] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, Sup't, etc.
M. & S. C. R. R. Co.

Sandusky, Ohio.

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

L EXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a. m., and 2 p. m.
Trains leave Frankfort for Lexington daily, at 8 o'clock a. m. and 2 p. m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a. m. from Lexington, and 2 o'clock p. m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a. m. from Lexington, and ma. 9. from Frankfort, other houts as above.

351y

BALTIMORE AND SUSQUEHANNA RAILROAD.—Reduction of Fare.

Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:
Leaves Baltimore at..... 9 a. m. and 3¼ p. m.
Arrives at..... 9 a. m. and 6¼ p. m.
Leaves York at..... 5 a. m. and 3 p. m.
Arrives at..... 12¼ p. m. and 8 p. m.
Leaves York for Columbia at... 1¼ p. m. and 8 a. m.
Leaves Columbia for York at... 8 a. m. and 2 p. m.

FARE.

Fare to York.....\$1 50
" Wrightsville..... 2 00
" Columbia..... 2 12½

Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg..... \$9
Or via Lancaster by railroad..... 10
Through tickets to Harrisburg or Gettysburg... 3
In connection with the afternoon train at 3¼ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at..... 5¼ p. m.
Returning, leaves Owing's Mills at..... 7 a. m.

D. C. H. BORDLEY, Sup't.

31 1y Ticket Office, 63 North st.

BALTIMORE AND OHIO RAILROAD.

MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and

Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburg. Time of arrival at both Cumberland and Baltimore 5¼ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5¼ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

RAILROAD IRON.—THE SUBSCRIBER'S

New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,
45 North Water St., Philadelphia,
or by their Agent, ROBT. NICHOLS,
79 Water St., New York.

SOUTH CAROLINA RAILROAD.

Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculumbia Railroad in N. Alabama. Fare through from Charleston to Montgomery daily.....\$26 50
Fare through from Charleston to Huntsville, Decatur and Tusculumbia..... 22 00
The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.
1y25 JOHN KING, Jr, Agent.

CENTRAL RAILROAD-FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$3 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods..... 13 cts. per cubic ft. On brls. wet (except molasses and oil).....\$1 50 per barrel.
On brls. dry (except lime).... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.
On molasses and oil.....\$6 00 per hhd.
Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, 40 Gen'l. Supt. Transportation.

THE WESTERN AND ATLANTIC Railroad.

This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad. From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee. On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee. This is the most expeditious route from the east to any of these places.
CHAS. F. M. GARNETT, Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 1y1

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA to OOTHCALOGA, 80 MILES.
This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.
Rates of Freight, and Passage from Augusta to Oothcaloga.
On Boxes of Hats, Bonnets, and Furniture per foot.....16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs.....95 "
" Sugar, coffee, iron, hardware, etc.....65 "
" Flour, bacon, mill machinery, grindstones, etc.....33 "
" Molasses, per hogshoad \$9-50; salt per bus.20 "
" Ploughs and cornshellers, each.....75 "
Passengers \$10-50; children under 12 years of age half price.
Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.
Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.
J. EDGAR THOMSON, Ch. Eng. and Gen. Agent.
Augusta, Oct. 21 1845 *44 1y

LITTLE MIAMI RAILROAD.—1846.—Summer Arrangement.

Two passenger trains daily. On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1 1/2 p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m. On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m. Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield. Tickets may be procured at the depot on East Front street. The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount. W. H. CLEMENT, Superintendent.

GREAT SOUTHERN MAIL LINE! VIA

Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day. Passengers leaving New York at 4 1/2 P.M., Philadelphia at 10 P.M., and Baltimore at 6 1/2 A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen, and a half hours, and Charleston, S. C., in two days from Baltimore. Fare from Baltimore to Charleston.....\$21 00 " " " Richmond..... 6 60 For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to STOCTON & FALLS, Agents. 1y14

MARAMEC IRON WORKS FOR SALE.

By Authority of a power of Attorney from Messrs. Massey and James, I will sell at Public Auction, at the Court House in the city of St. Louis, on MONDAY, the 2nd day of November next, the above named valuable IRON WORKS—together with 8,000 ACRES OF LAND, more or less, on which there are several valuable and productive Farms open and in cultivation. The Maramec Iron Works are situated at the Maramec Big Spring, in Crawford Co., Mo., and consist of 1 BLAST FURNACE; 1 AIR FURNACE; 1 REFINING FORGE, with large Hammer for making Blooms and Anchovies; 2 CHEFFERY FORGES for Drawing Bar Iron; 1 ROLLING MILL for Rolling Blooms into Bars and Plates; 1 SAW AND 1 GRIST MILL, All within 300 Yards of the head of the spring. There are 2 large frame Coal Houses, and all other Buildings necessary, such as Shops and Houses for the workmen. This Spring is one of the largest in Missouri, discharging at the lowest time 7,000 cubic feet of water per minute. The Ore Bank from which the Ore has been heretofore taken is about 600 yards from the furnace; it is the Specular Iron Ore, the best for making Bar Iron, and the quantity inexhaustible.—It is an Iron Mountain, 400 feet above the level of the Maramec River; the ore is entirely uncovered, and there is an easy descent and a good road from it to the furnace. The lands have been carefully selected by one of the owners with a view to the interest and convenience of the Works, and are situated principally on the Maramec River and its tributaries, embracing the best bottom lands and water powers. The following detached tracts, comprized in the above quantity, were selected for the advantages they possess; 183 1/2 ACRES in T. 40 N. of R. 8 W. in Sec. 3, near Wherry's Mill, in Osage Co.; entered to secure a very valuable Mill power on the Branch Spring and a good landing on the Gasconade River. 80 ACRES on Benton's Creek, 12 miles from the Works; entered to secure an extensive and valuable Ore Bank 2 1/2 miles from the Maramec, at a point where there is ample water power.

320 ACRES in T. 38 N. of R. 4 W. in Sec. 22 and 23, affording an extensive and valuable water power on the Maramec river.

160 ACRES in T. 37 N. of R. 3 W. in Sec. 4, embraces two inexhaustible and valuable Ore Banks and is 1 1/2 miles from Water power sufficient for a furnace and Grist Mill, and is distant 6 miles from the above site on the Maramec.

80 ACRES in T. 37 N. of R. 8 W. in Sec. 33, including an extensive bank of excellent Ore, and distant 1 1/2 miles from water power on the waters of the Gasconade River, in Pulaski Co., sufficient for Furnace and Mills. All those Banks are of the same kind as the one at the Works, and deemed inexhaustible.

1 LOT, containing nearly one Acre, on the South Bank of the Missouri River, 4 Miles above the town of Hermann, purchased for a warehouse and landing, and is one of the best landings on the River.

The lands above described are well timbered, and have been selected with a view to have an ample supply of wood and coal, for fences, building and other purposes. There are on the land valuable quarries of Limestone well adapted for Fluxes for the Ore, and also good quarries of Rock suitable for building. There are also on the land a great number of the finest kind of Springs. A large portion of the lands are bottoms well adapted to the production of Corn and other crops. The Works are situated in a very pleasant and healthful part of the country. The Maramec ore is believed to be admirably adapted to the manufacture of steel.

A further description of the property at this time is considered unnecessary, as those wishing to purchase will no doubt view the property, which will be shown by the Agent, residing at the works.

The terms of payment required will be one third of the purchase money in hand and the balance in three equal annual payments, secured by mortgage on all the property.

A more particular description of the property will be given, and further conditions of the sale made known, on the day of sale.

Jno. F. ARMSTRONG, Agent. St. Louis, June 6, 1846.

The Louisville, (Ky.,) Journal, Cincinnati Gazette, Tribune (Portsmouth, O.,) Nashville Whig, Pittsburg Gazette, National Intelligencer, United States Gazette, (Phila.) Railroad Journal (N. Y.,) and Boston Atlas, will publish the above once a week until the 20th day of October next, and send bills to this office for settlement, and mark price on first paper. 1825

RAILROAD SCALES.—THE ATTENTION

of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons. ELLICOTT & ABBOTT. Factory, 9th street, near Coates, cor. Melon st. Office, No. 3 North 5th street, Philadelphia, Pa. 1y25

RAILROAD IRON—1700 TONS VERY

Best English Rails, ready to be delivered.—These Rails weigh 60 lbs., the lineal Yard, are 3 1/2 inches deep; 4 inches deep at base; 2 1/2 inches wide at top; 17 1/2 feet long, except one-tenth of 15 and 12 1/2 feet in length.

A first rate Steam Pile Driver built by "Dunham & Co.," has never been in use, is in perfect order, and for sale a bargain; also 12 Railway Passenger Cars that have never been used, which will be sold very low. DAVIS, BROOKS & CO., June 1. 30 Wall Street.



RICH & CO'S IMPROVED RED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th. of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATAILE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 5 1/2 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched

by extreme heat. RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed,)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,

138 1/2 Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street, Charleston, S. C.

16 if

CUSHMAN'S COMPOUND IRON RAILS etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer, Albany, N. Y.

Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by **A. & G. RALSTON** 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** President of the Newcastle Manuf. Co.

NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	15 inches Diameter of Cylinder,	× 20 inches Stroke.
2,	14	× 24
3,	14 1/2	× 20
4,	12 1/2	× 20
5,	11 1/2	× 20
6,	10 1/2	× 18

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS

Atlantic and St. Lawrence Railroad Co.
Proceedings of a Meeting of the Atlantic and St. Lawrence Railroad Company, held at Montreal on the 30th of July, 1846.

The board of directors of the Atlantic and St. Lawrence railroad company, beg leave to report:

That an act of the provincial parliament of Canada, amending the charter of the company, was passed on the 9th June last—this act is laid on the table, and the directors are happy to state, that it places the company in a position more favorable for the proper control of their affairs.

That since the meeting of the proprietors, held on the 15th of April last, the operations and disbursements connected with the company's affairs, have been confined to the prosecution of necessary surveys, which have been extended over a distance of about 70 miles, and have resulted most satisfactorily, as will be seen by the engineer's report in detail, to be read by the treasurer.

That an agreement has been entered into with the Atlantic and St. Lawrence railroad company, of Maine, providing for mutual corporation, in the prosecution of the general undertaking, and containing such provisions as it has been deemed necessary to agree upon, preparatory to commencing an outlay on a work whose success is so much dependent on uniform action by the two companies. This agreement is laid before the meeting for the information of proprietors.

That on the 4th inst., the Atlantic and St. Lawrence railroad company commenced the actual construction of their portion of the work, by breaking ground at Portland, at which ceremony delegates from this board attended by invitation, and they report that from the enthusiasm manifested by the authorities and citizens of Maine, no doubt need be entertained of the American portion of the line being energetically prosecuted to the point of junction at the frontier. The directors have also gratefully to acknowledge the hospitable and flattering reception tendered to their delegation, and to other Canadian stockholders present, and the strong feeling of mutual interest which prompted the most anxious solicitude for the success of the Canadian enterprize.

The directors having thus detailed the exact progress made in the company's affairs since the last meeting, beg to state that the proprietors have now been called together, in redemption of the pledge given at the general meeting of the 22d January, that before entering upon the execution of any portion of the work (surveys excepted,) a meeting of the proprietors should be called, at which all parties interested might be represented, for the purpose of deciding on future proceedings, and it is with much regret that they find the scripholders in England have not availed themselves of the opportunity thus afforded, of assisting in the final decision of the company's affairs. In their absence, it is the duty of the directors to lay before the meeting certain correspondence which has passed between them and the gentlemen composing the London committee, and which

they regret to state indicates a partial withdrawal of confidence in the undertaking, in the English proprietors.

In reference to this correspondence, it must be remarked, that no information has been given to the directors to show the amount of interest in the company held by the dissentients.

Although the directors are assured that they have the legal right to resist the demand of any parties for the return of the deposit paid, yet they feel that to justify a resistance of this demand, and their recommending a prosecution of the work in the face of such a claim, they must be assured as well of the entire and cordial support of the remaining proprietors as of their being placed in such a position as would warrant a just confidence in their ability to proceed, independent of any assistance from dissentient scripholders.

As the decision which the directors expect to arise from the action of the present meeting must be final as to the success or abandonment of the enterprize, they feel it their duty solemnly to record their unanimous opinion, that never since the first agitation of this great work, have there existed such imperative reasons for its formation by the citizens of Montreal and of eastern Canada.

The adoption of free trade as the commercial policy of Great Britain, and the legislative enactment in the United States, made to engross as far as possible the carrying trade from the great lakes and the St. Lawrence, have, in their opinion, in their application to Canada, greatly increased the previous necessity for the Montreal and Portland railroad, and sufficiently indicate the importance of emulating the enterprize of their republican neighbors, and of opening new channels for that commerce which otherwise must be diverted from the St. Lawrence, that the merchants of Montreal cannot possibly maintain a competition with those of the United States, unless they possess equal facilities of intercourse, which this railroad will afford, and that the directors must infer a disastrous reaction in the value of property in this city, unless those interested therein take instant and energetic means to meet the exigencies of their position, and the crisis which has now arisen. Finally, it only remains to repeat, as the revised and deliberate opinion of this board, that the outlay contemplated on this railroad, must prove highly remunerative to the proprietors, as is shown at length in the able report of the chief engineer herewith.

But while expressing their undiminished confidence in the merits of the enterprize, the directors are bound to state, frankly and candidly, that their views do not appear to be shared by their fellow citizens generally—and that from the stockholders themselves, they have not received that cordial support which they had a right to expect from their election—a large number of shares remain in default, and in many other cases much hesitation has been shown in the payment of the first instalment—indeed, it may be remarked, in justice to such of the English

subscribers as intended their stock to be bona fide investments in the work, that the apathy evinced in Canada might well warrant their belief in the inexpediency of its prosecution.

Strongly impressed, however, with the paramount importance of the interests contingent upon the construction of this railroad, the board of directors consider it their duty, once again, to appeal to the proprietors, and the Canadian public generally, recommending renewed effort to obtain subscribers, preparatory to a meeting which they propose to call for the 17th August next, when, should they not have received that additional support which they conceive to be necessary, this board will be prepared to advise, that so far as it can be legally effected, the enterprize be abandoned, from the want of sufficient means to carry it out; on the other hand, should the proposed appeal afford sufficient evidence of a determination on the part of the citizens of Montreal, and the adjoining districts, to complete the road, the directors are prepared to recommend to the proprietors the immediate letting of the contracts for the first thirty miles from Montreal to St. Hyacinthe, and the adoption of such further course as will enable them to prosecute the work cautiously, but successfully.

All which is respectfully submitted,

G. MOFFATT, *President.*

Montreal, 30th July, 1846.

Mr. Moffatt explained that the present meeting was intended to be held on the first of the month, but had been deferred to that day to give an opportunity to the English subscribers to send representatives; but it appeared that none had come.

Resolved, 1, That this meeting do approve of the course followed by the board of directors, as being in conformity with the recommendations of the general meetings of 22d January and 15th April last, as well as with the suggestion of the provisional committee in London—and that the report now read be received and adopted.

Resolved, 2, That it is highly gratifying to this meeting to learn from the report of the chief engineer, that the survey has thus far proceeded most satisfactorily, and that the facilities presented by the route, both in Canada and in the United States, greatly exceed the favorable anticipations previously formed in relation to the railroad.

Resolved, 3, That the actual commencement of the American portion of the railroad and the zeal manifested by the authorities and citizens of Maine, afford the strongest evidence that the Canadian line can proceed with the utmost reliance of being met by them at the frontier, and that no means should now be left untried to redeem the pledges given of hearty co-operation by the inhabitants of this province.

Resolved, 4, That this meeting learns with much regret, that a number of the scripholders in England have expressed their desire to abandon the undertaking, by requiring repayment of their deposits—a demand which this company will more fully consider at their next meeting. But they continue in the belief, that the important interests involved in

the prosecution of this work, arising from the altered commercial policy of Great Britain, dictates renewed exertion in Canada, before it would be prudent to entertain a proposal involving the sacrifice of the expenditure already incurred, when the prospects of the investment proving highly profitable, are daily augmenting.

Resolved, 5, That the stockholders present at this meeting are with great reluctance, compelled to express their acquiescence in the view of the position of the corporation set forth in the report now read, and to declare that unless a more correct appreciation of the merits of this railroad be evinced in Canada, the enterprize cannot proceed for want of adequate means. They would, therefore, most earnestly entreat their fellow citizens to consider that on the prosecution of this undertaking must now mainly depend the future prosperity of Montreal and its vicinity; that to this work the merchants and landholders must look for important aid in that keen competition which the free trade policy of the British government has brought to our threshold; and that by it the resources of the eastern townships will be rapidly opened up, their manufacturing capabilities developed, and their general trade directed to this mart; thus securing to us the supply of a numerous and increasing population, which otherwise will inevitably be lost through the American railways now rapidly approaching the frontier; and that, without this work be constructed, the depreciated value of real estate in Montreal, from its ceasing to be the commercial emporium of Canada, will probably exceed any limit that our worst apprehensions would assign to it.

Resolved, 6, That with the view of leaving no means untried of enlisting a further support of the undertaking, a committee of five be appointed, jointly with the board of directors, to solicit subscriptions of shares, and finally to report as to the number of shareholders to the general meeting of proprietors to be held at the company's office, on Monday, 17th August next, when the question of immediately proceeding with the work, or of legally dissolving the company, will be finally considered. The committee to consist of the following gentlemen, with power to add to their number: Messrs. Elder, Jean Brunneau, O. Berthelot, L. M'Pherson, J. G. McKenzie, Leclair, of St. Hyacinthe.

Resolved, 7, That the report of the chief engineer, A. C. Morton, Esq., be printed, and the proceedings of this meeting be published in the English and French languages, to the extent of 500 copies of each.

Resolved, 8, That the thanks of this meeting be and they are hereby tendered to the honorable chairman for his able and dignified conduct in the chair.

The meeting adjourned.

THOMAS STEERS, Secretary.

Montreal, 30th July, 1846.

ENGINEERS REPORT.

Montreal, 29th July, 1846.

To the President of the St. Lawrence and Atlantic Railroad Co.—SIR: I have the honor to submit a brief statement of the surveys

made for your road up to the present date, with some general observations relative to the work and the character of the country through which it passes.

At the date of my last report, the surveys for the southern route had been closed and the engineers engaged in this service transferred to the northern route. The surveys of this route were commenced simultaneously at the St. Lawrence opposite Montreal and the St. Francis near Melbourne by the two resident engineers in the service of the company, and these lines have been united at the village of St. Hyacinthe.

The preliminary surveys for the St. Lawrence division have been extended to St. Hyacinthe, and the final location of the road made between the latter point and the Richelieu river. That portion of the line between the Richelieu and the St. Lawrence may be considered an approximate location, and will require but a few days to perfect the surveys.

It was deemed important in the present state of the water in the St. Lawrence to make the requisite examinations with a view to determine the most favorable point for the terminus of the road, and the resident engineer of this division is now performing this service. On the completion of this survey the location of the road between the St. Lawrence and the Richelieu will be resumed, and the whole line to St. Hyacinthe, a distance of 29.70 miles, will be prepared for contract at an early date.

The location of this division of the road has so far advanced as to enable me to present some of its leading features. It is straight from the St. Lawrence to the southerly side of Montarville mountain, a distance of 10.14 miles; thence, after curving slightly to the north, it is straight to the Richelieu river, a distance of about 5.60 miles. After crossing this stream, a slight deviation is made from a direct line in order to attain the elevated table on the east side of the river and to pass the north side of Belcail mountain, thence to St. Hyacinthe the line is straight, a distance of 12.15 miles.

The grade of 53 feet per mile and the deep cut encountered by the former survey on the east side of Richelieu river have been avoided and there will therefore be no inclination on this division of the road much exceeding 30 feet per mile, and this will only be required at the above mentioned point, all other portions of the line are level or with but slight inclinations.

The earthwork of this division will be light consisting generally of a continuous embankment of about 5 feet in height, to be formed of earth excavated from side ditches. It is recommended in all cases when practicable to elevate the road bed 5 feet above the general surface of the country with a view to more perfect drainage and to facilitate the removal of snow from the track.

The bridge for crossing the Richelieu river will be about 1,000 feet in length, including the draw, and will be an expensive structure. I have however after much examination of the river determined on a site for this work which may be regarded as highly favorable. The river was carefully examined for a dis-

tance of 3 miles in the vicinity of Belcail, and the depth of water found to vary from 14 to 30 feet; the channel in no case, except at the rapids above Belcail, was found of a less depth than 15 feet. After running various trial lines and making numerous measurements and soundings, I have selected a point on the rapids about one mile above Belcail as offering on the whole the greatest advantages for the construction of this bridge.

The channel of the river at this point is near the west shore and is narrow, not exceeding 200 feet in width, its greatest depth is 16 feet. After crossing the channel the remaining portion of the river varies in depths from 2 to 7 feet, and the bottom consists of stone and gravel.

The draw should be introduced at the west end of the bridge where it can be constructed at less expense and may be approached by vessels navigating the river in both directions in a favorable manner. The examinations to determine definitely on the position of the bridge are not yet completed, but these will be made in conjunction with the location of the road on each side of the river.

Should the board decide to put this division under contract, the location could be made and the plans, specifications, etc., prepared for letting the work early in September next.

With a view to give time for the consolidation of the embankment and the more perfect construction of the work in all its parts, I would recommend that the 1st day of July, 1848, should be selected as the time at which the road should be completed and open for business, and that the contracts for various kinds of works and materials delivered, should be limited to such time as will accomplish this object.

As for a portion of each year it will be impracticable to do much work, it will probably require this length of time to complete it in a permanent manner, and I consider the period named a more favorable time for opening the road than in the autumn. Assuming therefore that this division of the road should be completed, at that time, the following provisions should be made:

First. The grading should be placed under contract by the 15th of September next, and vigorously pressed forward with a view to complete it at the earliest practicable period.

Second. The iron should be ordered sufficiently early to enable the manufacturers to ship one-half the quantity required in time to arrive in Montreal in the month of July next, and one-fourth in the month of September, and the remainder in May, 1848.

Third. Two locomotive engines should be ordered, one to be completed and delivered on the road by the first of August, 1847, and the other in June, 1848. Also two passenger cars, three box or covered cars for freight and six platform cars, the latter to be delivered on the road in the months of July and August 1847, and the passenger and covered freight cars to be delivered in June, 1848.—As the laying the track of the road will be commenced at the St. Lawrence, the locomotive and cars will be required for the trans-

portation of iron, timber, ballasting, etc., as the work progresses.

Fourth. The title to all the land required for the road way and stations should be obtained during the present summer and autumn.

On the supposition that this portion of the road will cost £160,000, and that it is to be completed by the time above specified, the quarterly disbursements will be nearly as follows, to wit :

For the first quarter, embracing the months of August, September and October, payments for land damages and grading should be made to the amount of.....	£5,900
The next quarter, November, December and January, will embrace the expenditure for grading and materials delivered, which will amount to about.....	9,325
For that quarter embracing the months of February, March and April, 1847, the disbursements will be principally for materials delivered, and will amount to nearly.....	4,850
For the months of May, June and July, the payments for grading, iron, timber, etc., will be about.....	44,175
For August, September and October, the expenditure for grading, iron, locomotive cars, etc, will be about.....	43,050
The disbursements for November and December, 1847, and January, 1848, will be nearly.....	15,900
For February, March and April, 1848, the expenditures will probably be about.....	8,350
The last quarter, May, June and July, 1848, the disbursements for tracks, buildings, cars and engines will probably amount to.....	28,450
Total.....	£160,000

The above I trust approximates sufficiently near the expenditure required within the periods named, to enable the board to make provisions by timely calls on the shareholders for instalments.

It is proper, however, to state in connection with this subject, that tenders have been received from responsible companies to construct a portion or the whole of the road and invest from 20 to 30 per cent. of the amount of their contracts in the capital stock of the company.

Should this arrangement be effected, the percentage of stock would be deducted from the payments made, from time to time, thereby reducing the cash disbursements a corresponding amount.

The results of the surveys of that part of the line between St. Hyacinthe and the St. Francis river at Melbourne, are of a highly favorable nature, and fully confirm the opinion entertained of the northern route at the date of my last report.

These surveys are nearly closed, but I have not yet received the report of the resident engineer, and am therefore unable to give full results. The country, however, is of a favorable character, abounding with large quantities of choice timber and other building materials required for the road.— The sub-soil is of a sandy nature, affording a most excellent material for road bed.

A very considerable portion of the line is straight, and the grades are favorable.

The resident engineer in charge of these surveys, has been instructed to repair with his party to the St. Francis river, near Melbourne, and proceed with the examination of the country up the valley of that stream to

Lennoxville, a point about five miles above Sherbrooke.

From this place to the boundary line, the topography of the country indicates that there may be three routes, which may be distinguished as the eastern, middle and western routes. The eastern would follow up one of the western branches of the St. Francis, and cross to the head waters of the west branch of Hall stream, which it would follow to the main stream, thence down the latter to the boundary near the Connecticut river.

The middle route, after leaving the St. Francis valley, would be located up the valley of Moes stream to the main dividing ridge, thence down Leech stream to the province line, near Canaan, Vermont.

The western route would follow up the valley of the Coaticook river to the boundary line. This stream has its source in the state of Vermont, and interlocks with the Nulhegan river flowing into the Connecticut.

The Atlantic and St. Lawrence railroad company would connect with your road for the middle and eastern routes, through the valley of the Connecticut, and for the western route through the valley of the Nulhegan river.

That corporation has made the necessary surveys to unite with your road on the middle and eastern routes, but no surveys have been made through the valley of the Nulhegan, by which a junction would be formed for the western route.

The resident engineer, in whose charge these surveys are placed, has been instructed to first examine the middle route, which it is supposed may possess superior advantage to either of the others; after which, if circumstances should render it necessary, to examine one or both of the other routes.

The distance from the point where the line enters the St. Francis valley near Melbourne, to Lennoxville, will not probably vary much from 31 miles, thence from the diverging point to the boundary to survey the three routes above mentioned would make a further extension of line of about 90 miles, making in all 120 miles yet to be examined.

This, considering the character of the country, is a greater extent of line than could be surveyed this season by the engineer corps now in the service of the company, provided the first division of your road is put under contract, but as it may be unnecessary to survey more than one or two of these routes, it may be accomplished with one party of engineers. I would not, therefore, at present, recommend any increase of the engineer corps for this service.

Before closing this report, permit me to allude briefly to your road in connection with the Atlantic and St. Lawrence road, which taken together are to form a continuous line from the St. Lawrence, at Montreal, to the Atlantic, at Portland.

From my position as engineer of the whole road, I have become intimately acquainted with the entire country traversed by this great work, and am familiar with its topography, facilities of construction and resources.

Embracing with one view this section of country, it will be observed by reference to the annexed maps and profiles, that there is but one summit, or main dividing ridge, between the waters which flow into the St. Lawrence and those flowing into the Atlantic, that the approach to this summit is through the valleys of large streams, affording long and easy slopes for overcoming its elevation.

The principal highlands intervening between the St. Lawrence and the Atlantic are the White and Green mountain ranges. The former is crossed through the valley of the Androscoggin and Ammonoosuck rivers, with no inclination exceeding 40 feet per mile, but with a slight undulation in the grade of the road, and no heavy work whatever. The latter extends into Canada, but falls off as it approaches the St. Lawrence basin, and is principally avoided by following the valley of the St. Francis and Black rivers.

Nearly the whole route from Montreal to Portland has been carefully surveyed, and it gives me great pleasure to state that I know of no line of equal extent, connecting the western waters with the Atlantic, which will compare with this for the great extent of easy grades, straight lines and cheap construction. While other lines are subjected to great disadvantages from steep grades, abrupt curvature and excessive cost, this is happily exempt from nearly all.

A large portion, equal probably to one-half the whole of this road, will be either level or of inclinations not exceeding 20 feet per mile. The curvatures are all easy, and nearly equivalent to a straight line. Passenger trains may pass over the whole road in the space of ten hours, and the largest class of freight engines will be able to transport 200 tons over the road in either direction.

With a view to illustrate more clearly the great advantages this road possesses for cheap transportation, and the attainment of great velocity, compared with other great roads designed as channels for the western trade, I have prepared diagrams exhibiting the grades and elevations passed over by several of these lines, viz: that between Portland and Montreal, the Western road from Boston, and the New York and Erie road.

It will be observed by reference to these profiles, that the former road has but one main summit, and that the grades are either level or descending with the preponderance of the trade for a large portion of the whole road. That the two last mentioned roads have several high summits and grades from 60 to 80 feet per mile.

As regards the cost of transportation on the St. Lawrence and Atlantic railroad, the most satisfactory information would be gained by comparing it with some line of nearly equal extent and facilities, and designed for general trade.

Perhaps no other road at present in operation approaches nearer to it as regards its object and design than the Western railroad in Massachusetts, yet the cost of transportation on this road will much exceed that on the St. Lawrence and Atlantic, from the more

unfavorable character of the grades and large amount of curvature.

On the Western road there are three elevated summits, to surmount which, the following grades are required, to wit:

- 3 miles of 60 feet per mile.
- 1½ " 68 & 69 "
- 5-6 " 74 "
- 6 " 78 & 79 "
- 2 " 82½ & 83 "

The total rise and fall is over 4000 feet. The length of curved line on this road is 75½ miles, or 48 per cent. of its whole length, and the minimum radius is 859½ feet.

Relative to the grades on the road from Montreal to Portland, I have already stated, that the inclinations probably on one-half the whole distance will not exceed 20 feet per mile. The maximum grade as indicated by the surveys thus far will be about 50 feet per mile, and this is confined to comparatively a short distance. It is believed that from 70 to 80 per cent. of the whole road will be straight and the curvatures will be easy.

In the comparison therefore of these roads, it is believed that we are fully sustained by the above facts in the conclusion that the cost of transportation on this road will not be equal but fall considerably below that on the Western road.

In referring to these roads, we desire to be understood as not wishing to draw any invidious comparison, or in the least to detract from the great merits of these roads as a means of communication with the west, for both are entitled to the fullest confidence of the public.

The New York and Erie railroad is as yet unfinished, but the present business of that portion now in operation affords the most gratifying evidence of the entire success of this great project when it shall have been completed.

The Western road has been in operation several years, and as a great thoroughfare it is eminently successful. With its present rate of increase of business it will, in a few years, rank among the most profitable railroad investments in the country.

These roads have been referred to, only with a view to exhibit their leading features as contrasted with this work, and to illustrate more forcibly the success which will always attend works of this character.

The gross receipts of the Western railroad for 1845, were £203,370
The total expense of operating the road for the same year was 92,655

Annual net income equal to 110,715
The St. Lawrence and Atlantic, and the Atlantic and St. Lawrence railroads will be about 280 miles in length, 130 miles of which are in Canada, and the net annual income supposing it to be in the same proportion as the Western road will amount to 198,719

We will assume for the present the two roads forming a continuous line from Montreal to Portland constructed in the most permanent manner, and fully equipped with cars, engines, depots, buildings, etc., will cost the sum of 2,000,000

To which we apply the net annual income as obtained above we have as the result an annual dividend of nearly 10 per cent.

It will be observed that in the above estimate of revenue it is assumed that the cost of transportation on your road will be as great as on the Western road, which evidently will not be the case. And it is also assumed that the cost of the whole road to Portland will be two million pounds, currency, which is a much greater sum than it ever has been estimated to cost.

Applying as above the business results of the Western railroad for 1845 to your road, and assuming the cost of the road to £1,750,000, the net revenue gives a dividend of 11½ per cent.

I would further observe, that the Western road, in connection with the Boston and Worcester road, forms a continuous line from Boston to Albany of 200 miles in length, and its design is to secure to Boston the western trade. In its construction great obstacles were to be overcome. A mountainous section of country was to be crossed, requiring, as already stated, heavy grades and a large expenditure of money. This has been accomplished, and the experiment, for in this light it was viewed by many, has succeeded.

To give an idea of the formidable obstacles encountered, I would state, that one section of this road known as the mountain division, comprising a distance of 14 miles, cost £245,000, or £17,500 per mile, and a single mile cost £54,982. The total cost of the road up to Jan. 1, '46, was £1,999,888.

In its business it has to contend with a strong competition, with steamboats on the Hudson river, and another railroad. Notwithstanding these unfavorable circumstances, the gross receipts in 1845 were £203,370, and its net receipts for the present year, will probably equal a dividend of over 6 per cent. on its cost.

With reference to your road as a great thoroughfare; it occupies a most remarkable position connecting as it does the St. Lawrence and the Atlantic, at a point where the New England coast approaches the nearest to the western waters, and having a large and populous city at either terminus, with capacious harbors and a rich intervening country, it cannot fail to be one of the most important and profitable roads yet commenced.

From its peculiar position it never can be subject to competition. It is the shortest and cheapest channel through which the travel and trade of the provinces can reach the seaboard.

With a long natural and artificial communication connecting Montreal with the western waters and the far west, it cannot be doubted that the completion of this last link will change entirely the channel of trade, open new resources, and add vastly to the business of the public works of the province, and to the wealth and enterprise of the country through which it passes. To the city of Montreal it is of vital importance, situated as she will be at the foot of this long line of communication on the one hand and within 10 hours ride of one of the best harbors of the Atlantic coast on the other, she must unavoidably receive large accessions to her trade and commerce, and a vast increase of wealth.

In consequence of the limited time allow-

ed me before the general meeting of the shareholders, I have not been able to present so full and comprehensive a statement as the importance and magnitude of the undertaking demand.

Many subjects of importance have necessarily been omitted which it was my intention to have presented at this time. These will form the subject of a future communication.

In conclusion, I beg leave to refer to the appendix* of this report, for statistical information relative to the length; cost and revenue of the principal railways in the United States, and the effect of railways generally, in developing the resources and increasing the business and wealth of the country through which they pass.

I have the honor to be very respectfully,
your obedient servant,
A. C. MORTON,
Chief Engineer.

An Important Discovery.

How to remove a Spark or Cinder from the Eye.—

Every one who has travelled upon a railroad, has experienced more or less annoyance with the sparks, or cinders from the locomotive, which often lodge in the eye. A friend recommends the following very simple, but efficacious method for relief in such cases; and, having seen its operation, we present it to our readers.

Should the obstruction be in the upper part of the eye, take the eyelashes of the upper lid between the fingers of one hand, and draw it away from the eyeball, while with the other hand, press the lower row of eyelashes completely underneath, (between the eyeball and the upper lid,) closing the eye firmly, at the same inst. A little gentle working, to and fro, of the eyelid, with the finger—thus thoroughly lapped over each other—will immediately remove the obstruction. Should the cinder have lodged in the lower part of the eye, place the upper row of eyelashes in the same position, underneath the lower lid (as described above,) and the relief is certain.

This may appear simple, and so it is, but we recommend a trial of it, and charge nothing for the advice.

The Way to Make Money on Short Roads.
Holiday Traffic at Whitsunide on the Greenwich railway, during the years 1843, 1844, 1845 and 1846. The trains ran every five minutes, and at one period of the day, from nine to half past ten, trains were turned out in succession.—*Railway Chronicle.*

	1843.		1844.		1845.		1846.	
	Passen- gers.	Am't.	Passen- gers.	Am't.	Passen- gers.	Am't.	Passen- gers.	Am't.
Whit Sunday	9,650	597	15,495	323	20,314	420	20,958	426
" Monday	23,237	691	32,173	653	46,523	932	52,024	1,010
" Tuesday	11,190	330	21,776	459	34,312	701	27,391	554
" Wednesday	6,986	208	8,585	177	17,814	375	13,984	288
Total	51,063	1,527	77,972	1,613	118,993	2,431	114,431	2,270

* Appendix omitted.—*Ed. Railroad Journal.*

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

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The Gauge Question.

We have for some time past carefully abstained from saying much upon this vexed question, not because we had formed no opinion, nor because we considered the determination as of little consequence. The manner in which the discussion has been conducted has satisfied us that the case was not *broad gauge vs. narrow gauge*, but the *Great Western railway and its policy vs. the railways of Great Britain*; in short a local affair, and therefore in its details of trifling interest to us. Had the question been strictly a matter of width of gauge, its discussion would have been of the utmost importance to us, and valuable in its results—but even in the statistics brought forward by either party, there has been so much of unfairness, or rather unfitness, that we could hardly adopt them without note and comment sufficient to neutralize their effect, and withal weary our readers.

Still we do not mean to say that the width of gauge has nothing to do with the matter, nor that useful information has not been afforded as to the relative capabilities of the broad and narrow gauge. We contend that so many other real questions and interests have been included, that the determination could hardly be considered for us as much more than a matter of curiosity.

This determination we now have in the "minute" or report of the board of trade. This paper, which we give in part in this number, commences with a review of the report of the commissioners, with which our readers are well acquainted, [see R. R. J. for March 21 and 28, April 4 and 11: we have omitted this part, and have only given that which represents the views of the board of trade

The substance of the opinion thus given amounts to a restriction of the Great Western and its tributaries to a certain district—and for certain branch and connecting lines insists upon a narrow gauge, in addition to the broad one in use or in construction—the narrow gauge being compulsory, the broad allowed. This decision, if final, will sadly curtail the schemes of the Great Western, and finally, in all probability, compel the adoption of the narrow gauge as a means of self defence.

We have said that one of the parties in this contest was the Great Western and its policy, rather than its gauge. In proof of this we need but mention the fact that this "monster" company, as it would be styled in this part of the world, has interest, directly or indirectly, in lines amalgamated, leased, or now before parliament on its own application, to the number of twenty-seven, or thereabouts—involving an increase of liabilities to the amount of nearly £20,000,000 sterling.

In the various pamphlets which have been published pro and con., there is afforded considerable insight into the spirit of the company. One of these by *£ s. d.*, for a copy of which we are indebted to Mr. G. Ralston, has singularly confirmed our opinion formed upon a preceding review of the most

notable arguments on either side. The writer of this pamphlet asserts, and there is every reason to believe the assertion, that the affairs of the company are governed not so much by mercantile men, and upon mercantile principles, as upon a spirit of aggrandizement, and by a power behind the throne, and greater than the throne. "In accordance with this policy, we believe there are few directorates in which the letter book is more often consulted, and the ledger more seldom; few directorates in which the capacity of handling that potent weapon—the coat button of a member of parliament—is more highly prized." There certainly can be nothing more conclusive as to the false position of a company, than the constant attendance of one or more of its directors on the legislature engaged in the mysterious operations of "lobbying" or "log-rolling." There can be no policy more fatal than what might be called the diplomatic—for in the end, the diplomatist "fixes" the company pretty much in the same cunning way that he "fixes" the legislature. This, nine times out of ten, is the result of a crooked line of conduct so much admired by those who think it vastly more clever to tell a lie than to tell the truth.

If such has been the spirit of the Great Western, or rather its prime movers, [whoever they may be.] together with a desire to extend their dominions, rather than increase their revenue, we cannot feel any regret that the loss attendant upon this decision should fall upon them—our only regret would be for the innocent and powerless stockholders, who have been unwillingly or ignorantly led into such a crusade.

As we have said before, the real gauge question is hardly concerned, and as a proof of this, we refer to the report itself.

From the Railway Record.

My lords have proceeded to the consideration of this subject with a deep sense of the importance of the question referred to them, and of the responsibility under which they are placed in advising the course hereafter to be followed. It has been seen that the commissioners recommended—

"1st. That equitable means should be found of producing uniformity of gauge by reducing the broad gauge lines to the narrow gauge.

"2nd. That all public railways now under construction, or hereafter to be constructed, in Great Britain, shall be formed on the narrow gauge."

After long and anxious deliberation, my lords are unable, altogether, to concur with the commissioners in the full extent of these recommendations.

Adverting to the vast expense which must be involved in an entire alteration of the broad gauge, and having regard to the circumstances under which the companies employing this gauge were established, and to the interests they have acquired, my lords cannot feel themselves justified in recommending that it should be proposed to parliament to compel the entire reduction of the 7 ft. gauge. They feel, with the commissioners, "that they cannot recommend the legislature to sanction such an expense from the public monies," nor do they think that the companies to which the broad gauge railways belong can be called upon to incur such an expense themselves (having made all their works with the authority of parliament,) nor even the more lim-

ited expense of laying down intermediate rails for narrow gauge traffic.

Still less can they feel themselves justified in proposing that the expense of such alteration should be defrayed by a contribution levied, as has sometimes been suggested, on the rest of the railway companies in Great Britain; and they are unable to suggest any other equitable or practicable means by which the desired uniformity of gauge could be obtained.

The conclusion to which my lords have come respecting the reduction of the broad gauge on existing lines necessarily affects their opinion with regard to the future gauge of lines now in course of construction.

If the line now extending from London to Exeter be preserved on the broad gauge, and yet all the railways in connection with it from the south, for which acts have been obtained, are to be formed on the narrow gauge, then it is obvious that the inconvenience of the break of gauge will not only be continued, but will be increased in amount.

Assuming that an absolute uniformity of gauge cannot now be obtained, they feel that the only practicable course to be pursued is to endeavor to effect such a settlement of the gauges to be used on the several railways already sanctioned, and to lay down such general regulations for the future as will prevent the increase and further extension of an evil they cannot altogether remedy, and will reduce the inconvenience inflicted on the passenger and goods' traffic of the country within the narrowest attainable limits.

They would, therefore, recommend, that the lines for which acts have been obtained, but which have not yet been completed, to the south of the line from London to Bristol, should be permitted to be constructed on the broad gauge, as originally intended. They have had some difficulty in coming to a conclusive opinion on the case of the South Wales line. They are aware that strong arguments may be adduced in favor of requiring this line to be constructed on the narrow gauge; but, adverting to the great public importance of a continuous line of communication with the south of Ireland, and of a second line of railway communication from London to Ireland generally; and having regard to the value of a continuous line to Milford Haven, etc., for the furtherance of the public service; they are of opinion that, on the whole, it would be advisable that the South Wales line, together with its branch to Monmouth and Hereford, should, as originally sanctioned, be formed on the broad gauge.

In the last session of parliament an act was obtained for forming a line of railway from Rugby to Oxford. The act contained the following clause:

Chapter 188, § 35. "That as a commission has been appointed for inquiring whether provision ought to be made for securing a uniform gauge in the construction of railways, and for other purposes in reference to the mode of obviating impediment to the internal traffic of the country; if, in conformity with the report of the said commission, it

shall appear to the board of trade expedient that rails of the same gauge as the rails of the London and Birmingham railway should be laid down on the line hereby authorized between Oxford and Rugby, it shall be lawful for the said board to order and require that such railway upon the said gauge shall be laid down and maintained, and that the company hereby incorporated shall thereupon proceed with reasonable dispatch to execute the same to the satisfaction of the inspector general of railways for the time being; provided always, that nothing herein contained shall prevent the said company from laying down and maintaining, on the whole or any portion of the said line, rails of the same gauge as those now laid on the line of the Great Western railway."

It is their lordships' intention, in the exercise of the powers granted to them by this clause, to require that the narrow gauge rails shall be laid down from Rugby to Oxford forthwith.

They would, therefore, submit that it is not necessary to interfere with the construction of the line on the broad gauge, as authorized by the act.

In order to complete the general chain of narrow gauge communication from the north of England to the southern coast, they beg to repeat, with a slight variation, the suggestion of the commissioners, that "any suitable measure should be promoted to form a narrow gauge link from Oxford to Basingstoke," or by any shorter route connecting the proposed Oxford and Rugby line with the Southwestern railway.

With the same view they beg to suggest, that any suitable measure should be promoted for forming a narrow gauge link from Gloucester to Bristol, and so completing the general chain of narrow gauge communication between the manufacturing districts, the centre and north of England, and the port of Bristol.

The only line remaining for consideration is the Oxford, Worcester and Wolverhampton.

In the act by which the company was incorporated in last session, the following clause was inserted:

"That the said company hereby incorporated shall and they are hereby required to lay down and maintain, upon the whole extent of the railway hereby authorized, between the point of junction thereof with the said Grand Junction railway near Wolverhampton, as well as on the said branch railways, by this act authorized, to Kingswinford and Stake Prior aforesaid, such additional rails, adapted to the gauge of the said Birmingham and Gloucester and Grand Junction railways respectively, as may be requisite for allowing the free and uninterrupted passage, as aforesaid, of carriages, wagons and trucks passing to and from the said Birmingham and Gloucester and the said Grand Junction railways respectively, or from the last mentioned railway to the said Birmingham and Gloucester railway, or passing from one portion of the said Birmingham and Gloucester railway to another portion thereof, or to or from any intermediate place be-

tween the two said railways to the one or the other of them; and such additional rails shall be laid down and maintained, and used to the satisfaction and approval of the board of trade, and all necessary facilities and accommodations shall be afforded by the company hereby incorporated, or their lessees, for the convenient use thereof; and it shall be lawful for the said board at any time, on complaint made by any company or person interested in the question, that such additional rails have not been laid, or that such facilities or accommodations are not afforded, to order and direct the said company hereby incorporated, or their lessees as aforesaid, to adopt such regulations as they may see fit to require with reference to the laying down of such additional rails, or to the use of the said additional rails and other conveniences aforesaid, and for the purpose of securing such free and uninterrupted passage thereon as aforesaid."

It is their lordships' intention to exercise the power given to them in this instance, as in the case of the Oxford and Rugby line; and on the same grounds they would submit that it is not necessary to interfere with the construction of this portion of the line on the broad gauge in the manner authorized by the act.

And since they regard the break of gauge as a most serious evil, more especially in the conveyance of goods, they conceive that a continuous and a second line of communication between London and the district of Staffordshire, etc., must be regarded as of great value and importance. They accordingly submit that the line from Worcester to Oxford should be made, as proposed, on the broad gauge. They regret that a provision for the formation of a second line of rails was not inserted in the act affecting the portion of the line between Oxford and Worcester, in the terms of the clause regulating the portion lying between the Birmingham and Gloucester line and Wolverhampton; and they would recommend, that if it should hereafter appear that there is a traffic requiring accommodation on the narrow gauge between the Staffordshire districts and the southern coasts, any suitable measure should be promoted by parliament to form a narrow gauge link from the Birmingham and Gloucester line to Oxford, on the same grounds and in the same manner as the commissioners have recommended that it should be formed between Oxford and the Southwestern railway.

Having thus adverted in detail to the several railways now proposed to be constructed on the broad gauge, and already sanctioned by parliament, my lords beg leave to submit the regulations they would recommend to be observed for the future.

My lords do not feel themselves competent to give an opinion on the question alluded to by the commissioners of the merits of the 4 feet 8½ in. gauge as compared with any other among those that have been proposed.

In suggesting, therefore, (with some exceptions to be specified,) the adoption of the recommendation made by the commissioners, that the "4 ft. 8½ in. gauge should be declar-

ed by the legislature to be the gauge to be used in all public railways hereafter to be constructed in Great Britain," they do not conceive that any declaration on this point should be understood as positive and final. The working of the wider gauge established in Ireland, and the future history of railways in other countries, may possibly prove the superiority of some other and intermediate gauge; while the advance of science and the course of experience may point out a practicable method of altering an existing gauge, and of easily effecting a great operation which is now generally conceived to be so costly and so difficult as in truth to be impracticable.

With this explanation, my lords beg to recommend, that no line shall hereafter be formed on any other than the 4 ft. 8½ in. gauge, excepting lines to the south of the existing line from London to Bristol, and excepting small branch lines of a few miles in extent, joining the Great Western railway, and conveying to it the traffic of places in its immediate vicinity; and they further recommend, that no bill for any such line as above excepted shall be passed by parliament unless a special report shall have been made by the committee on the bill, setting forth the particular reasons which have led the committee to advise that such line should be formed on any other than the 4 ft. 8½ in. gauge.— They concur, also, with the commissioners in recommending that, unless by the consent of the legislature, it shall not be permitted to the directors of any railway company to alter the gauge of such railway. In conclusion, my lords beg leave to recapitulate the suggestions they have felt it their duty to make:

1. That no line shall hereafter be formed on any other than the 4 ft. 8½ in. gauge, excepting lines to the south of the existing line from London to Bristol, and excepting small branches of a few miles in length, in immediate connection with the Great Western railway; but that no such line as above excepted shall be sanctioned by parliament, unless a special report shall have been made by the committee on the bill, setting forth the reasons which have led the committee to advise that such a line should be formed on any other than the 4 ft. 8½ in. gauge.

2. That, unless by the consent of the legislature, it shall not be permitted to the directors of any railway company to alter the gauge of such railway.

That in order to complete the general chain of narrow gauge communication from the north of England to the southern coasts, and to the port of Bristol, any suitable measure should be promoted to form a narrow gauge link from Gloucester to Bristol, and also from Oxford to Basingstoke, or by any shorter route connecting the proposed Rugby and Oxford line with the Southwestern railway.

4. That the South Wales line and its branches to Monmouth and Hereford should be permitted to be formed on the broad gauge as sanctioned by their act.

5. That the Rugby and Oxford line, and the Oxford, Worcester and Wolverhampton

line, should be permitted to be formed on the broad gauge, as sanctioned by their acts:— that the lords of the committee of privy council for trade shall exercise the powers conferred upon them by the several acts, and shall require that additional narrow gauge rails shall forthwith be laid down from Rugby to Oxford, and from Wolverhampton to the junction with the Birmingham and Gloucester line: and that if it should hereafter appear that there is a traffic requiring accommodation on the narrow gauge from the Staffordshire districts to the southern coast, any suitable measure shall be promoted by parliament to form a narrow gauge link from Oxford to the line of the Birmingham and Gloucester railway.

Mathematics as a Branch of Professional Study.

Engineering and Architectural Geometry.

The consecutive development of geometrical truths, depends mainly upon the mode in which we start from our first principles. The simplicity of the leading principles is the main object to be kept in view; and these have been proved, by the total failure of numberless attempts at alteration, to be given in the best possible form (always abating some trivial matters of detail) by Euclid himself. Even Legendre, the most logical, and Leslie, the most imaginative of all the authors who have attempted to supersede the Alexandrian, have still been compelled to keep too close to the antique model, to justify the anticipation that theoretical geometry will ever put on a face which has not a striking likeness to her present one. Few suggestions of any consequence can be made to the student, as to his acquisition of the theory of geometry, beyond what have already been offered.

We have before expressed our estimate of the delicacy, refinement and subtlety of Euclid's treatment of the doctrines of ratio and proportionality. There is not to be found in the whole range of modern analysis anything more remarkable and more recondite in its conception than the fifth book of the "Elements." Yet were we to advise a material departure from Euclid's plane geometry in anything, in our address to our present readers, it would be with respect to this book. It is too abstract to be intelligible to the generality of minds under every circumstance of education and social idea; and hence its force is seldom felt and its beauty rarely appreciated by those who read it. Besides, the same truths may be deduced in a much briefer manner; and that manner much more nearly assimilated to the ordinary conceptions which we have been led, in early life, to form of ratio. Certainly the most familiar idea we have of ratio is that of the *number of times* that one magnitude is contained in another of the same species; and this brings us at once to view the doctrine as one of number, and at the same time places it in the domain of pure algebra. It is thus that Legendre views it, and in his *geometrie* he does not even consider it necessary to lay down the fundamental doctrines of proportion. For an *academic education*, in which the main value of any geometry is the training of the

mind to habits of close and difficult reasoning, we should most rigidly adhere to Euclid's method; though we should deem it necessary to offer much explanation and illustration of a kind not usually afforded to academic students; yet in reference to the studies of practical men, we do most decidedly advise the adoption of the more compendious, and more easily intelligible processes that algebra furnishes for establishing the same truths. Nor do we thus advise upon a hasty opinion; for we have thought much upon this matter.

The principal objections brought against this proceeding are:

1. The *impurity* which is introduced into geometrical science; and
2. The difficulty of dealing with incommensurable quantities.

As to the first objection, we have already expressed our conviction of the arbitrary character of the canons which decide upon the purity or impurity of a process. We are not as reasonable men bound by such canons; and are as much at liberty to form our own, as Euclid was to form his. We are only bound to reason validly; and that which constitutes an irrefragible proof, we are at full liberty to be satisfied with. As professedly orthodox geometers it is quite another matter—and if we range ourselves under the banners of the school, we are bound by all its dogmas, and trammelled with all its rules. It is, however, the validity, and not the form, of the demonstration that concerns us.

It does, indeed, almost appear that Euclid himself viewed the doctrine of ratio to be a less purely geometrical one than that which governed the composition of the first four books. On what other principle can we account for the laborious construction of *ii. 11*, and the complicated demonstration of *iii. 35, 36*, which admits of extremely brief and elegant treatment by means of proportionals? The neat inscription, too, of a pentagon, by the method of Ptolemy, had been excluded from general knowledge till Bonycastle, some seventy years ago, demonstrated that construction independently of proportionality.

With respect to the general objection, it is now, whatever it may have been formerly, an argument out of date. There is really no truth in the statement that the doctrine of ratio in respect to incommensurable quantities is either difficult or complex. However, before the student, who shall follow our suggested course, *ab initio*, shall have arrived at this subject, and have studied the algebraic theory of ratio in respect of commensurable quantities, we shall have laid before him, (in one of this series of papers) a sufficiently ample and complete discussion of the particular difficulty to which we refer. We might have done it at this moment, but that we are desirous of first giving him a general view of the character of the subjects, and especially their application, to which we would direct his attention.

It has been already said that Euclid's constructions had not the least reference to practical convenience of operation, nor to the contingencies of circumstances under which a problem may require solution. He never

considered that one part of his operations might fall without his drawing board, nor that several lines which may be rendered effective in the construction might have already existed in a diagram. All his processes as far as his purpose rendered them necessary, "begin with the beginning;" his lines and his planes are extended, or extensible by postulate, *ad libitum*; his data may have relative positions that render the *physical* solution absolutely impracticable. His only discrimination of cases is that in which the description of the process becomes varied by means of special relations among the data; and for the most part he makes each of such cases into a separate proposition, and gives the requisite general construction of each—as, for instance, in proposition 9 and 11 of book i.

Most writers, who have professed to treat of practical geometry, have felt the necessity of departing from these restricted rules of construction; and of the easier and more familiar class of problems, they have given these *exigentia cases*, and their constructions. In this they have done wisely; but the extent to which, for the most part, they have carried out this plan is extremely limited.—Perhaps, in the construction of perpendiculars, parallels and circles, little is left to be done: but it ought to be remembered that these processes, though of constant occurrence, are not the only ones that present themselves in practice. Nor is mere plan drawing composed entirely of such processes in plane geometry as are to be found in any theoretical work on the subject. Neither, again, is the whole of the engineer's drawing to be performed upon paper. An important portion of it is to be done in the field, upon a scale so large that the character of the instruments must be changed, and consequently the processes themselves must undergo a total constructive change; and, moreover, no small number of operations are necessary, and many more would be desirable, to be performed upon other than plane surfaces, as upon cones, spheres, cylinders and surfaces of revolution generally. For these operations no systematic instructions are to be found in English works, beyond an occasional, and oftentimes erroneous and empirical device that has been, for ages, handed down as a professional heir-loom among the "secrets of art." To supply these demands, the highest order of geometrical skill is required: but of this hereafter.

In speaking of Euclid's problems we have in a modified degree given the character under this aspect of all the ancient writings on geometry, though still in a sense that requires considerable modification. Many of the efforts of the Alexandrian school were directed towards the solution of certain problems—two principally—the trisection of an angle, and the duplication of the cube. Failing to effect these according to the canons of that school, by means of the straight line and circle; yet in their researches they were led to the discovery of properties in geometrical figures of the highest speculative interest, and to the solution of problems of the utmost

value even in our own day. We may instance the treatises of Apollonius especially, on the problem of tactions, the section of ratio, and the section of space.*

It was found in their analyses that so ma-

* A very neat and succinct account of the ancient books, written with the purpose of facilitating the geometrical analysis, is given in the notes to Leslie's work on that subject, which we subjoin. A tolerably full account of the mathematical collections of Pappus may be consulted under that word in Hutton's Mathematical Dictionary.

1. The *Data*—in a single book of considerable length, but containing propositions only of the very simplest kind.

2. The *Section of Ratio*—in two books, which Dr. Halley, with much sagacity and incredible labor, restored, from a manuscript in the Bodleian library. The object of the tract was a solution of this problem, branched out in a multitude of cases, and marked out in various limitations: "through a given point to draw a straight line intercepting segments on two straight lines which are given in position from given points and in a given ratio."

3. The *Section of Space*—in two books. Of these no vestige remained, but Dr. Halley, guided by a few hints from Pappus, very successfully exerted his ingenuity in divining the original structure. It was proposed: "through a given point to draw a straight line cutting off segments from given points on two straight lines given in position, and which shall contain a rectangle equal to a given space."

4. The *Determinate Section*—in two books. These were also lost; but Dr. Simson, assisted by the attempts of Schooten, has restored them in the most luminous manner. Their object was: "to find a point, the rectangles or squares of whose distances from given points in the same straight line, should have a determined ratio."

5. *Inclinations*—in two books. It was proposed: "to insert a straight line, of a given magnitude, and tending to a given point, between two lines which are given in position." This problem was restored by Marinus Ghetaldus, a patrician of Ragusa; and other investigations were given by Hugo d'Omerique, in his ingenious treatise on geometrical analysis, printed at Cadiz in 1698. Two solutions of the case of the rhombus, remarkable for their elegance, appeared in the posthumous works of Huygens, who was imbued with the finest taste for the ancient geometry.

6. *Tangencies*—in two books. Of this tract only some lemmas were preserved, which enabled the celebrated Vieta in a great measure to restore it.—Some of the cases which had escaped him were solved by Marinus Ghetaldus; and farther improvements were made in 1612, by Alexander Anderson, of Aberdeen, an ancestor of the Gregoryses.

7. *Plane Loci*—in two books. The object was: "to find the conditions under which a point, varying its position, is yet confined to trace a straight line or a circle given in position." This beautiful train of investigation was partly restored by Schooten in 1650, though after a sort of algebraic form. The ingenious Fermat succeeded in bestowing greater simplicity on the subject. But all these attempts have been eclipsed by Dr. Simson, whose treatise, *De Loci Planis*, published at Glasgow in 1749, is a model of geometrical strictness and elegance.

The six preceding branches of analysis were all the creation of Apollonius of Perga, the most assiduous and inventive of the Greek geometers.

8. *Porisms*—in three books, composed by Euclid. No trace of these now remains, except some obscure hints of Pappus, rendered still more perplexed by the corrupt and mutilated state of his text. The subject has long proved an enigma which it baffled the effort of the ablest and most learned mathematicians to unravel. Fermat advanced some steps: but the honor of completing the discovery was reserved for our countryman, Dr. Simson, whose restoration of the Porisms was given to the scientific world in 1776, in a posthumous volume, printed at the expense of the late Earl Stanhope. From that work I have extracted what seemed best suited to my purpose; and I have likewise availed myself of the judicious remarks and illustrations of my late distinguished and most lamented colleague, Professor Playfair.

ay, respecting almost every kind of subject, ultimately resolved themselves into one or other of these problems, that the geometer of Perga was led to examine all the separate cases to which the relative positions of the data gave rise. These problems were thus placed in the same category with the simpler ones that occur in Euclid's elements, as so many stations at which the labors of the geometer may terminate, without retracing his steps back to the earliest problems of the geometrical series. Several of these problems have, however, subsequently received much more concise and elegant solutions. The problem of tactions especially has been treated with great simplicity and beauty by several foreign writers, by employing the method of centres of similitude and radical axes—and the remarkable discussion of it by Steiner, in the 17th volume of Gergonne's *Annales*, leaves nothing more to be done on this subject. That most able geometer, the late Mr. Swale, of Liverpool, too, in his "Geometrical Amusements," has reduced the whole of the problems of Apollonius to one more general, and of singular beauty. Sir John Leslie, in the work quoted in the preceding note, has also discussed the principal cases of the Apollonian problems with his characteristic originality; but in one or two of them he has committed oversights somewhat grave. Elegant solutions on the Lesliean principle, in which those defects are entirely removed, have been furnished by an able geometer of our own day, Mr. Godward, of the Nautical Almanac office, Gray's Inn.

The researches of the ancients concerning the conic sections, were carried to a great extent. Still the spirit of those researches was precisely similar to that of Euclid's Elements. No more of the practical was brought into play than was absolutely necessary in aid of demonstration; and hence the same remark applies to the great work of Apollonius on this subject, that applies to the "Elements" in simple reference to practical rules of construction. Neither is his classification of properties a convenient one, even for theoretical purposes; and it has therefore been altogether superseded by more modern works even under this aspect. Few men, indeed, now living, have ever looked into Apollonius; those only, indeed, who have been led by their tastes to devote a more than usual attention to these curves under a strictly geometrical form. It cannot be denied, however, that in modern practical as well as more modern theoretical science, the conic sections are the most important of all the subjects of geometrical study. We need not point out how frequently they present themselves for study and construction in the most familiar operations of our profession. But we feel called upon to express our entire condemnation (whether in respect of a liberal or of a practical education) of the system of study which substitutes an analytical treatment of these curves for a strictly geometrical one. We shall, however, have occasion to revert to this subject in our paper on the recent "Cambridge Graces." We also feel bound to enter our caveat against any system of develop-

ing the properties of these curves, which does not start with some fundamental property of the intersection of the plane and cone. Boscovich appears to have been the first to depart from the usual method in this respect. He has been followed by (Thomas) Newton and Hustler in Cambridge, and by Sir John Leslie of Edinburgh, among geometrical writers on the subject; while the great majority of those who have composed treatises on the "analytical system," have adopted the method of Boscovich. All distinct geometrical ideas of the curves are however, rendered difficult to attain, and in most cases impossible, by this method; while, in the end, very little, if anything, in point of time is gained, to compensate for this vagueness of apprehension. Why, then, adopt it? Little other of reason, we think, can be given than the vanity of being as "unlike as possible to the common works on the subject."

Our present notice of the conic sections being intended to have a practical bearing, we, therefore, as a general rule, advise the study of only the *general properties* of these curves, together with those peculiar ones that have an immediate influence upon the construction of the curves themselves, and the solution of *problems* relating to them. For this purpose, the method of *transversals*, (the first attempt to systematise which was made by Carnot, though the first application of the principle to constructive purposes was doubtless made by the great architect and geometer, Desargues, of Lyons,) appears to be by far the best adapted. Many foreign writers have developed the properties and constructions of the conic sections under this aspect; but we do not recollect to have seen any English work in which the method has been employed, except the last edition of Hutton's Course, in which it is treated with some degree of amplification, though still not so completely as we could desire. The student, however, who shall have studied the chapters devoted to this subject with due care, will find himself in a condition to carry on any subsequent research that may offer itself without difficulty. In fact, we conceive that the true business of elementary books is not so much that they should contain every property of a figure, as that they should put us in possession of the principles, and engender a habit of self-dependence, that shall enable us to follow out the minute details and applications for ourselves.

Of the organic description of the conic sections we have little to say, beyond, that an instrument for the purpose, generally is yet a desideratum. We do not wish to be understood to speak slightly of many inventions for this purpose. As far as the ellipse is concerned, considerable mechanical ingenuity is displayed; but as our own wants have led us to examine with care the operation of all the instruments that have come to our knowledge, we have had that kind of experience which still forces us to say that a really serviceable elliptograph is itself still a desideratum. We still, as a general rule, prefer, both for facility and accuracy, the method of constructing by points, and trusting to our

manual readiness for tracing the curve. Others may judge differently: but such is our own feeling on this head. It is, strictly speaking, a personal question—one of experience and convenience—and one in which every draughtsman is entitled to decide for himself. If however, we concede the perfection of the elliptographs in present use, we must not fail to remind the reader that no one of them is applicable till we have found two conjugate diameters, nor generally, till we have found the principal diameters. Suppose then, the five conditions which determine an ellipse to be any whatever, (cases the most frequent in extended practice,) is it not obvious that a considerable amount of preliminary and often intricate construction becomes essential for the determination of these diameters? All this must be done before any elliptograph can be brought to bear on the solution; and this will often cost far more labor, and involve a greater number of marks and lines on the paper than the construction of twenty points in the curve would require. Besides this, whatever errors might be committed in these operations for finding the diameters they would all be accumulated in the terminal result, and tend to modify the general curve; while, in constructing by points, the result of each error would affect, by its own amount only, the one point thus independently determined. A better estimate can thus be made of each separate error (and if necessary, due allowance for it) than when all these errors are combined in one final result, such as would be inevitable when we employ the instruments in question.

After all, let it be remembered that the parabola and hyperbola are yet unconstructed by organic processes which anyone can for a moment suppose to be usable, much less convenient. Yet these curves are surely required in architecture and engineering.

We feel, therefore, fully justified in advising the method of constructing by points.—Many systems for this purpose have been proposed; but probably the use of the "mystic hexagram" of Pascal, is one of the simplest forms under which the method can be propounded. Newton's revolving angles, too, have met with favor amongst several French geometers; and the method has been ably and amply discussed by Leslie. The methods of Maclaurin and Braikenridge were simply an application of Pascal's principle; but it has been reserved for the modern French writers, especially Brianchon, to fully develop the method. His *Application de la Theorie des Transversales* (1818), and his *Memoire sur les lignes du second ordre*, (1817,) will repay the study of every practical man.

With plane geometry and the conic sections, the geometrical splendor of the Greeks terminated. Their conceptions of the geometry of space was somewhat confused, and their researches in this department of science were extremely limited. Upon this subject we must postpone our remarks till a future number of the *Miscellanea*.

The railroad between Northampton and Greenfield will be completed in all this month to Bloody Brook—8 miles this side of Green-

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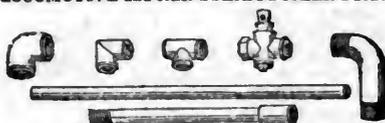
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	INCH.	LBS.	OZ.	INCH.	LBS.	OZ.	LBS.	INCH.		
11	4 1/2	13	5	10	2 1/2	-	50	15-16	20	
13	4	8	3	8 1/2	16	-	27	11-16	13 1/2	
14	3 1/2	6	11	7 1/2	12	8	17	9-16	10 1/2	
15	2 1/2	5	2	6 1/2	9	4	13 1/2	1-2	7 1/2	
16	2 1/4	4	3	6	8	8	10 1/2	7-16	7	

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Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, 1y10 near Third,

below Walnut, Philadelphia.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merriitt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

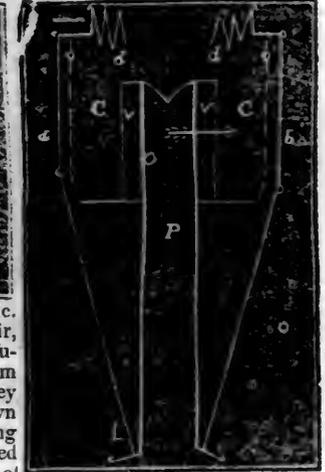
These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chitenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

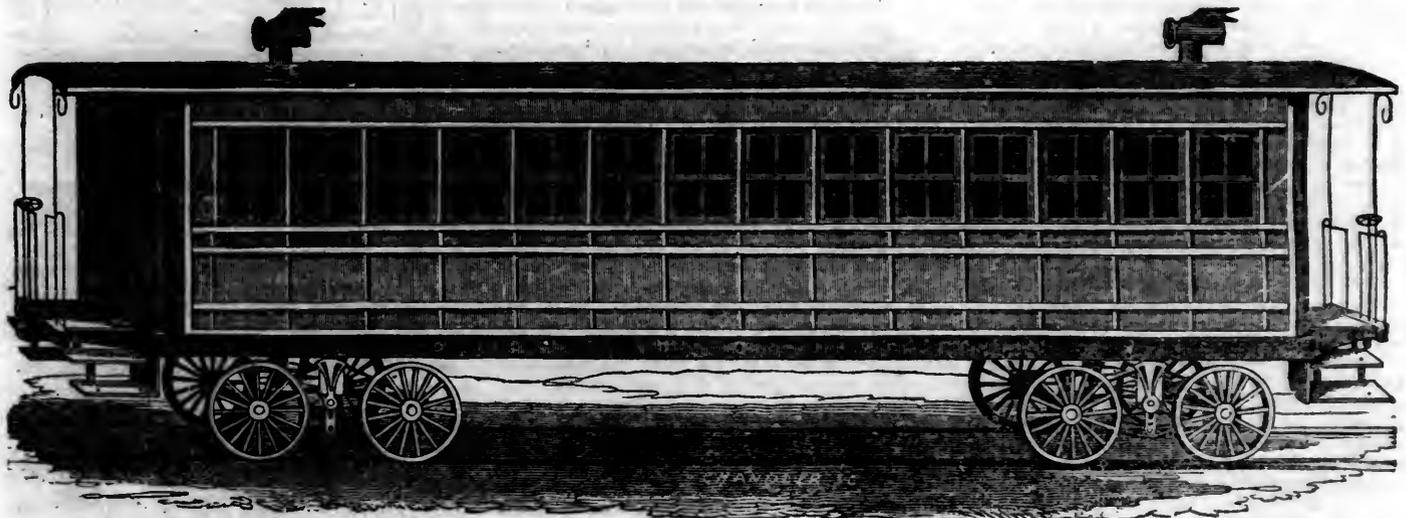
Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD. N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45



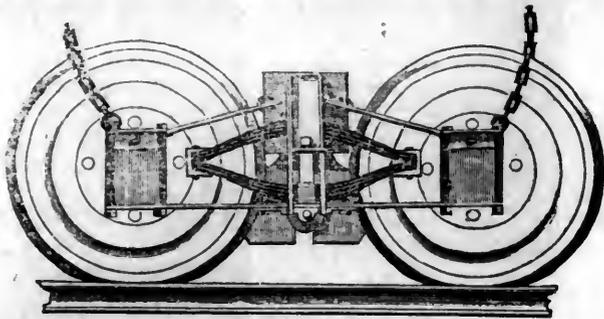
BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes. 1v1

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Supt Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

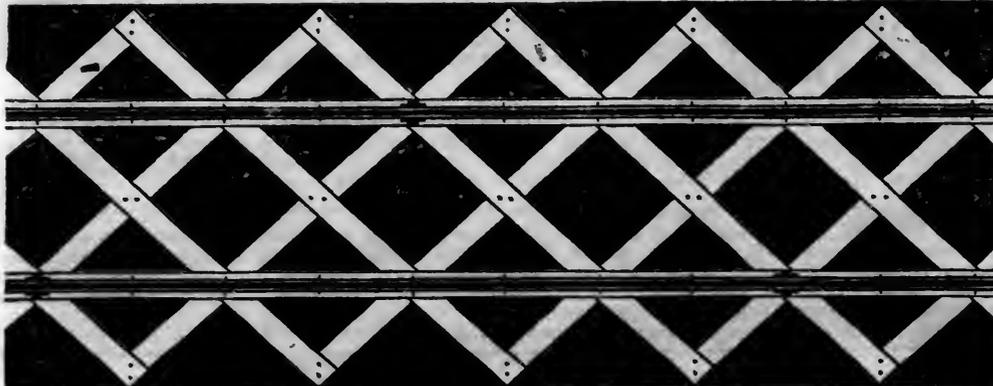
Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Supt Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY Superstructure effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,500 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

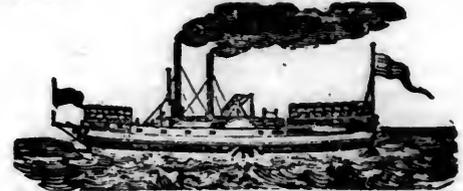
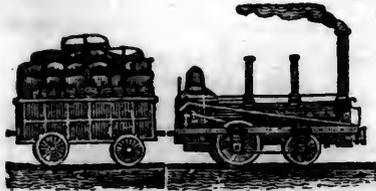
One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
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One column ".....	8 00
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ENGINEERS and MACHINISTS.

- THOMAS PROSSER, 23 Platt St. N. Y. (See Adv.)
- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM and GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- PHENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 34]

SATURDAY, AUGUST 22, 1846.

{WHOLE No. 531, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.
Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4¼ p.m.
Dedham trains, leave Boston at 8 a.m. 12½ m., 3¼ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.
Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3¼ p.m.
All baggage at the risk of the owners thereof.
31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD and STAGES Connecting with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4¼ p.m. Leave Worcester, at 10 a.m., and 4¼ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich. New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4¼ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 32 ly J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:
Boston for Portland at 7½ a.m. and 2¼ p.m.
Boston for Great Falls at 7½ a.m., 2½ and 4¼ p.m.
Boston for Haverhill at 7½ and 11½ a.m., 2½, 4¼ and 6 p.m.
Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4¼, and 8 p.m.

Portland for Boston at 7½ a.m., and 3 p.m.
Great Falls for Boston at 6½ and 9½ a.m., and 4¼ p.m.

Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m.
Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that *personal* Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, *Sup'r't.*

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams' Bridge trains will be regulated according to the state of the weather. 18

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A. M. and 4 P. M.
" Middletown at 6½ A. M. and 5½ P. M.
FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steambot.

FOR FREIGHT—
Leave New York at 5 P. M.
" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, *Sup't.* March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 lf

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced. 1846.. Spring Arrangement.. 1846

Commencing April 1st.

Passenger trains leave daily, Sundays excepted—

Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6½ " and 2½ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6¼ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12¼ m.

Leave Albany at 6½ a. m., arrive at Springfield at ¼ m., dine, leave at 1¼ p. m., and arrive at Boston 6¼ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8¼ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES,
Superintendent and Engineer.
Western Railroad Office,
Springfield, April 1, 1846. } 14 ly

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/4 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/4 a.m. and 4 1/4 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail—which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/4 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/4 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

TROY AND SARATOGA RAILROAD.
THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/4 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug. 3, 1846.

1y 32

THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00
" " Sandusky to Buffalo, Cabin..... 6 00
" " " " " " Steerage.... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, *Supt, etc.*
M. & S. C. R. R. Co.

Sandusky, Ohio.

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,** Agents.

Corner of Cedar and Greenwich Sts. 48 1y

NEW RAILROAD ROUTE FROM Buffalo to Cincinnati.

Passengers destined for Columbus and Cincinnati, O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance..... 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance..... 56 "
Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 "
Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

TIME.
From Buffalo to Sandusky..... 24 hours.
Leave Sandusky 5 a.m. to Columbus.... 14 "
From Columbus to Cincinnati..... 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.
From Buffalo to Sandusky, Cabin.....\$6 00
" " " " " " Steerage..... 3 00
" Sandusky to Columbus..... 4 50
" " " " " " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, *Supt, etc.*
M. & S. C. R. R. Co.

Sandusky City, Ohio.

BALTIMORE AND OHIO RAILROAD.

MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7 1/4 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

RAILROAD IRON.

80 Tons 2 1/4 x 1/4 Flat Bar Railroad Iron.
50 " 1 1/4 x 1/4 " " " "
" 8 " 2 1/4 x 1/4 " " " "
15 " 1 x 1/4 " " " "
with Spikes and Plates, for sale by
A. & G. RALSTON & CO.,
4 South Front st., Philadelphia.

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:

Leaves Baltimore at.....9 a.m. and 3 1/2 p.m.
Arrives at.....9 a.m. and 6 1/2 p.m.
Leaves York at.....5 a.m. and 3 p.m.
Arrives at.....12 1/2 p.m. and 8 p.m.
Leaves York for Columbia at...1 1/2 p.m. and 8 a.m.
Leaves Columbia for York at...8 a.m. and 2 p.m.

FARE.
Fare to York.....\$1 50
" Wrightsville..... 2 00
" Columbia..... 2 12 1/2
Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg..... \$9
Or via Lancaster by railroad..... 10
Through tickets to Harrisburg or Gettysburg... 3
In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5 1/2 p.m.
Returning, leaves Owing's Mills at.....7 a.m.
D. C. H. BORDLEY, *Supt.*
Ticket Office, 63 North st.

LXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.
Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.
On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.
The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50
Fare through from Charleston to Huntsville, Decatur and Tusculumbia..... 22 00
The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.
1y25 JOHN KING, Jr, *Agent.*

CENTRAL RAILROAD-FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—
On weight goods generally... 50 cts. per hundred.
On measurement goods..... 13 cts. per cubic ft.
On brls. wet (except molasses and oil).....\$1 50 per barrel.
On brls. dry (except lime)... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.
On molasses and oil.....\$6 00 per hhd.
Goods addressed to F. WINTER, Agent, forwarded free of commission.
THOMAS PURSE,
40 Gen'l. Supt. Transportation.

MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, *Civil Engineer,* Pittsburgh, Pa.
These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.
2v19 1y

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 1y1

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.
AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot.....16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs.....95 "
" Sugar, coffee, iron, hardware, etc.....65 "
" Flour, bacon, mill machinery, grindstones, etc.....33 1/2 "
" Molasses, per hogshead \$9-50; salt per bus.20 "
" Ploughs and cornshellers, each.....75 "
Passengers \$10-50; children under 12 years of age half price.

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
Ch. Eng. and Gen. Agent.

Augusta, Oct. 21 1845 *44 1y

LITTLE MIAMI RAILROAD.—1846.—
Summer Arrangement.

Two passenger trains daily.

On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1 1/2 p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m.

On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m.

Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.

Tickets may be procured at the depot on East Front street.

The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount.

W. H. CLEMENT,
Superintendent.

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4 1/2 P.M., Philadelphia at 10 P.M., and Baltimore at 6 1/2 A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00
" " " Richmond.....6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to 1y14 STOCTON & FALLS, Agents.

MARAMEC IRON WORKS FOR SALE.

By Authority of a power of Attorney from Messrs. Massey and James, I will sell at Public Auction, at the Court House in the city of St. Louis, on MONDAY, the 2nd day of November next, the above named valuable IRON WORKS—together with 8,000 ACRES OF LAND, more or less, on which there are several valuable and productive Farms open and in cultivation.

The Maramec Iron Works are situated at the Maramec Big Spring, in Crawford Co., Mo., and consist of 1 BLAST FURNACE; 1 AIR FURNACE; 1 REFINING FORGE, with large Hammer for making Blooms and Anchovies; 2 CHEFFERY FORGES for Drawing Bar Iron; 1 ROLLING MILL for Rolling Blooms into Bars and Plates; 1 SAW AND 1 GRIST MILL,

All within 300 Yards of the head of the spring. There are 2 large frame Coal Houses, and all other Buildings necessary, such as Shops and Houses for the workmen.

This Spring is one of the largest in Missouri, discharging at the lowest time 7,000 cubic feet of water per minute. The Ore Bank from which the Ore has been heretofore taken is about 600 yards from the furnace; it is the Specular Iron Ore, the best for making Bar Iron, and the quantity inexhaustible.—It is an Iron Mountain, 400 feet above the level of the Maramec River; the ore is entirely uncovered, and there is an easy descent and a good road from it to the furnace.

The lands have been carefully selected by one of the owners with a view to the interest and convenience of the Works, and are situated principally on the Maramec River and its tributaries, embracing the best bottom lands and water powers. The following detached tracts, comprized in the above quantity, were selected for the advantages they possess;

183 1/2 ACRES in T. 40 N. of R. 8 W. in Sec. 3, near Wherry's Mill, in Osage Co.; entered to secure a very valuable Mill power on the Branch Spring and a good landing on the Gasconade River.

80 ACRES on Benton's Creek, 12 miles from the Works; entered to secure an extensive and valuable Ore Bank 2 1/2 miles from the Maramec, at a point where there is ample water power.

320 ACRES in T. 38 N. of R. 4 W. in Sec. 22 and 28, affording an extensive and valuable water power on the Maramec river.

160 ACRES in T. 37 N. of R. 3 W. in Sec. 4, embraces two inexhaustible and valuable Ore Banks and is 1 1/2 miles from Water power sufficient for a furnace and Grist Mill, and is distant 6 miles from the above site on the Maramec.

80 ACRES in T. 37 N. of R. 8 W. in Sec. 33, including an extensive bank of excellent Ore, and distant 1 1/2 miles from water power on the waters of the Gasconade River, in Pulaski Co., sufficient for Furnace and Mills. All those Banks are of the same kind as the one at the Works, and deemed inexhaustible.

1 LOT, containing nearly one Acre, on the South Bank of the Missouri River, 4 Miles above the town of Hermann, purchased for a warehouse and landing, and is one of the best landings on the River.

The lands above described are well timbered, and have been selected with a view to have an ample supply of wood and coal, for fences, building and other purposes. There are on the land valuable quarries of Limestone well adapted for Fluxes for the Ore, and also good quarries of Rock suitable for building. There are also on the land a great number the finest kind of Springs. A large portion of the lands are bottoms well adapted to the production of Corn and other crops. The Works are situated in a very pleasant and healthful part of the country. The Maramec ore is believed to be admirably adapted to the manufacture of steel.

A further description of the property at this time is considered unnecessary, as those wishing to purchase will no doubt view the property, which will be shown by the Agent, residing at the works.

The terms of payment required will be one-third of the purchase money in hand and the balance in three equal annual payments, secured by mortgage on all the property.

A more particular description of the property will be given, and further conditions of the sale made known, on the day of sale.

Jno. F. ARMSTRONG, Agent.

St. Louis, June 6, 1846.

The Louisville, (Ky.) Journal, Cincinnati Gazette, Tribune (Portsmouth, O.), Nashville Whig, Pittsburg Gazette, National Intelligencer, United States Gazette, (Phila.) Railroad Journal (N. Y.), and Boston Atlas, will publish the above once a week until the 20th day of October next, and send bills to this office for settlement, and mark price on first paper. 18:25

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st. Office, No. 3 North 5th street, Philadelphia, Pa. 1y25

RAILROAD IRON—1700 TONS VERY Best English Rails, ready to be delivered.—These Rails weigh 60 lbs., the lineal Yard, are 3 1/2 inches deep; 4 inches deep at base; 2 1/2 inches wide at top; 17 1/2 feet long, except one-tenth of 15 and 12 1/2 feet in length.

A first rate Steam Pile Driver built by "Dunham & Co.," has never been in use, is in perfect order, and for sale a bargain; also 12 Railway Passenger Cars that have never been used, which will be sold very low.

DAVIS, BROOKS & CO.,

June 1. 30 Wall Street.

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,

45 North Water St., Philadelphia,

or by their Agent, ROBT. NICHOLS,

79 Water St., New York. 28:1f

THE SUBSCRIBERS, AGENTS FOR the sale of

Codorus, Glendon, Spring Mill and Valley } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L. KIMBER, & CO.,

59 North Wharves,

Jan. 14, 1846. [1y4] Philadelphia, Pa.

BOILER IRON.—55 TONS ASSORTED Boiler Iron, Nos. 3, 4 and 5; and of widths of 26, 32 and 36 inches, random lengths, in store, and for sale by A. & G. RALSTON & CO., 1m30 4 South Front st., Philadelphia.

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street



RICH & CO'S IMPROVED RED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATAILÉ.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed,)

W. M. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,

138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

CUSHMAN'S COMPOUND IRON RAILS etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer, Albany, N. Y.

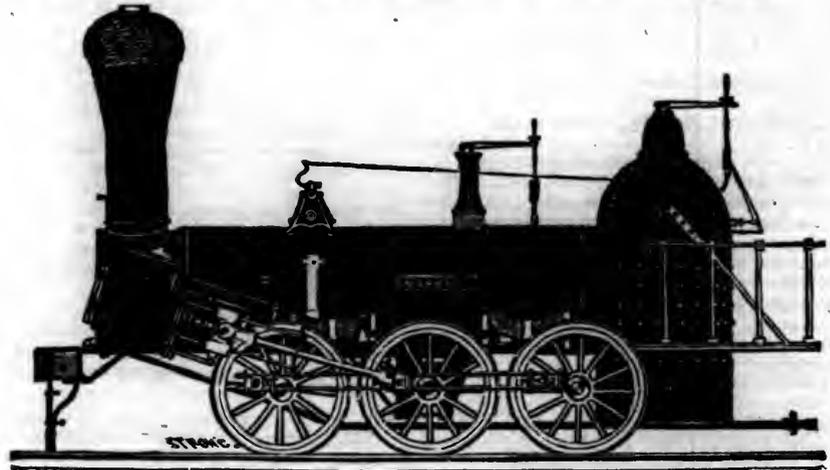
Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON 4 South Front St., Philadelphia. Mar. 20th

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY, President of the Newcastle Manuf. Co.

NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

Dampness in Buildings.

Its Causes and Consequences, and the Means of Preventing it.—[Translated from the *Magazin Pittoresque*]*

Dampness penetrates into the lowest floor of buildings either from the soil itself or by means of the foundation walls; it frequently arises also from rain beating on the surface of the exterior walls.

The influence of the different causes of dampness varies according to the nature of the soil or climate, the aspect in which the houses are built, the materials employed in their construction, and the different modes of construction. To get rid of humidity in the lowest story, it is ordinarily supposed, that all that is required is to elevate the foundations within the building above the level of the external soil; but if no other precautions were employed, this super-elevation would not diminish the dampness which rises from the earth itself, and that from the walls would be very imperfectly remedied, supposing the buildings constructed without cellars.

Among the numerous bad consequences of dampness we must reckon as the principal its unhealthiness, and its destructive effect on almost every thing subjected to its action; it causes plaster to fall, ceilings and floors to decay, paint to peel off, paper to become rotten: furniture, pictures and books are rapidly injured by it, and even the materials of the walls themselves undergo a gradual alteration which diminishes their solidity.

A constant moisture is not however necessarily destructive to buildings built of stone: stones laid in the ground although constantly immersed in water, will remain uninjured; although this will not be the case where the stone is exposed by turns to dryness, moisture, and frost.

It is a common expression that damp always rises: and it might thence be supposed that moisture, in order to affect a hygrometric body, must come from below it, whereas in reality moisture is also diffused downwards, horizontally, and in every other direction. Now the materials ordinarily employed in building, wood, brick, rubble, and stone of every kind, including even marble and granite, are more or less hygrometric; that is to say, if carefully weighed after having been immersed in water, are found to be heavier than they were when completely dry.† It is therefore clear that the opposition which the nature of the materials offers to the progress of moisture is much less than is commonly supposed.

Inefficacy of the ordinary Remedies.—Till lately attention has been confined to the means of remedying dampness in buildings after they have been constructed: precautions have seldom been taken to prevent it in the first instance. Recourse is generally had to cements, plasters, and paint, applied to the in-

* This paper is an abstract of an essay for which the first prize was awarded by the society "D'Encouragement pour l'industrie nationale." The author of the prize essay is M. Vandoyer, government architect.

† From experiments made on the powers of absorption of different kinds of stone, it appears that a cubic metre of marble will hold 5½ pints of water. A metre is 3 ft. 3 in.

terior surfaces of the walls so as to substitute by means of a body supposed to be impermeable, a dry surface for one more or less humid. Without desiring to analyze the qualities of the plasters usually employed, we do not hesitate to say that these various compositions, not only do not prevent, but do not even diminish, the real cause of the evil.—The moisture which has penetrated through the walls is an agent of which the operation is continuous, and cannot be stopped. Its action cannot be diminished except by the action of air. The pretended *hydrofuge* cements merely disguise the evil for a certain period; they are even liable in many cases to the grave objection of diminishing the chances of absorption, and instead of helping to dry the building, tend to retain its moisture.

It is then the first cause of the evil which must be attacked. The only useful means are those which prevent the moisture from penetrating into the walls of the building, for when once it has entered them it is almost impossible to remove it.

Means of preventing Dampness in the Construction of Buildings.—With respect to the dampness arising from the soil, the best means of preventing it is by interposing at a certain height some impermeable substance which will prevent the moisture passing beyond it. The only substances of this kind are lead, bituminous or resinous cements, and certain kinds of mortar.‡

The interposition of a plate of lead or a layer of some bituminous substance in the thickness of the wall has been already tried with success, and is found to stop the progress of the moisture absorbed by the lower portion of the wall. This plate or layer should be a little above the internal level of the foundation.

This method, however, though efficacious in resisting the dampness arising from the ground, does not prevent the effects which the humidity of the atmosphere produces on the exterior surface of the walls in their lower part. In ordinary buildings we may point out as an excellent preservative against atmospheric moisture, a revetement of flag stones placed against the external face of the wall, and reaching to about a yard above the ground. If the foundations of the wall be of good limestone or gritstone, this revetement will not be necessary. It is well known that in the lower parts of walls to a certain height above the ground, the mortar of hydraulic lime should alone be used, and that when there are means of resting the foundations on an impermeable concrete, the best effects may be anticipated.

The precautions, then, to be taken against humidity in the walls are these—a foundation on hydraulic cement, the employment of hydraulic mortar in the lower parts of the building, the use of calcareous stones or revetement built against the walls, and the interposition of an impermeable substance through the whole thickness of the walls between the exterior and interior levels of the soil.—*Civil Engineer.*

‡ The nature of the mortars best adapted to resist moisture is explained in M. Vicat's work. See the C. E. and A. Journal for February last.

Locomotive Engine Factory.

The Newcastle Guardian contains the annexed account of a visit to the factory of Messrs. Stephenson, of Newcastle, Eng.:

The works are divided into two factories, on either side of South street, and thus called 'east' and 'west.' The latter, though the newer, is the more extensive of the two, occupying several acres of ground. On entering it the stranger is at once struck with the novelty, as well as the extent and variety of the operations disclosed. The ear is saluted with the noise of some hundreds of hammers reverberating on boilers and anvils, and the eye is startled by the sight of so many blazing fires and sundry workmen, with the greatest *sang froid*, carrying about huge bars and plates of red hot iron! On examining the various departments, however, the visitor soon finds enough in each to engage his closest attention. He is at first introduced into a workshop of unusual dimensions, level with the ground, where upwards of 40 hands are busily occupied in fitting up different parts of the machinery. Over this shop is an equally capacious room, accommodating about 70 men and boys, who polish, and otherwise prepare the inside gearing and fine parts of the engines. Each stands in front of a vice, at which the usual filing and chiselling are performed; but ingeniously constructed machinery, driven by steam power is placed along the entire space of the room, and facilitates the more difficult task of cutting and modelling cranks shafts and wheels. Proceeding to another part of the works, several locomotives are seen in the course of trial on rails laid for the purpose, and others in course of completion under a large shed. Adjoining this is the packing, framing and painting shop, where locomotives intended for a distance are taken to pieces, after having been previously tried, and carefully packed in wooden boxes of unusual size and strength. The painting of the exterior of the carriages is also done, in this department, and the framing put together.—The boiler yard, or what is facetiously termed the 'musical saloon,' is the next place of interest. Musical, this portion of the works most certainly is, and music of the right sort, too—the music of industry and enterprise.—Fancy an angular shed in which are some 60 or 70 huge fires glowing before the roar of the blast; about 200 stalwart men and boys all hammering, riveting, or otherwise making a deafening noise, some with immense bars and plates of red hot iron, others inside of boilers or fire boxes—fancy such a sight, and you have an imperfect idea of this 'musical saloon.'

Many ingenious and beautiful specimens of mechanical art are besides seen at work in this department, such as a machine by which riveting bolts are moulded and fitted, and another by which the perforations in the copper fire boxes of the engines are executed with much skill and exactness. Leaving this, the visitor is conducted to the shop where the tenders are completed, and where a number of joiners are at work making boxes used for packing the engines sent to a distance. A fine saw-mill for cutting the heavy pieces of

timber required, is here at work, and in an upper apartment, wooden patterns for machinery are prepared by skilful artizans.

The east factory differs but little from the west, nearly the same kinds of work being performed in both. It is less in extent, but equally interesting and important to the visitor. Some branches are done here which we did not observe elsewhere. Engravers for example, are constantly employed preparing the plates bearing the engine maker's name, and also the letters for the name of the locomotive. All the brass castings are likewise done in the east factory. Every part of the locomotive, except the metal castings, are prepared and completed in both factories.—The drawings and plans of the engines, are executed in a separate part of the works by a number of artists, who, judging from the specimens shown us, seemed to reflect no ordinary credit on their worthy employers.

It is almost unnecessary to inform our readers that the Messrs. Stephenson's establishment is the largest and most complete of its kind, in the world; and such is the demand for locomotives that they have been obliged to open another factory, which is now being furnished at West Forth banks. They employ nearly 1,000 men and boys, and pay weekly in wages about £1,000. Apprentices who are admitted only on payment of a handsome premium, are sent to them from all parts of the world, and from nearly all ranks of society. At present the demand for locomotives is such that they cannot furnish the numbers ordered. Nearly all they have completed for some time past, and are now completing, are for foreign lines of railway. During the last year, they have sent out fully 56 locomotives, and this year the number is expected to increase to about 80, besides repairing not a few old engines. Such an establishment may well be pronounced one of the wonders of modern times.

Hopkin's Safety Rail for Railways.—We have been favored with an inspection of a new description of rail, being a combination of wood and iron, for preventing the engine or trains, by almost any possibility, running off the line—at the same time securing a much firmer grip or bite of the wheel on the rail, than can be obtained on the present iron rails. According to the various systems of laying rails, which have been acted upon from the commencement of the railway system to the present time, the cost has varied from £4400 to £6000 per mile—while, by Mr. Hopkin's plan, the cost per mile of the upper works of a complete double line, would not much exceed, £2000 per mile; the inventor states, (and, in the absence of actual experiment, we see no reason to doubt the conclusions at which he arrives, viz:.) that the patent wooden rail possesses very high and peculiar engineering advantages, while it is free from all the disadvantages and defects of the iron rail; and that, by the addition of the safety rail, which is a distinct appendage to the wooden rail on which the wheels run, all accidents, arising from the engine or carriages running off the line, are

rendered impossible. The following is a description of this invention: In the first place it must be premised that all the timber used must be paynised, rendering it semi-metalliferous, proof against wet or dry rot in every situation, and resisting the attacks of insects. Sleepers are laid either longitudinally or transversely; on these are laid the wooden rails, having on the inner edge an iron friction plate bolted to it, to receive the friction of the flange of the wheels. The protection rail is a continuous line of timber, capped with iron, which slightly projects over the wood on the side next the wheel; it forms in section a right angled triangle—is also bolted to the sleepers—and placed either outside or inside in such a manner, that while the wheels are in their proper place, it does not touch; but should a jumping motion occur, with a tendency to run off the line, it is sufficiently close immediately to receive the concussion, and thus slide the wheels off again into their proper place; in fact, the two form a complete channel, four or five inches deep, for the wheels of a train to run in, and prevent the flange rising on the rails. The advantages, which the patentee claims for this description of rail, are—great economy in the first cost, and in the wear and tear of the upper works of the railway—and in the first cost, and wear and tear of engines, tenders, and carriages; a firmer grip, or hold, for ascending inclines; and perfect safety, with greater comfort, to the passenger, from the absence of all noise, or jolting, or oscillating motion. A model, on a full working size, may be seen at the office, 2 Parliament street, which on inspection certainly appears capable of sustaining the advantage claimed for it.—*Mining Journal.*

The Continental Patent Metallised Wood Company.—The complete success which has attended the operations of Payne's patent process for the metallisation, and consequent preservation, of every description of timber, under every circumstance in this country, and the wide field which is now opening on the continent for its advantageous application, has induced the formation of a company for the purpose of purchasing and working the foreign patents, viz: for France, Austria, Belgium and Holland. We have on so many occasions described the process and advantages of Payne's patent, that a passing allusion to some of its valuable properties will suffice. It is necessary to premise, that the process is simple and inexpensive—the wood is saturated, by means of exhaustion and pressure, with sulphate of iron, and afterwards with an alkaline solution, by which means an insoluble metallic substance is created in the pores of the wood by chemical decomposition. The economy of the process, after the first outlay for machinery and stations, is remarkable, as may be inferred from the price of the metals employed in former processes—mercury and copper; the former being enormously expensive while the cost of the latter bears to that of iron, the metal employed in the present process, a ratio of £40 to £3 10s. The wood is made to partake of the durabi-

lity of metal; while its elasticity is preserved in full force, as proved by the fact that, thus prepared, it has recovered from a deflection made by 140 tons on a segment of an iron wheel, three inches broad in the tire; it is also rendered uninflamable, is impervious to the ravages of insects, and the process is equally applicable to timber just hewn, as to the best seasoned—in fact, it renders the most recent-cut wood immediately fit for use. The great demand which must arise from carrying out this system on the continent, and the advantages which will accrue to those who invest capital in the undertaking, is fully apparent. In France, Austria and Belgium, iron is dear, and the price increasing; wood on the contrary is cheap, and therefore a system which will enable the cheaper article, (wood,) for numerous purposes, to supersede the dearer, (iron,) gives every prospect of a large and profitable return. In Belgium and Holland, the sole article of wooden clogs (or *sabots*) worn by the people, would give a considerable income; and in France and Austria, where wood is almost the only fuel, a profitable branch of business would arise, in saturating wood for fuel with an aluminous solution, rendering it more lasting in the fire, without injuring its combustibility. The process has already been used on the Paris and Sceaux railway. The Gt. Northern of Austria company have sent agents to England to judge of its merits; and there is every probability that large supplies will be required by them, as soon as the necessary machinery is established. In fact, it is likely that a large portion of the continental railways, which have yet to be commenced, will adopt this plan, when its economy and advantages are fully appreciated. The arrangements made with the patentee are, that the greater portion of the purchase money is dependant on the success of the undertaking, which will enable the company to commence operations with a comparatively small capital; it is, therefore, proposed to raise sufficient to purchase the patents and commence the works, and, the returns being immediate, it is confidently anticipated that three calls of £1 each, above the original deposit of £2 per share, will be amply sufficient, although the capital proposed is £100,000, in 10,000 shares of £10 each—2,500 shares are to be reserved for France, Austria and Belgium. We consider that the company holds out prospects of no common kind, and that, under all the circumstances which evidently combine for a most advantageous development of the patents on the continent, a most remunerative return on the capital must be the result.—*Mining Journal.*

Nashville Railroad.

We have read with much interest a letter from one of the most respectable citizens of Nashville to a gentleman of this city, touching the prospects of the projected railway from Chattanooga to Nashville. The writer says: "You are aware, I suppose, that Mr. J. Edgar Thompson has now been engaged for near a month upon the survey of the end of the route next to Chattanooga. He reports that so far, there is less difficulty than could

have been expected from the character of the country—this being the most mountainous and in fact the only difficult part of the route. From the mountains to Nashville, a distance of nearly one hundred miles, the country is with few exceptions, a beautiful plain, and where the exceptions exist, there is a natural pass leading through what is called Hoovers gap, in a direct line with the route of the road, and it should have to pass through the Cumberland mountains further south than Battle creek, there is no difficulty, and hardly a ten feet cut or fill on the whole route.—In fact this could be said of either route from the Cumberland mountains to Nashville.—Mr. Thompson seems to have hopes he can find a way over the mountains; if so, we have nothing to contend with compared to most of the roads made in other states; for the Tennessee river makes a grade from Chattanooga to the Cumberland mountains that you are obliged to follow, with one exception of a few miles, and wherever you follow the river, the grading will not be heavy, as it will require the opening of a way say 8 feet wide in the side of the bluff, which is generally not steep, and would not require heavy work.

So upon the whole, I am in hopes and believe our road will not be a costly one to grade. As to the iron, you know as well as we, what that will cost. There is great anxiety expressed here about the road, and to judge from the questions asked me at every step I take, I think there is enough interest felt to justify the commissioners in the belief that if the report is favorable (which I do not doubt,) the subscribers will be very numerous. Whether they will be for a large amount, I cannot say, but am of opinion we can get half the stock taken in Tennessee, provided the cost does not exceed one and a half millions of dollars or thereabouts. Not that I say this would be done at once, but after proper effort is made by persons of energy and influence; and that this energy will be applied, I have no doubt, as the persons here most anxious about the road, are men who have not as yet undertaken any project that has failed.

As to the profits of the road when completed, I have not a doubt, as middle Tennessee will furnish produce enough, to say nothing of passengers, to make it one of the first in the Union as to profits."

The writer here enters into a minute and extended estimate of the elements of profit on this route, in justification of this last assertion and concludes with expressing his confidence that the road will be built, and that before a very long time. We trust his anticipations will be realized, for it is not to be doubted that Charleston as well as Nashville is deeply interested in the consummation. We have now a better prospect before us than for many years. Commerce has been relieved from some of its hardest burdens, and Charleston may have her full share in the blessings of this great reform. It requires only energy, perseverance and discretion.—*Charleston Mercury.*

Miscellaneous Items.

Dividends—A dividend has been declared by the directors of the Fitchburg railroad, payable on the 1st of Aug. next.

The Syracuse and Utica railroad have declared a dividend of two dollars and fifty cents per share.

The Attica and Buffalo railroad co. have declared a dividend of 5 per cent., payable on demand at the bank of the State of New York.

Portland, Saco and Portsmouth Railroad. The whole cost of this road up to May 31st, was \$1,250,279, and \$62,814 of property on hand not required for the use of the road—making a total investment of \$1,313,094. The capital stock consists of 12,000 shares, of which 11,290 have been issued, or \$1,128,000, and the notes payable at 5 3-10 per cent. average interest amount to \$188,800, from which the cash on hand, \$3705, being deducted, leaves \$1,313,094, as above. The income for year ending May 31st, 1846, was \$126,197, of which \$52,530 came from 68,781 way and \$46,460 from 52,380 through passengers. The freight on 13,257 tons of merchandize gave \$18,503; mails \$6,574, and rents \$2,127. The expenditures were \$55,485, and the net receipts \$70,711, from which \$4,349 interest paid being deducted, and \$23,956 of balance in hand June 1st, 1846, added, give a total of funds applicable to dividends of \$90,318. The dividends in July and January took \$66,870, and a balance of \$23,448 was in hand May 31st, to meet July dividend. The number of miles run by passenger trains was 74,256, and freight 31,824. *Post.*

Cape Cod Branch Railroad.—A meeting of the friends of this enterprize was held at Wareham, on Tuesday last, Wm. Bates of that town in the chair, and George Marston of Barnstable, secretary. A committee, of which Artemas Hale, of Bridgewater, was chairman, made a report, which was as follows:

Your committee report that they have ascertained that the amount of stock already subscribed is about \$172,600; and there is a strong probability of further subscription from known sources, of \$152,000, which together amount to the sum of \$324,600.

Your committee further report that they have seen no reason to doubt that the estimates of cost of construction and of income are to be relied upon, and unanimously recommend the immediate and vigorous prosecution of the enterprize of building the Cape Cod branch railroad.

Your committee also recommend the appointment of a committee, whose duty it shall be to solicit subscriptions, and that a meeting be called at this place three weeks from tomorrow, viz: on Wednesday, the 19th day of August next, at 10 o'clock, a.m., for the purpose of organizing the corporation.

The report was accepted and a large committee was appointed. Several gentlemen from different towns which are to be benefited by the road, made explanatory speeches, and it appeared to be the unanimous opinion of those present that the road would be speedily built, and prove a profitable and successful investment. The cost of the road is estimated to be not more than \$16,000 a mile.—*Courier.*

South Shore Railroad.—Old Massachusetts will soon be all chequered over with railroads. A charter has been obtained for a branch to run along on the south shore of Massachusetts bay to Duxbury, through Cohasset, Hingham,

Situate, Marshfield, etc., and \$200,000 subscribed

Western Railroad.—The receipts on this road last week, show an increase of about forty per cent. over the corresponding week of last year. Total \$20,300, against \$14,700—gain \$5,600. There has been an increase of \$91,000 in the receipts since Jan. 1, over those of last year, in the same time; or 3 per cent. on the whole share capital. Of the \$91,000 increase, \$20,000 have been earned since 1st of July. Three per cent. dividend is now due.—The company has an immense reserve, and will undoubtedly pay large dividends in future. *Boston Trans.*

Chicopee Falls Branch Railroad.—The grading of this road is all completed, and the laying of rails will commence forthwith. It is expected that the cars will run upon the road by the middle of September.—*Springfield Mass., Gazette.*

We learn that Mr. Hayward of this city, has accepted the appointment of chief engineer of the Ogdensburg railroad—and it is probable that he will commence his surveys in the course of two or three weeks.—*Boston Journal.*

Erie Railroad.—The earnings of the eastern division of the Erie railroad for the month of July, 1846, were as follows:

From freight,	- - - -	\$9,891 60
" passengers	- - - -	6,664 66
Total,	- - - -	\$16,556 26
Same time last year,	- - - -	15,779 60
Increase,	- - - -	\$776 66

Philadelphia and Reading Railroad.—*Fourth week in July.*

	1844.	1845.	1846.
Receipts,	\$13,313 94	30,257 27	56,984 54
Coal, tons,	10,828	25,197	35,490
<i>Week ending Aug. 3,</i>	<i>Aug. 2,</i>	<i>Aug. 1,</i>	
	1844.	1845.	1846.
Receipts,	\$14,337 12	31,060 31	60,622 67
Coal, tons,	9,898	25,483	38,711

Travel on the Wilmington and Roanoke Railroad.—We have been favored with the following comparative statement of the passengers going north over the road during the month of July of this and the preceding two years.

	July 1844,	1845,	1846,	Through.	Way.
July 1844,	- - - -	- - - -	- - - -	819	1,206
" 1845,	- - - -	- - - -	- - - -	906	1,137
" 1846,	- - - -	- - - -	- - - -	1,112	1,777

The Cincinnati and Xenia railroad is to be opened to Springfield, Ohio, on the 13th inst. The Mad river railroad is advancing to meet it from the lake.

We learn that, after an animated discussion, the internal improvement convention at Farmville, resolved that it was highly expedient to construct a railroad from Richmond to Danville direct. It is said that it will pass by the Black Heath coal pits.—*Richmond Enquirer.*

Oswego and Syracuse Railroad.—We are gratified to learn, says the Oswego Palladium, that the directors have engaged Mr. Edwin F. Johnson, to revise the surveys, and estimates on the several lines between this place and Syracuse on both sides of the river. Mr. Whipple, with a corps of engineers, will take the field this week. We bespeak them a friendly reception on a line so important to the best interests of this section of the country.

Winchester and Potomac Railroad Company.—The annual meeting of the stockholders of this company was held at the court house on Saturday last, when a most satisfactory exposition of its affairs was made by the president, and by the committee of finance and committee of examination.

William L. Clark, Esq., was unanimously re-elected president of the company, and the following gentlemen elected directors on the part of the private stockholders, viz: A. S. Baldwin, H. H. McGuire, Chas. H. Clark, and Henry M. Brent, [the latter in place of Nathan Parkins, who declined a re-election.]

State Directors.—David W. Barton, James M. Mason, and Andrew Hunter.

The improved condition of the road, by new timbers and by the substitution of heavier iron than had been originally used, is a subject of just congratulation, and arrangements are in progress for improving the whole route in the same way.

The stockholders seem to be in a good humor with the prospect before them, and the public will realize profit and pleasure from the new aspect of things since the liberal act of the last legislature.

The Rutland Railroad.—It will be seen by the following resolutions, from the Northern Galaxy, adopted at a late meeting of the board at Bellows Falls, on the 28th ult., which appear in the Gazette, that the corporation are prepared to enter immediately upon the construction of the road.

Resolved, That a committee of four from the board of directors be appointed with power to arrange all matters which may be necessary for a connection between this corporation and the Cheshire railroad, and that Timothy Follet, George T. Hodges, William Henry and John A. Conant, be that committee.

Resolved, That the grading, bridging, and masonry of that portion of the Rutland railroad, from Connecticut river to Duttonsville, and such portions of the line, on the west side of the mountain not exceeding 35 miles, as shall be selected by the president and committee of construction be immediately prepared, and put under contract.

Resolved, That the assessment of five per cent. on the shares of the capital stock of the company, be so modified, as that only two dollars on a share be required to be paid on the 12th day of August next; and the remaining three dollars, on the 10th day of November next, at the places heretofore designated or to the treasurer of the company.

Resolved, That a committee of four be appointed who with the president shall constitute a committee on construction.

On nomination, Gen. William Nash, Gen. Sam'l P. Strong, William Henry, and George T. Hodges, were appointed the committee of construction.

Let there be no failure in meeting the installment on the 12th. The construction of this road is the most important enterprise ever presented to advance the prosperity of western Vermont.

Jas. Hayward, Esq., of Boston, an accomplished surveyor, has been appointed engineer of the Ogdensburg railroad, and will, it is said, immediately enter upon his duties in preparing the road for letting early in the spring.—*N. H. Sentinel.*

Sullivan Railroad.—The grantees of this road organized on the 1st instance, at Claremont, when associates were admitted, and the company was organized, accepting the provisions of the charter. Temporary officers were

elected, Hon. Henry Hubbard, president.—Books of subscription for the stock were ordered to be opened, and the necessary surveys made. The meeting was then adjourned to the 15th inst. There was perfect harmony, and a determination apparent to go ahead with zeal. The stock cannot fail to be a profitable investment, connected as it will be with the Cheshire and Central roads, and insuring the Connecticut river travel.—*lb.*

Rutland Railroad.—The directors have laid an assessment on the stock subscribed for this road of 5 per cent. and postponed its payment to 12th of Aug. \$2, and 10th Nov. \$3.—They have also voted to let the grading, bridging, and masonry of the road from Connecticut river to Duttonsville, and portions of the line on the west side of the mountain not exceeding 30 miles. The Keene Sentinel considers this proceeding of 'vast importance to the portions of Vermont affected.'

The Cleveland Railroad.—A letter from John W. Allen, president of the Cleveland, Columbus and Cincinnati railroad co., states that the company have determined upon a permanent location of their road from Cleveland southwesterly 40 miles, to Harrisville, as soon as they can find an engineer for the purpose, and hope to put that part of the road under contract by the 1st of October. From Harrisville the road may take either the Wooster, the Ashland and Delaware, or the Mansfield and Mt. Vernon route to Columbus, as the subscriptions for stock and other inducements may operate. The 40 miles, Mr. Allen thinks, may be made within a year.—*Cincinnati Gazette.*

The Tremont iron co., whose works are at Wareham, shipped their first cargo of railroad iron, per chr. Meteor, for this city, on Wednesday last.—*Boston paper.*

United States Dry Dock at Brooklyn, N. Y.—The construction of this magnificent work, which will cost over a million of dollars, has been fairly commenced. The *modus operandi* of making a foundation, as we learn from the Brooklyn Advertiser, is to commence by driving 5,000 piles, 30 feet long into the bottom of the excavation, three feet apart. These piles being evenly sawed off, the spaces between are filled with small stones and cement mixed together, making a solid mass. Then a row of timbers is laid upon this and the spaces between these also filled up with the same. Over this is laid another course of timbers, which are planked over. Then another course of the stone and cement to the depth of 20 inches. Upon the top of all this, is laid the fine cut granite facing of the dock—the foundation then being about ten feet in thickness. This granite facing is carried up 36 feet forming the sides of the dock. As thus constructed the dock will receive a vessel 330 feet in length. When fairly floated in and the gates shut the water is to be pumped out by some half dozen steam pumps and the good ship—the Constitution, the Pennsylvania, or what not, is left high and dry for repairs.

Great Railroad Convention.—The Woonsocket Patriot of Friday, gives the proceedings of a convention for carrying into effect the magnificent project of constructing a great central railroad from Boston to New York, through Woonsocket, Middletown and New Haven. The convention was held in Armory hall in that village, on Wednesday last, and consisted of more than 500 delegates, representing numerous towns in Massachusetts, Rhode Island and Connecticut, through which this road is to pass.

The letters read from persons absent, the speeches made by many present in convention and the animated proceedings of this great body furnished evidence of the confidence entertained by the friends of this great project, of its final successful result, and of its great public utility.

Mr. Edwin F. Johnson, engineer on the Connecticut portion of the route, Mr. Parrott, engineer on the Massachusetts portion, and Mr. L. M. E. Stone, engineer on the Rhode Island portion, made highly favorable reports on the portions of the route under their charge. Hon. J. P. Welch, of Brooklyn, Ct., in the course of his remarks, said that this railroad would pass through six out of the eight counties which Connecticut contains; and that of her population of 300,000, 200,000 were to be found in the immediate vicinity of the line of the road, and were more or less directly interested in its construction. Upon these grounds he deemed the charter in that state perfectly secure.—*Jour. Com.*

New York and Harlem Railroad Co.—This company, says the Journal of Commerce, are now finishing, and will have ready for business by October, an additional 25 miles of road completing the extension to Somers. This extension gives them the traffic of Westchester and brings them within 15 or 16 miles of the Housatonic road at Danbury, Ct. The arrangements of the company will enable them to reach Dover plains, the centre of Dutchess county, next spring, and find them some 90 miles on their way to Albany.

The managers of this road are giving evidence of more energy and more enlightened views than has heretofore been accorded to them.

By the foregoing statement we learn that another important section of 25 miles will soon be completed; and we also understand that a system of commutation has been adopted by which the citizens of New York may, and many will be induced to, own or occupy snug cottages along the line, and thus greatly increase the income of the road. Let the company deal liberally with those who wish to avail themselves of commutation tickets, and they will soon see their own interest in the measure and at the same time benefit others.

New York and Erie Railroad.

We learn that the state commissioners appointed to locate certain portions of this road, have decided in favor of the route on the Pennsylvania side of the Delaware river, and also in favor of the route through Pennsylvania around the 'great bend' of the Susquehanna river. This decision is of great importance to the company, as it will enable them to commence work immediately along the whole line of the road, on the most favorable route, and it is gratifying to know that the contractors have already been notified to commence operations. This is as it should be. The protracted and vexatious delays to which the work has been subjected, and the systematic opposition of many who have long and largely profited by works constructed by the state, had well nigh discouraged many of its early friends, but not so with the gentlemen who have the work in charge—they have not faltered, but with a single and steady eye to the great object in view, they have met, and thanks to their indomitable energy, they have overcome the most difficult "grade" of all—the prejudice and opposition of rival interests; and we congratulate them on their success—may they all and each of them receive what they richly merit, the cordial thanks and co-operation of every inhabitant of this city, and of the country, at large.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.
 Saturday, August 22, 1846.

DIED,

At Trafalgar Mount Cottage, on Thursday, 6th instant, William R. Casey, Esq., of New York, Civil Engineer, aged 38 years. His funeral will take place in the Trafalgar Mount Cemetery, this day, at half-past 4 o'clock, P. M., precisely, and his friends are requested to attend.

ENGINEER'S OFFICE, }
 St. Lawrence and Atlantic Railroad. }

D. K. MINOR,

EDITOR OF THE RAILROAD JOURNAL—SIR: You, in common with many readers of your valuable Journal, will regret to learn the death of WM. R. CASEY, Esq., formerly of your city—and lately appointed chief engineer of the Lachine railroad.

Mr. Casey was attacked some time since with a pulmonary complaint—and although the best medical advisers were in attendance, they were not able to arrest the fearful disease. All the care and attention that friends or kindred could bestow, was administered to him in his last moments. He died apparently without a struggle, and his spirit has winged its flight to that 'Being who holds the keys of life and death.'

Mr. Casey was long and favorably known to the profession as an engineer of high reputation; one who had contributed in no small degree to advance its character and standing. His numerous friends and acquaintances will be shocked at, and deeply regret the sad intelligence. The columns of your Journal can bear evidence to his talent and scientific skill in the investigation of the many subjects that have appeared from time to time over his signature.

I refrain from any further remarks on the character of the deceased, as I am well aware there are others more competent than myself to speak his virtues and professional merit.

Very respectfully, your obedient servant,

R. T. BAILEY.

Montreal, August 7th, 1846.

The sad intelligence conveyed by the preceding brief tribute of respect, will, indeed, shock and cause deep regret to, the numerous friends of the deceased. If his ability as a writer, and standing in his profession, secured to him, as in this case, the respect and confidence of those who knew him only through such a medium, how much more deeply must his early death be regretted, and his loss mourned, by those who long had the pleasure of his intimate acquaintance, and knew well his retiring modesty and great worth?

Though prepared in some measure for this event, by his protracted and severe illness, which commenced

in December last, yet the sad intelligence took us by surprise; and we do not feel competent to do full justice to his memory, but shall look to some one of his professional friends, who knew him long and intimately, to do him more ample justice in the pages of the Railroad Journal, so many of which now bear ample testimony to his ability and his devotion to the profession of which he was so worthy a member.

CENTRAL AND MACON AND WESTERN Railroads, Ga.—These Roads with the Western and Atlantic Railroad

of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad	.....	190
Macon to Atlanta—Macon and Western	.....	101
Atlanta to Oothcaloga—Western and Atlantic	.....	80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings	.....	\$0 50	To Atlanta	To Oothcaloga
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones	.....	0 50		0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot	.....	0 20		0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot	.....	0 20	pr. 100lbs.	35
Crockery, per cubic foot	.....	0 15	"	35
Molasses and Oil, per hhd., (smaller casks in proportion)	.....	9 00		12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each	.....	1 25		1 50
Ploughs, (small,) and Wheelbarrows	.....	0 80		1 05
Salt, per Liverpool Sack	.....	0 70		0 95

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846. 1y34

THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER, 17 Burling Slip. 1y10 New York.

Atlantic and St. Lawrence Railroad.

This company, as we learn from the extract from a letter given below, is moving with spirit. The payments have been promptly made, some even in advance. If the Canadians do not hasten their work the line on this side of the boundary will be completed before they have fairly got to work. The fault lies however not with the Canadians, but with the shareholders in England who have shamefully backed out.

There is no good reason however, why the funds should not be raised in Canada and New England.

The following letter dated Portland, Me., Aug. 4, 1846, says:

'The annual meeting of the stockholders of the

Atlantic and St. Lawrence railroad was held to-day for the choice of directors.

'The president, Judge Preble, submitted a report on behalf of the directors, showing the operations of the board since their election, Sept. 25, 1846.

'Three entire routes have been surveyed, and many other points examined. The route had been determined for 32 miles—12 miles of which are under contract, and the work in progress—20 miles further will be put under contract during the coming month, and completed next year.

'The finances of the company are in a most prosperous condition, as represented by the treasurer's report, made up to Aug. 1st, 1846.

'Five per cent. advance had been paid at the time of subscribing on 9,836 shares; and on 391 shares more, (making in all 10,227 shares,) the money was secured to the company when wanted. About \$3,000 had been also paid as advance money on future assessments due the present month.

The receipts had amounted to over \$63,000
 The expenditures to about 17,000

Leaving in the treasury, over \$46,000

'Of the expenditures, the sum of \$10,959 84 had been paid for engineering service.

'The election of directors then took place, and the following gentlemen were chosen:

'Wm. P. Preble, John A. Poor, John Anderson, Josiah S. Little, St. John Smith, John B. Brown, Eliphalet Greeley, John Dow, Jas. L. Farmer, Thomas Hammond, John Mussey, Wm. P. Fessenden, Ezra F. Beal, of Norway. Messrs. Fessenden and Dow are elected in room of Messrs. Deering and Turner, who declined a re-election.'

Vermont Central Railroad.

By the report of Mr. Chesbro, the engineer, which we give in this number, it will be seen that the surveys of location have given favorable results, and that moderate curves and low grades are to be found throughout the line. The ground is considered favorable, and furnishes excellent material for the road bed.

The progress made upon this line is considerable for the short time elapsed since the commencement—more than two thousand men being engaged under Mr. S. F. Belknap, the well known contractor.

Two of the steam excavators are in use upon this road. The character of the excavation is precisely such as can be best managed by these machines, which are said to perform very well.

This evinces a commendable spirit; but we are sorry to learn from the treasurer's report, that the subscriptions and assessments have not been paid with the promptness customary in the New England states. To carry on the work with the greatest economy of money and time, funds are needed, and unless subscribers pay up, their shares should be forfeited. We venture to say that a determined course pursued by the directors would soon bring in the arrears from delinquents.

We were somewhat amused by an article in an exchange paper, giving a description of this road. The writer dwells upon the perfectly equal condition of the inhabitants of the state, through which it passes—a vast majority being in that happy medium, between poverty and wealth, which is so conducive to human enjoyment. He laments the want of a great route for pleasure travel through the state—a want, however, to be supplied by the Central railroad. There should be no mistake about this; the influence of railroads, as of other improvements, will be felt in an alteration of the condition of the people, both absolutely and relatively. Arcadian simplicity is not quite compatible with railways, and while there is now, according to this writer, no city in the state, he must not be surprised to find one or more before long—and Burlington one of the first. All this change may take place without lowering the condition of any of the people of the state

—the uniform distribution of the inhabitants will in all probability prevent any very sudden alterations—but it is quite wrong to imagine that the state of affairs, so enthusiastically described in the article noticed, can exist in defiance of railroads.

We find the following reports in the Windsor, Vt. Journal.

ENGINEER'S OFFICE, V. C. R. R. }
Northfield, July 7, 1846. }

To the Directors of the Vermont Central Railroad Company:

GENTLEMEN: Herewith is submitted the history and character of your road, connected with the engineering department.

From the commencement of the surveys to the close of 1845, the operations of that department were principally in making preliminary surveys, and the time of the greater portion of the engineers was consumed in surveying and re-surveying the disputed routes between Royalton and Montpelier. It was unfortunate that the progress of the definite location should have been so much retarded, as the unusual depths of the snow last winter caused slow progress in the field, until late in the month of March; and upon about thirty miles, between Northfield and Royalton, nothing was attempted till March. On the remaining portions of the line, parties were kept in the field when possible to accomplish anything. The work thus done, however, made the labors of the succeeding spring much easier, and before its close the entire line had been established, save at two or three points, requiring but little time to complete, and the definite location of which will not vary materially, if at all, with the annexed statement of the character of the line. Repeated revisions have subsequently been made, but no material change has been deemed necessary, and the character of the work is now well developed, being opened upon every division (seven) of the line, and a considerable amount done upon all but the fourth, or lightest, which at the heavier points has been commenced since May. The aggregate of the work fully meets the character anticipated.

The general plan of construction is upon a very substantial and approved basis. Nature has done much to aid us in carrying it out. No road in the country, of any considerable extent, will require a less expenditure per mile for repairs, the material of the route being generally sand or gravel. In fact, with the exception of an occasional rock point, very little else occurs. There will be no trouble with claims for "hard pan."—Much of the greater portion of the line is in embankment; in fact, there will be but little waste upon any part of it, and in consequence of the almost invariable excess of embankment, the excavations will be widened for material, thus offering great facilities for drainage—and as there are but few naturally wet cuts, the road may be said to only require protection from rain and snow. It is a well known fact, that the snows in the vallies of Vermont, though deep, do not drift badly, and the shape of your road will offer an easy way of clearing it off. Much attention has been paid to this subject, and the position of

he road has been considerably influenced by it.

Character of Allignment and Gradients.—The distance from the commencement of the surveys, (Blin's wharf at Burlington,) to the centre of the village of Windsor, is 114 miles. From Burlington to the mouth of White river, 100 miles, of which 70 $\frac{1}{2}$ is straight, and five-sixths of the remainder is upon curves exceeding 1900 feet radii, (one-half of it over 2800 feet). There is no curve between lake Champlain and the Connecticut river of less than 1432 feet radius, and but two or three of that class where a maximum rate of speed would be desirable, and but one (of small extent) where a maximum grade occurs, to wit: adjoining and below the level plane at Northfield depot. Between White river and Windsor, there is one five degree (1146 feet curve), and one (550 feet in length) of 1432 feet radius.

Upon one-half of the line, the maximum grade is 20 feet (15 feet on nearly 50 miles,) on three-quarters of the line it is 30 feet and under, and on one-fourth, the grades vary from 30 to 40 feet, with one exception, near Burlington, where, for a distance of 1 4-6 (say one and a half) miles, it remains undecided whether to have a 45 feet grade or less. The 45 feet can be adopted, and from the nature of the case, be decreased hereafter, at an expense not exceeding what it would now cost. For all practical purposes, your road may be said to have no grade over 40 feet per mile, as the exception is so slight; and further, as the planes are generally short, you can, before laying your second track, which will doubtless be soon needed, reduce all but two of the planes on the maximum grades, several feet per mile, with but little inconvenience to the travel of the road.

Superstructure.—Subsils, 10 by 3; ties, 7 by 6, and 7 $\frac{1}{2}$ feet long, to be laid two and a half feet apart, or say two feet between bearings; rail, 56 pounds per yard, with heavy close chairs, stoutly spiked; the whole to be laid upon a well prepared bed of sand or gravel, throughout the line.

With a road of such line and grades, and a track so easily kept in order as yours can be, there is no good reason why you should not maintain a speed equal to that of any other road. The summit is near the middle of the line, and the heaviest grades start from two main stations, where assistance will always be at hand if needed.

There are now over two thousand hands upon the line of the road, and the number is increasing. Several slight detentions not unusual in a long line, have occurred upon sections of the road, but no work requiring constant attention has thus far been suspended. Over one third of a million of cubic yards of earth, and twelve thousand of rock were moved during the month of June, and nearly 3000 yards of masonry built. Considerable work was also done in the way of making and changing town and other roads, opening quarries, etc. On the whole, the developments thus far are very encouraging.

Respectfully submitted by your obedient servant,
J. C. CHESBRO.

The subscriber has examined the above report by Mr. Chesbro, and concurs in the sentiments and opinions therein expressed.
Respectfully yours,
S. M. FELTON.

OFFICE OF THE VT. CENTRAL R. R. }
Boston, July 22, 1846. }

To the Stockholders of the Vermont Central Railroad:

GENTLEMEN: I submit herewith, in accordance with the directions of the stockholders at their annual meeting, on the 16th inst., a statement of the financial concerns of this corporation, as embraced in a more detailed report, made by me on that occasion.

The whole amount of capital stock subscribed for in Vermont, Massachusetts and elsewhere, was two millions fifty-nine thousand eight hundred dollars, or 20,598 shares.

Assessments have been paid or secured upon.....	18,511 shares.
Still leaving of the subscription, upon which no assessments have been paid, though we hope these will, ere long, be also paid.....	2,087 shares.

20,598 shares.

We cannot speak as to other states, but in Massachusetts it has been a very unusual occurrence for a man to subscribe unconditionally for the shares in a corporation, and subsequently either fail to pay his assessments, or compel the corporation to resort to legal measures to enforce payment, in order to make good the expenditures of the company, except only when prevented by unlooked for embarrassment from meeting his pecuniary engagements.

It will be perceived that the accounts are made up so as to show the state of the treasury in Vermont and Massachusetts, at the close of June. It was necessary, for this purpose, to keep the books open in Boston until the 7th inst. The accounts, therefore, fail to show the amount of work done in the month of June. This was greater than in any preceding month; and, as a consequence, the drafts upon the treasury, not exhibited in this statement, amount to nearly seventy thousand dollars, principally for grading and land damages.

The stockholders cannot fail to perceive two things in this connection, viz:

1. That it is desirable to press forward the work to completion as rapidly as is consistent with careful, faithful and scientific execution of the undertaking.

2. That it will be impossible to continue to press the enterprize with the energy which the contractor and engineers have evinced, for the past three months, unless the stockholders sustain their officers, by a prompt and general payment of assessments due and to be laid.

In conclusion, the treasurer cannot allow himself to doubt the subscribers generally will be ready and even desirous to meet their proportion of the burden now, as well as share their part of the certain profit, whenever the Central road shall be open for travel.

All of which is respectfully submitted by your obedient servant,

SAMUEL WALLER, JR., Treasurer.

By the account current of the treasurer, it appears that the following sums have been paid out, viz :

Incidental expenses.....	\$7,782	47
Engineering.....	22,776	54
Land damages.....	29,847	62
Grading.....	56,942	13
Bridging and masonry.....	6,057	87
Vermont and Canada railroad.....	587	92
Interest.....	1,824	86
Exchange.....	4	88
Wincooski turnpike.....	18,000	00

\$144,236 29

Notes receivable for cash loaned on collateral security.....\$75,800 00
Balances on hand..... 40,572 45— 116,372 55

\$260,608 84

To balance this account, there have been received by the treasurer,
For assessment.....\$259,151 50
For interest..... 1,457 34

\$260,608 84

Railroads in Rome--The New Pope.

It is generally known that the papal court has hitherto been decidedly opposed to the introduction of railroads into its territory: and it is now stated that the present pope and his advisers, who have newly come into power, are as decidedly in favor of railroads and other similar improvements, and have given the best evidence of this favor by authorizing the construction of a railroad or two from the frontiers of Italy to the capital itself. Churches in China and railroads in Rome are novelties, and, like most other novelties, will not come alone—but will open the way for a current of innovations, which will pour in so rapidly, as in a few years to change the habits and customs of the people essentially—and make the science of government another science, or so change its application as to overthrow all calculations based on the former state of things. The safety, ease and certainty of travelling in Italy will be vastly increased by the introduction of railroads; but the romance and mystery will be destroyed.—The number of foreigners entering her border will increase an hundred-fold; and her inhabitants must improve. Who can say that this measure is not the first of a series of events that may liberalize the government, religion and economical policy of the finest country in Europe, and bring her up from insignificance and contempt, to the enjoyment of an honorable name and place among the nations. The dark and narrow policy of her papal rulers has done her great injury in the past: it is not easy to see why an enlightened and improving policy may not brighten her lot in the future.

We find the above remarks in the Portsmouth [N. H.] Journal. They are truthful and just in relation to the influences of railroads.

They will, wherever introduced, tend to dispel darkness, and to introduce more enlightened views. At least the instances are exceedingly rare that such is not the fact; we now recollect of only one marked exception, and that is in a neighboring state, where it is deemed good policy to tax those who from necessity or choice, have occasion to pass over her territory, or in other words the people of New Jersey having the power, make the citizens of other states pay the expenses of their state government, by taxing travel instead of taxing themselves. Is this just?

The Anthracite Coal Trade.

No one can read without interest, the account of the early history of our great coal regions. In most countries mines have been wrought from time immemorial, and the improvements in mining, the increased facilities in transport, and alterations in value, have all changed so gradually as scarcely to be noticed.

With us it is far different—our anthracite coal trade is but a thing of yesterday. Although very

young at the time, we well remember the account of the labors of one of the gentlemen named below, as an early promoter of this trade. Few are ignorant of the fact that it was asserted by competent judges, as they were thought, to say that paving stones could be burnt as soon as anthracite. The difficulties in the management of this fuel, so totally different from any other in use, long prevented the general use of what we now justly consider the best of all fuel.

In 1813, two ark loads of Lehigh coal reached Philadelphia, and were sold at \$25 per ton. The owners lost money on it, and discontinued the business. This was thirty-three years ago! What is now the coal trade and the prices of coal?

The following account of the early operations in this business, is from the *Miners' Journal*, and we hope Mr. Roberts will continue his letters—as in this way much valuable information may be put on record and saved from oblivion.

First, or South Anthracite Region.—Lehigh District.—The eastern portion of the Lehigh mining district of the south anthracite region belongs to the Lehigh coal and navigation company. Previous to my entering upon a description of the veins of coal, and iron ore, embraced in the company's lands, it may not be uninteresting to the public to state some of the difficulties to which the pioneers of this valuable mineral estate, were subjected, in the infancy of mining in this coal region. I therefore submit the following brief facts, taken from a pamphlet published by the company in 1840.* In 1793, the 'Lehigh coal mine co.' was formed, and a purchase was made from Jacob Weiss, of the tract of land, on which the large opening on Summit hill is made, [see my small map.] The company afterwards took up warrants from the commonwealth, embracing about $\frac{1}{2}$ of the coal lands owned by the company; the mine was then opened, and the sum of £10, [£6 67] was appropriated to construct a road from it, to the Lehigh river, a distance of 9 miles; almost \$3 per mile. Many fruitless attempts were made to get coal to market, until at last the company suffered their property to lie idle for some years.

In December, 1807, a lease was given upon one of the coal veins, to Rowland and Butland, with the privilege to dig gratis, iron ore and coal for the manufacture of iron. The business was soon abandoned, together with the lease.

In Dec., 1813, a lease for ten years was given to Messrs. Miner, Cist and Robinson, the consideration whereof was an annual introduction into market of 10,000 bushels of coal for the benefit of the lessees. Five ark loads were despatched, three of which were wrecked on their way to Philadelphia. \$4 per ton was paid by contract to haul the coal from the mines, (over the \$3 per mile road) to the Lehigh, and the contractor lost money by it; \$25 per ton was paid for the coal at Philadelphia, but this price did not remunerate the owners; they therefore, did not prosecute the business, and their lease became forfeited.

Messrs. White, Hauto and Hazard, in December, 1817, visited the mine and obtained

* The subscriber has collected many interesting facts, [as regards other estates] relating to the early days of mining in this region, which will be noticed in future descriptions.

a lease for 20 years, on condition that they should deliver 40,000 bushels of coal into Philadelphia, annually, for their own benefit, and should pay upon demand, one ear of corn as an annual rent for the property. These gentlemen obtained an act dated 20 March, 1818, to improve the river navigation; and \$50,000 was estimated to defray the expenses. This amount was raised, and the company formed on Aug. 10th, 1818, under the title of the 'Lehigh Navigation company.'—On the 21st of the same year, the 'Lehigh coal company' was formed, and the capital subscribed to it was \$55,000. A new road was laid out in the fall of 1818, and finished in 1819; this was intended for a railroad, as soon as the business would warrant the expense of placing rails upon it. In the spring of 1820, the ice did considerable damage to the dams, and sluice-gates of the navigation. On the 21st April, 1820, the two companies united under the title of the 'Lehigh Navigation and coal company,' and \$20,000 more subscribed to the stock; the navigation was repaired, and 365 tons of coal sent to Philadelphia which stocked the market, and was with difficulty disposed of.

On 1st May, 1821, a new arrangement of the whole concern took place, and the title was changed to the 'Lehigh coal and Navigation company;' \$50,000 was afterwards subscribed to more effectually complete the navigation, and 1,073 tons of coal were sent to Philadelphia that year.

An act of incorporation was applied for and granted to the company, 13th Feb., 1822, limiting the capital stock to \$1,000,000. The capital stock was increased by new subscriptions \$83,950 and 2,240 tons of coal sent to market in 1822.

In 1823, an increase of the capital stock was made of \$96,050, making the whole amount subscribed \$500,000. In this year, 5,823 tons of coal were sent to market, of which 1,000 remained unsold the following spring. In 1825, 28,393 tons were sent down the Lehigh. In 1826, 31,280 tons.

In January, 1826, the Gravity railroad from Mauch Chunk to the Summit mines, was commenced, and in May, 1827, was in operation. In 1827, the balance of the capital stock of \$500,000 was subscribed for; and the canal and slackwater navigation was laid out, let to contractors, and operations commenced, and was opened for use at the close of June, 1829.

In 1831, the Room Run railroad of 5 miles was constructed.

On the 13th March, 1837, an act was passed, authorizing the company to construct a railroad to connect the north branch division of the Pennsylvania canal with the slackwater navigation of the Lehigh, and to increase the capital stock to \$1,000,000.

The size of the Lehigh canal from the Delaware to Mauch Chunk, is 60 feet at top, 45 at bottom, and 5 feet deep, its total length is 46.214 miles including ten miles of pools—and 1.622 of locks. There are 8 dams, averaging from 6 to 16 ft. high—and 46 locks, 22 ft. by 100 ft. with lifts from 6 ft. to 13 ft. The total fall is 353.2 ft.

Next week I will hand you the particu-

lars of the coal veins worked on the Lehigh Coal and Navigation company's estate—with a description of the form, width, and extent of the coal ground owned by the company.

W. F. ROBERTS,
Engineer of Mines, Philadelphia.

Influence of Railways in Releasing Capital in Trade for their Construction.

So much has been said and written about fixed capital, and the terrible effects anticipated from railways locking up the capital of the country and crippling trade, that one is almost afraid to say anything on the other side, lest he should be denounced as a heretic to the truth, just as "good Catholics," denounce the heresies of Protestants. We have one consolatory reflection, which is—that however great may be our transgressions, and great we fear they will be if a widely different view be a transgression—that there is no slaying and burning alive for it. We have no great love for those warm sports of the "good old times," especially if to be practised on ourselves.

The writers on railways, or rather against them, are much alarmed at the abstraction of capital from trade and the commerce of the country, and consider that by taking so much for one particular object, all the others must suffer. Abstractedly looking at it, there is no doubt the diversion of a large portion of capital into any particular channel must partially drain other channels, and by so much injure the parts whence they derive their resources. During the construction of railways, we do not deny that such will be the effect; and hence, if it was possible, we should be glad to see railways progress gradually, and not in such crowds. Moderation, however, has never been, nor perhaps ever will be, a rule with the public; and it is, therefore, of no use to complain of that which we cannot cure.

We are all pretty familiar with the economy of railways in travelling, and the great saving that there is to the community, wherever they go, in the expense of personal transport, and in the transport of goods. It is not probably too much to say, that railways have reduced these expenses full 50 per cent.

Then, again, in the time of individuals, which reckoned either for servants or masters is equivalent to money, some three-fourths or four-fifths of it may now fairly be said to be saved by railways. That, of course, is so much more to our profit account.

The benefit of this abbreviation of time we cannot exemplify better than by a fact which, we believe, we have more than once mentioned in this journal, viz: that a gentleman in a mercantile way, who used to make his four visits per annum to the north, soon after the establishment of railways made his ten visits for one, or forty in the course of a year.

All the economy, however, great as it is, and which we have no doubt amounts to millions in a year, if it could be calculated, is nothing to the large sums which, from a recent conversation we had with an eminent manufacturer, is now saved in conducting the business of the country. Mercantile men

are fully alive to the inconvenience and loss of too large a capital in carrying on business. Strange as it may appear, too small a capital is not so great an evil as too large.—A man may easily contract his business to suit the one, while it is by no means so easy a matter to extend it to employ the other.—Indeed, he cannot do it without invading the domains of others. We have known more than one case in which too much capital has been a serious inconvenience. With partnership concerns it is more especially so. In one of those we allude to, we heard a partner declare, that the whole of the profits of their concern were one year absorbed in paying the interest on the overgrown capital then embarked in it, and left no profit to be divided. These cases press heavily on junior partners. The consequence is, that partnerships in one line are often led, for the purpose of employing the capital, to speculate and buy up large stocks in another, of which, ten to one, they know nothing. Thus have we known extensive book sellers speculating largely in hops; leather factors buying up cotton; coal merchants, malt: and a hundred other instances, the consequences of too large capital in their respective concerns. All this is injurious to regular trade, and not unfrequently ends in ruin to the parties speculating. Speculations and large hoards are ever bad.—They cause a scarcity at one time, and a superabundance at the other, to the great disadvantage of the middle trader and the consumer. They go further; for the mischief is, they compel a herding together of individuals in partnership for the purpose of getting a capital to guard against contingencies, or they drive the single trader to keep more capital in his business than it fairly requires, which he is obliged to borrow, and burthen his business with the interest, or is prevented from adding to his income by the employment elsewhere of the surplusage.

Now, by the quick and rapid transition by railways, and the instantaneous communication by the electric telegraph, men are not obliged to keep the large stocks that they have kept. With parties living a couple of hundred miles off, it used to occupy a fortnight and sometimes a month between giving the order and receiving through the canals or by land carriage, the goods. In a few years the orders may be conveyed from one extremity of the kingdom to the other in five minutes, and the goods be received the next morning. Such a scene as the following would now appear strange, but a few years hence will be no uncommon occurrence:

A lady (in a shop in Edinburg :) I want such an article.

Shopman: There is nothing of the kind nearer than London or Bristol. Wait about ten minutes, and I will see where it is to be had.

He goes out, and in about the time returns, saying: I telegraphed Bristol, and find there is none to be had there; but on telegraphing London, I learn from our correspondent, there is a house that has it.

Lady: It is now 4 o'clock. When could I have them?

Shopman: By 10 or 11 to-morrow morning, for certain.

Such scenes as these we are rapidly approaching—nay, have all but attained. What will be the consequence? Why, anomalous speculations will be ended, because the opportunities for them will cease; trade will become more regular; the supply and the demand will go on more nearly *pari passu*; glut and scarcity will rarely visit us; fewer, or none of those seasons of unhealthy prosperity, or direful panics with which the commercial world has been so often afflicted will be known. Heavy stocks will not be wanted, and of course less capital will do. Consequently the surplus capital may, without any detriment, nay, with advantage to trade, be applied to the construction of railways, and go to increase our national wealth and those facilities for the transaction of business which alone are wanting to enable us to take, as Sam Slick has it, "the shine out of all the nations of the earth."

This is no over-drawn picture. A gentleman assured us the other day, that in consequence of the facilities afforded to trade by railways, he was enabled to conduct his business with £30,000 less capital than he heretofore could. His opinion, as we understood him, was that business may shortly, from this one cause alone, be carried on with a third of the present capital. Then, if it be true, that near 600,000,000 are employed in trade, 400 of them may be gradually applied to the formation of railways without any inconvenience, nay, with positive and direct advantage to the mercantile interests from which they are apparently abstracted. We say *apparently*, for we cannot admit that any portion of capital which goes to multiply the facilities of trade, and the means of doing with less capital is taken from it.

Moreover, year by year, the railways are increasing the productive revenue of the country. Already they could supply some 5,000,000 per annum towards the making of new lines, without drawing anything from any other sources.

Such are our views of the influence of railways, and of the futility of those fears with which alarmists would impress us. It is, however, but justice to say, that they did not originate with us. The germ of them come from a gentleman we had the pleasure to meet in the late experimental trip to Rotterdam and back—a gentleman extensively engaged in commerce in the northeast of England, whose opinions are not derived from theory, but successful practical experience. We adopt them to the full, and believe they will be found true to the letter. At all events, it is our sincere and cordial wish that they may. *Herapath's Journal.*

St. Lawrence and Atlantic Railway.

A meeting of scripholders was held yesterday at the George & Vulture, Cornhill, to consider a communication received from the directors in Canada.

J. J. Cummins, Esq., took the chair and said, that the meeting had arisen out of one previously held, called by the scripholders, who had made a communication to the Lon-

don directors, which had led to a correspondence with the directors in Canada, which would be laid before them. He was aware that there was a difference of opinion among the shareholders, the majority of the English shareholders wishing to get back their deposits, while the minority of the English shareholders and the whole of the Canada shareholders wished to proceed. The London committee were not individually interested in the railway, none of them holding shares; but those who were partners in Canada houses were interested in shares taken there, and he himself was interested as a shareholder in the British American land company, who had taken an interest to the extent of £25,000. That was not a bubble company, but it had obtained an act of parliament from the Canadian legislature, and Mr. Galt was sent to this country to allot shares, and he (the chairman) and others were induced to join him in disposing of those shares.—The funds were at present safe in this country—£9000 being invested in exchequer bills, and about £500 or £600 in bankers' hands. They (the London committee) who only acted in a ministerial capacity, had been threatened with legal proceedings if they paid over the money to the Canadian directors, while they had received a formal demand from Canada for it; but, under present circumstances, they had not forwarded it. There were but two plans that he knew of to dissolve the company, the one by legal proceedings, which he did not think would be effective, and the other by putting themselves in a situation to be represented by proxies at a meeting to be held next month in Canada, when, if they obtained a majority, they might be able to get back their deposits, though he did not believe that the directors had the power to dissolve the company, and he thought that nothing but an act of parliament could dissolve an act of parliament. It had originally been proposed to allot 10,000 shares in England; 47,000 were applied for, and, after due inquiry, 7,000 were allotted; and they received a communication from Canada not to allot any more shares than the 7,000, in consequence of the number of applications there. A correspondence was then read with the directors of the company in Canada, in which the London committee placed in a strong light the disinclination of the English shareholders to proceed; and the Canada directors declared that they had no power to break up the company, or to return any deposits without the sanction of a general meeting, which they did not think, in this state of feeling in Canada, would be obtained; though, to give every opportunity to the shareholders to be represented at a general meeting to be held in July on the subject, it would not be fixed before the 15th. Mr. Aggis said, that he rested his claim for the return of his deposits upon a failure in the attempt to raise the capital, only 2,633 shares having been paid upon. The chairman then read a series of questions put by Mr. Aggis to the provisional committee, with their answers, from which it appeared that none of the provisional committee ever took or held shares; that

only twenty-one persons signed the books of the company, holding 650 shares; that about 47,000 shares were applied for, which were reduced to 7,000—and Mr. Galt, the attorney of the Canada company, addressed a letter, requesting no more to be allotted. The 4,367 shares out of the 7,000 were not cancelled by the committee, but the letters of allotment stated, that if the deposits were not paid by a certain day, the letters would be void. The chairman said that the corporation in Montreal had made a claim upon them for the money, but they had hesitated to pay it over, feeling that they were between two parties; and if the English shareholders could substantiate a legal right to the deposits, they would be happy to pay it over.—Mr. Aggis maintained that the provisional committee had placed themselves in a false position, and he trusted that they would not part with the money at present, as he believed a meeting of the shareholders would be held in Montreal on the subject, at which a different opinion might be expressed to that taken by the directors. He thought the committee here ought to return the money, and run the risk of law proceedings 3,000 miles off, in preference to proceedings at their own doors. Mr. Gilbert suggested that a case might be agreed upon between the scripholders and the provisional committee, and advise taken thereon. Mr. Bischoff, the solicitor, said that a case had been prepared, in consequence of an application being made by a large shareholder for the deposits to be returned, and submitted to the solicitor general and Mr. Crompton, who gave it as their opinion that the committee could not return the deposits without the consent of the Canadian directors. Mr. Gilbert handed in a protest against the money being parted with to any but the scripholders, as he would hold the committee liable for his deposits. After a long conversational discussion, the meeting broke up with the understanding that legal proceedings should be taken against the committee, to see whether they were not obliged to return the deposits in full, as, from an abortive scheme, only 2,633 shares having been paid upon, instead of upon 10,000, as originally proposed to be issued in this country, and the shareholders recognising no other parties than the English directors. Thanks being voted to the chairman, the meeting separated.—*Herald's Journal.*

Coal and the Tariff.—We learn from the 'Miners Journal,' that a much larger quantity of coal than usual, has been sent to market over the Reading railroad. The quantity sent for the week ending Thursday last, was 36,520 tons; the quantity to be sent during the month of August, is 160,000 tons.

SPRING STEEL FOR LOCOMOTIVES,
Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address
JOAN F. WINSLOW, Agent,
Albany Iron and Nail Works,

PATENT INDESTRUCTIBLE WATER
Pipes. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly *indestructible*. The prices are less than those of iron or lead. We also manufacture Basons and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.
J. BALL & CO.

MACHINE WORKS OF ROGERS,
Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.
Railroad Work.

Locomotive steam engines and tenders; driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
a45 Paterson, N. J., or 60 Wall street, N. York.

KEARNEY FIRE BRICK, F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to
James P. Allaire, }
Peter Cooper, } New York.
Murdock, Leavitt & Co. }
J. Triplett & Son, Richmond, Va.
J. R. Anderson, Tredegar Iron Works, Richmond, Va.
J. Patton, Jr. } Philadelphia, Pa.
Colwell & Co. }
J. M. L. & W. H. Scovill, Waterbury, Con.
N. E. Screw Co. } Providence, R. I.
Eagle Screw Co. }
William Parker, Supt. Bost. and Worc. R. R.
New Jersey Malleable Iron Co., Newark, N. J.
Gardiner, Harrison & Co. Newark, N. J.
25,000 to 30,000 made weekly. 35 1y

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE,
ja45 N. E. cor. 12th and Market sts., Philad., Pa.

A. & G. RALSTON & CO., NO. 4
A. South Front St., Philadelphia, Pa.
Have now on hand, for sale, Railroad Iron, viz:
180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long.
25 " 2½ x ½ " Flange Iron Rails.
75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 63,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 feet two stories high, with a shed part 45x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x35 feet.

Also—a lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

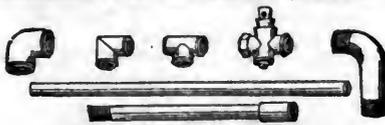
For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by MORRIS, TASKER & MORRIS, Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture: and for sale by

MORRIS TASKER & MORRIS, Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

LAP—WELDED WROUGHT IRON TUBES

FOR TUBULAR BOILERS, FROM 1 1/4 TO 6 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee. 28 Platt street, New York.

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP, 75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	Tons.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4 1/2	13 5	10	24 -	50	15-16	20	
13	3 1/2	8 3	8 1/2	16 -	27	11-16	13 1/2	
14	3 1/4	6 11	7 1/2	12 8	17	9-16	10 1/2	
15	2 1/2	5 2	6 1/2	9 4	13 1/2	1-2	7 1/2	
16	2 1/4	4 3	6	8 8	10 1/2	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. G. A. NICOLLS, Reading, Pa. ja45

LAWRENCE'S ROSENDALE HYDRALIC Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wrot. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wrot. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions.

CALIGRAPHIC BLACK LEAD PENCIL, Manufactured by E. Wolf and Son, 23 Church Street, Spitalfields, London.

The Caligraphic Pencils have been invented by E. Wolf and Son, after the expenditure of much time and labor. They are the result of many experiments; and every effort that ingenuity and experience could suggest, has been made to insure the highest degree of excellence, and the profession may rely upon their being all that can be desired.

They are perfectly free from grit; and for richness of tone, depth of color, delicacy of tint, and evenness of texture, they are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use.

The Caligraphic Pencils will also recommend themselves to all who use the Black Lead Pencils as an instrument of professional importance or recreation, by their being little more than half the price of other pencils.

An allowance will be made on every groce purchased by Artists or Teachers.

May be had of all Artists, Colourmen, Stationers, Booksellers, etc.

A single pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

Caution.—To prevent imposition, a highly finished and embossed protection wrapper, difficult of imitation, is put around each dozen of Pencils. Each Pencil will be stamped on both sides, "Caligraphic Black Lead, E. Wolf and Son, London."

The subscriber has on hand a full supply of Wolf and Sons celebrated Creta Loevis, or Colored Drawing Chalks, also their pure Cumberland Lead and extra prepared Lead Pencils, and Mathematical Lead Pencils.

P. A. MESIER, Stationer and Sole Agent, No. 49 Wall Street.

N. B.—A complete assortment of Steven's Genuine Inks, Fluids, Imitating Wood stains, and Graining Colours at the Manufacturers prices. 191f

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, 1y10 near Third, below Walnut, Philadelphia.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. **JOHN F. WINSLOW, Agent.**

Albany Iron and Nail Works, Troy, N. Y.
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.
Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

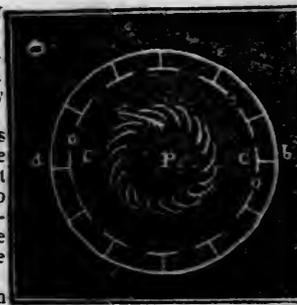
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. **FRENCH & BAIRD.**

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45



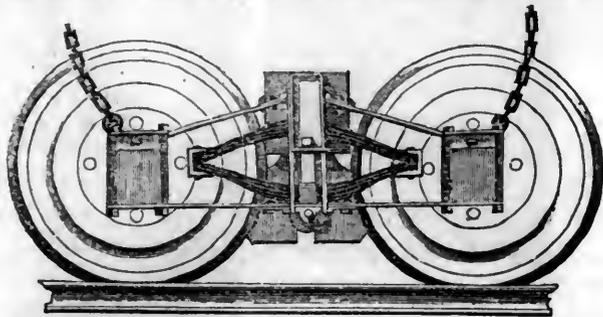
BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco Pressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes. 1y1

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Supt Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

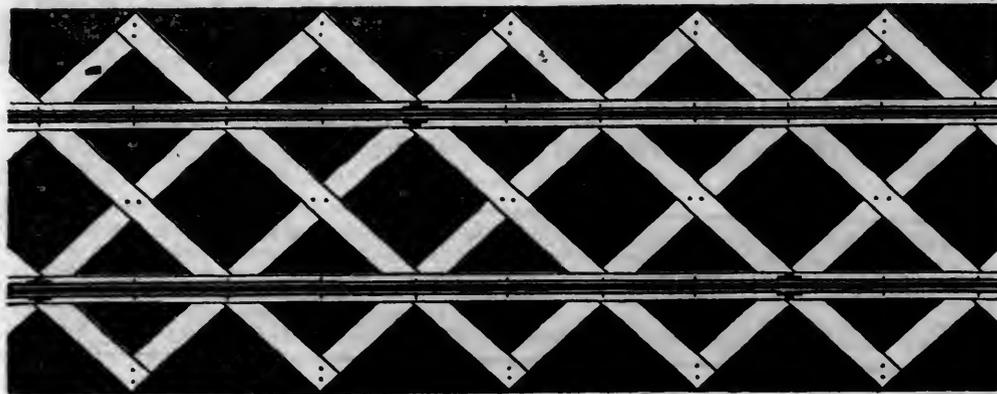
Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

Supt Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

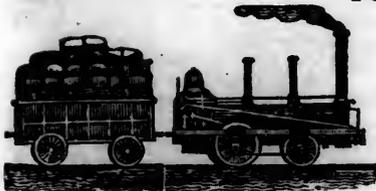
One page per annum.....	\$125 00
One column "	50 00
One square "	15 00
One page per month.....	20 00
One column "	8 00
One square "	2 50
One page, single insertion.....	8 00
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 - J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
 - TROY IRON and NAIL FACTORY, H. Burden, Agent. (See Adv.)
 - ROGERS, KETCHUM and GROSVENOR, Patterson, N. J. (See Adv.)
 - S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
 - NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
 - KITE'S Patent Safety Beam. (See Adv.)
 - FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
 - NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
 - ROSS WINANS, Baltimore, Md.
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 - STILLMAN, ALLEN & Co., N. Y.
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 - ANDREW MENEELY, West Troy.
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 - MERRICK & TOWNE, do.
 - HINCKLEY & DRURY, Boston.
 - C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

AMERICAN RAILROAD JOURNAL,

AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



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SATURDAY, AUGUST 29, 1846.

[WHOLE No. 532, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m. Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m. Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3½ p.m. All baggage at the risk of the owners thereof. 31 ly **W. RAYMOND LEE, Sup't.**

BRANCH RAILROAD AND STAGES CONNECTING with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Flares are Less when paid for Tickets than when paid in the Cars. 32 ly **J. W. STOWELL, Sup't.**

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.
Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m.
Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m.
Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m.
Portland for Boston at 7½ a.m., and 3 p.m.
Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.
Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m.
Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, Super't.

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4, 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams' Bridge trains will be regulated according to the state of the weather. 18

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A. M. and 4 P. M.
" Middletown at 6½ A. M. and 5½ P. M.
FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P. M.
" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. **H. C. SEYMOUR, Sup't.** March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Millford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 tf

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced. 1846.. Spring Arrangement.. 1846

Commencing April 1st.

Passenger trains leave daily, Sundays excepted—

Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6½ " and 2½ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES,
Superintendent and Engineer.
Western Railroad Office,
Springfield, April 1, 1846. } 14 ly

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston and Albany. Running time between Greenbush and Troy, 15 minutes.

TROY AND SCHENECTADY RAILROAD. This road is laid its entire length with the heaviest H rail—which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

TROY AND SARATOGA RAILROAD.
THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug. 3, 1846.

1y 32

THE BEST RAILROAD ROUTE TO THE
Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky \$8 00
" " Sandusky to Buffalo, Cabin 6 00
" " " " " Steerage 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.,] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, Sup't, etc.
M. & S. C. R. R. Co.

Sandusky, Ohio.

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,** Agents.

Corner of Cedar and Greenwich Sts.

48 1y

NEW RAILROAD ROUTE FROM
Buffalo to Cincinnati.

Passengers destined for Columbus and Cincinnati, O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance..... 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance..... 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

TIME.

From Buffalo to Sandusky..... 24 hours.
Leave Sandusky 5 a.m. to Columbus.... 14 "
From Columbus to Cincinnati..... 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.

From Buffalo to Sandusky, Cabin \$6 00
" " " " " Steerage 3 00
" Sandusky to Columbus..... 4 50
" " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Sup't, etc.
M. & S. C. R. R. Co.

Sandusky City, Ohio.

BALTIMORE AND OHIO RAILROAD.
MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7 1/2 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pitsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13yl

80 TONS 2 1/2 x 1/2 Flat Bar Railroad Iron.

50 " 1 1/2 x 1/2 " " " "
8 " 2 1/2 x 1/2 " " " "
15 " 1 x 1/2 " " " "
with Spikes and Plates, for sale by
A. & G. RALSTON & CO.,
4 South Front st., Philadelphia:

1m30

BALTIMORE AND SUSQUEHANNA
Railroad.—Reduction of Fare. Morning and

Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:
Leaves Baltimore at..... 9 a.m. and 3 1/2 p.m.
Arrives at..... 9 a.m. and 6 1/2 p.m.
Leaves York at..... 5 a.m. and 3 p.m.
Arrives at..... 12 1/2 p.m. and 8 p.m.
Leaves York for Columbia at... 1 1/2 p.m. and 8 a.m.
Leaves Columbia for York at... 8 a.m. and 2 p.m.

FARE.

Fare to York..... \$1 50
" Wrightsville..... 2 00
" Columbia..... 2 12 1/2

Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg..... \$9
Or via Lancaster by railroad..... 10
Through tickets to Harrisburg or Gettysburg.. 3
In connection with the afternoon train at 3 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at..... 5 1/2 p.m.
Returning, leaves Owing's Mills at..... 7 a.m.
D. C. H. BORDLEY, Sup't.
31 1y Ticket Office, 63 North st.

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.
Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 26 miles. Fare \$1 25.
On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.
The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

35 1y

SOUTH CAROLINA RAILROAD.—A
Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculmbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily..... \$26 50
Fare through from Charleston to Huntsville, Decatur and Tusculmbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.
1y25 JOHN KING, Jr, Agent.

CENTRAL RAILROAD—FROM SAVANNAH
to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—
On weight goods generally... 50 cts. per hundred.
On measurement goods..... 13 cts. per cubic ft.
On brls. wet (except molasses and oil)..... \$150 per barrel.
On brls. dry (except lime)... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
On hds. and pipes of liquor, not over 120 gallons..... \$5 00 per hhd.
On molasses and oil..... \$6 00 per hhd.
Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, 40 Gen'l. Sup't. Transportation.

MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.
These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.
2v19 1y

CENTRAL AND MACON AND WESTERN Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad	190	Miles.
Macon to Atlanta—Macon and Western	101	
Atlanta to Oothcaloga—Western and Atlantic	80	

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot	0 20	pr. 100lbs. 35
Crockery, per cubic foot	0 15	" 35
Molasses and Oil, per hhd., (smaller casks in proportion)	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each	1 25	1 50
Ploughs, (small,) and Wheelbarrows	0 80	1 05
Salt, per Liverpool Sack	0 70	0 95

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846.

GEORGIA RAILROAD, FROM AUGUSTA to ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 358 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot	16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs.	95 "
" Sugar, coffee, iron, hardware, etc.	65 "
" Flour, bacon, mill machinery, grindstones, etc.	33½ "
" Molasses, per hoghead \$9.50; salt per bus.	20 "
" Ploughs and cornshellers, each	75 "

Passengers \$10.50; children under 12 years of age half price. Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON, Ch. Eng. and Gen. Agent.

Augusta, Oct. 21 1845

BOILER IRON.—55 TONS ASSORTED Boiler Iron, Nos. 3, 4 and 5, and of widths of 26, 32 and 36 inches, random lengths, in store, and for sale by A. & G. RALSTON & CO., 1m30 4 South Front st., Philadelphia.

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT, Chief Engineer. Atlanta, Georgia, April 16th, 1846.

LITTLE MIAMI RAILROAD.—1846.— Summer Arrangement.

Two passenger trains daily.

On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1½ p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m.

On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m.

Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanewsville, Wheeling, Cleveland, Sandusky City and Springfield.

Tickets may be procured at the depot on East Front street.

The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount.

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Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00

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STOCTON & FALLS, Agents.

MARAMEC IRON WORKS FOR SALE.

By Authority of a power of Attorney from Messrs. Massey and James, I will sell at Public Auction, at the Court House in the city of St. Louis, on MONDAY, the 2nd day of November next, the above named valuable IRON WORKS—together with 8,000 ACRES OF LAND, more or less, on which there are several valuable and productive Farms open and in cultivation.

The Maramec Iron Works are situated at the Maramec Big Spring, in Crawford Co., Mo., and consist of 1 BLAST FURNACE; 1 AIR FURNACE; 1 REFINING FORGE, with large Hammer for making Blooms and Anchones; 2 CHEFFERY FORGES for Drawing Bar Iron; 1 ROLLING MILL for Rolling Blooms into Bars and Plates; 1 SAW AND 1 GRIST MILL,

All within 300 Yards of the head of the spring. There are 2 large frame Coal Houses, and all other Buildings necessary, such as Shops and Houses for the workmen.

This Spring is one of the largest in Missouri, discharging at the lowest time 7,000 cubic feet of water per minute. The Ore Bank from which the Ore has been heretofore taken is about 600 yards from the furnace; it is the Specular Iron Ore, the best for making Bar Iron, and the quantity inexhaustible.—It is an Iron Mountain, 400 feet above the level of the Maramec River; the ore is entirely uncovered, and there is an easy descent and a good road from it to the furnace.

The lands have been carefully selected by one of the owners with a view to the interest and convenience of the Works, and are situated principally on the Maramec River and its tributaries, embracing the best bottom lands and water powers. The following detached tracts, comprized in the above quantity, were selected for the advantages they possess;

183½ ACRES in T. 40 N. of R. 8 W. in Sec. 3, near Wherry's Mill, in Osage Co.; entered to secure a very valuable Mill power on the Branca Spring and a good landing on the Gasconade River.

80 ACRES on Benton's Creek, 12 miles from the Works; entered to secure an extensive and valuable Ore Bank 2½ miles from the Maramec, at a point where there is ample water power.

320 ACRES in T. 38 N. of R. 4 W. in Sec. 22 and 28, affording an extensive and valuable water power on the Maramec river.

160 ACRES in T. 37 N. of R. 3 W. in Sec. 4, embraces two inexhaustible and valuable Ore Banks and is 1½ miles from Water power sufficient for a furnace and Grist Mill, and is distant 6 miles from the above site on the Maramec.

80 ACRES in T. 37 N. of R. 8 W. in Sec. 33, including an extensive bank of excellent Ore, and distant 1½ miles from water power on the waters of the Gasconade River, in Pulaski Co., sufficient for Furnace and Mills. All those Banks are of the same kind as the one at the Works, and deemed inexhaustible.

1 LOT, containing nearly one Acre, on the South Bank of the Missouri River, 4 Miles above the town of Hermann, purchased for a warehouse and landing, and is one of the best landings on the River.

The lands above described are well timbered, and have been selected with a view to have an ample supply of wood and coal, for fences, building and other purposes. There are on the land valuable quarries of Limestone well adapted for Fluxes for the Ore, and also good quarries of Rock suitable for building. There are also on the land a great number the finest kind of Springs. A large portion of the lands are bottoms well adapted to the production of Corn and other crops. The Works are situated in a very pleasant and healthful part of the country. The Maramec ore is believed to be admirably adapted to the manufacture of steel.

A further description of the property at this time is considered unnecessary, as those wishing to purchase will no doubt view the property, which will be shown by the Agent, residing at the works.

The terms of payment required will be one-third of the purchase money in hand and the balance in three equal annual payments, secured by mortgage on all the property.

A more particular description of the property will be given, and further conditions of the sale made known, on the day of sale.

Jno. F. ARMSTRONG, Agent. St. Louis, June 6, 1846.

The Louisville, (Ky.,) Journal, Cincinnati Gazette, Tribune (Portsmouth, O.,) Nashville Whig, Pittsburg Gazette, National Intelligencer, United States Gazette, (Phila.) Railroad Journal (N. Y.,) and Boston Atlas, will publish the above once a week until the 20th day of October next, and send bills to this office for settlement, and mark price on first paper. 1845

TO RAILROAD COMPANIES AND MANUFACTURERS OF RAILROAD MACHINERY.

The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.



RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATTAILLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 133 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched

he extreme heat. RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed,)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138 1/2 Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

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CUSHMAN'S COMPOUND IRON RAILS etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

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Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

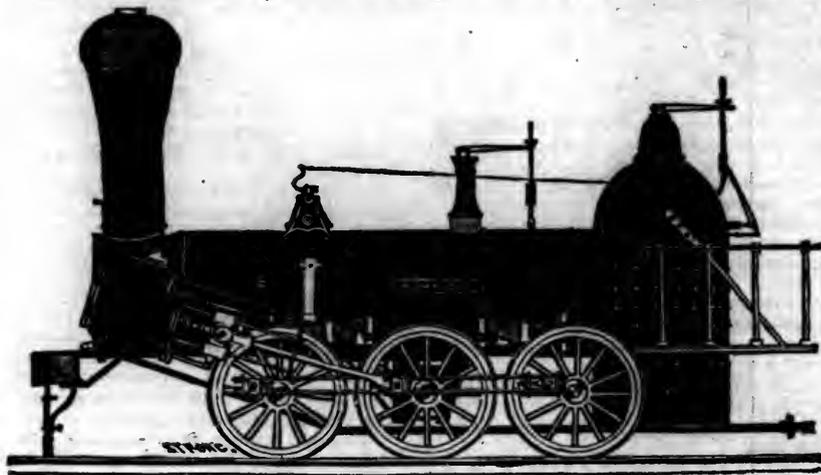
RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by
A. & G. RALSTON
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THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	15 inches Diameter of Cylinder,	× 20 inches Stroke.
1,	15 inches	× 20
2,	14	× 24
3,	14 1/2	× 20
4,	12 1/2	× 20
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6,	10 1/2	× 18

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

Mathematics as a Branch of Professional Study.

Euclid's Doctrine of the Line and Plane.

Most readers who have considered our previous remarks with attention will acquit us we are sure, of all captious motives in our criticism upon any part of the ancient geometrical treatises. At the same time, from the concluding paragraph of the preceding number of this series, they will be prepared to anticipate our maintaining serious objections to the ancient compositions upon that branch of geometry which relates to space of more than two dimensions. The subject, in fact, does not appear to be one in which they felt themselves to be masters; and indeed the writings of Euclid are the only ones in which it is really certain that an attempt to embody the discussions in a systematic form was ever made by the Platonic geometers—or even till very recent times. Isolated subjects, it is true, involving space of three dimensions, were discussed by different geometers; but except Euclid's eleventh and subsequent books no regular and symmetrical treatise is recorded to have been even attempted by them.

We need only look into a few of Euclid's definitions in the opening of his eleventh book to be convinced that his grasp of these subjects was less firm, and his views less matured, than when he was treating of plane figures. In fact, the very style of thinking is altogether different; and we must confess, that, but for the concurrent testimony in favor of Euclid's being the author of these books, the internal evidence against that view is so powerful on our own mind, as to almost lead us to reject the belief of the copaternity of Euclid to the first ten, and to the subsequent books of "the elements."

Take for instance the definitions of the circle, (*i.*, *defs.* 15, 16,) and of the sphere, cone, cylinder, (*xi.*, *defs.* 14—22,) as specimens. In the former case the figure is defined by an absolute property, and has a hypothetical previous existence; in the latter the figures are defined by their geneses, and are not hypothetically pre-existent. Those geometers who are familiar with the discussions which have arisen respecting the introduction of the idea of motion into pure geometry, will appreciate the force of this discrepancy;—it is a fundamental one—a discrepancy in the first principles of geometricizing. Can two principles so diametrically opposed have been employed by the same geometer? and that geometer onesocratically scrutinizing and discriminative as the inventor of the *Porism*?

Take as another instance, the dihedral and the solid angle (*xi.*, *defs.* 4, 6, 9,) in comparison with the plane angle (*i.*, *defs.* 9, 10.)—In the definition of the plane angle, as we have already remarked, the aim appears to have been to restrict the popular signification of "a household word" to a special signification:—that of only carrying into geometry the idea of inclination when we employ the term angle. Surely it might have been thought that as the idea of inclination was so familiar in plane geometry as this use of it shows, it must have been equally clear when referred to a plane as when to a line. At

any rate, a sloping wall, a sloping lawn, or a sloping roof, is amongst ourselves as familiar a notion as a sloping may-pole, or a sloping beam. Why it should have been different in Athens or Alexandria, it is possible that "profound Grecians" may be able to tell us—but they have not told us yet. Mark however, how Euclid treats this subject. He defines a plane angle by the inclination of its legs to one another; and then proceeds to define the inclination of two planes by a plane angle! In short, that an angle is an inclination in the first place, and in the second that an inclination is an angle! Again, if a solid angle, he gives only a popular description: it is "that which is made by the meeting in one point of three or more plane angles which are not in the same plane." There is in this no allusion to inclination, nor to any characterizing property, beyond giving a name to a figure formed of a certain assemblage of plane angles. We do not, indeed, object to this definition viewed in itself; but mention it as characterizing, in connection with the other two, an extremely vague conception of the nature of angular magnitude in general. In truth, we consider that this is the foundation of the difficulty in which Euclid was trammelled in his composition of the doctrine of the line and plane.

But to return. We find that his definition of a right angle in *plano* is made to depend upon the general definition of a rectilineal angle, whilst the *dihedral* right angle is conceived, not only apart from the general definition of a dihedral angle, but altogether independently of it. There is in fact, no reason, *a priori*, that the definition viewed as a particular case (that of the adjacent dihedral angles being equal, *def.* 6,) might not actually clash with that which he has given in *def.* 4; and this consideration is of itself sufficient to prove the illogical character of Euclid's process. Still, our argument so far, is rather intended to show the discrepancy of the views under which the first and the eleventh books were composed, than to enforce the absolute inaccuracy of the process employed in the latter book—though we think it will be difficult to defend even the logic of the parts to which we have adverted. We shall presently consider that book somewhat more particularly under this aspect.

There is another circumstance to which we may call attention under the aspect of discrepancy of manner. It is, that in the very early parts of his first book, the practice of *supra-position* of figures is brought into effective play; whilst in the eleventh book, there is not to be found the slightest efficient trace of the method. At the same time it will appear from the three interpolated propositions (A, B, C,) of Simson's edition, how effective—nay, how essential—the method becomes in the case where he (Simson) employs it.—The reader who goes through those propositions, and notices carefully their functions in some of the succeeding demonstrations, will almost be ready to question our accuracy when we tell them that they are *not* substituted for other propositions which are left out in that edition, but actual interpolations. If he will

consider the *hiatus* that existed at this place of the work, he will wonder how such inconclusive results could have proceeded from the pen of Euclid. It is the more remarkable that Euclid should have adopted such a mode of reasoning, or rather have rejected a principle in his reasoning, that would have cleared away so much inconclusiveness with so little real trouble. Neither is it in the case of *conclusiveness alone*, that the rejection of the hypothetical transfer of lines and planes have been injurious to his perspicuity. He might also have conferred upon this subject much greater simplicity, even where the logic is perfectly conclusive, by the adoption of this hypothetical transfer, or by the very effective method which has been employed by the French in their descriptive geometry—the method of *rabattement*.*

These are not by any means all the discrepancies which may be pointed out in the *essential character* of the methods employed in the first and eleventh books of Euclid; but they are of themselves, we think, sufficient to cloud our admission of the same authorship with a considerable degree of doubt. It is, indeed, barely possible that they might have been so composed, at different and very distant intervals of the life of the same person; and if so, our impression would be that the eleventh book was composed long antecedent to the first.

It is assumed by Euclid, and that without even giving the formal statement of it as an axiom, that if two planes which meet be cut by two profile planes,† the angles contained by the one pair of lines of section is equal to the angle contained by the other pair. Is this really so obvious a truth as to justify its assumption without even formal specification? Is it more obvious, for instance, than (*Prop.* xv.) that "if two parallel planes be cut by a third plane, the sections will be parallel?"—Is it more obvious than (*Prop.* x.) that "if two straight lines which meet one another, be parallel to two others which meet one another though not in the same plane with the first two, the first two and the other two shall contain equal angles?" Thus much, at least, is certain; that as a proposition it admits of a legitimate demonstration; and that this demonstration cannot be (at least it never has been) effected without the aid of the last quoted proposition, or something tantamount to it. Not only, therefore, is Euclid's conception of an angle defective in point of clearness, but the reasoning by which he proceeds in the use of it is inconsequential, and therefore, invalid.

We have already referred to Euclid's rejection of the method of hypothetical *supra-position* as an instrument of demonstration.—The treatment of the equality of two dihedral angles is a case in point, not only of the ad-

* It is worthy of remark, however, that though the principle of *rabattement* is used in the first and second propositions of the eleventh book, it occurs nowhere else; though it would have been very effective in other parts, and is in those particular ones unnecessary.

† We use this word in a sense sufficiently familiar to most of our readers; but it may be worth while to state generally, that the *profile plane* is that which is perpendicular to the intersection of the other two.

vantage, but of the almost absolute necessity, for its employment in this branch of geometry. He defines the equality of two "inclinations," by the equality of their corresponding profile angles; while in his first book he establishes the equality of two angles by showing the necessary coincidence of the position of their containing legs—the hypothesis of the theorem and the transposition of the fixing parts of the figures being admitted. Most of the French geometers who have even adopted Euclid's definition of the dihedral angle have seen the necessity of proving the equality of all profile angles made in the same pair of planes, of which necessity we have already stated our own views: but the more recent authors have adopted the method of supraposition in this argument, with such good effect as might have been anticipated. Perhaps however, Lefebure de Fourcy, (in the introduction to his *Descriptive Geometry*,) has carried it out with more of the elegant simplicity that characterizes his writings than any other author—not excepting even the clear, concise, and perspicuous Vincent; or the careful, scrutinizing and cogent Legendre.

An opinion seems to have ever prevailed that the line as a geometrical element is a simpler object than a plane; and this has always exhibited itself by elementary writers bringing it into consideration *previously* to the plane. All our works on analytical geometry, too, where we should have expected the equations themselves to have impressed a contrary doctrine in the mind, bear witness to this prevalent notion. Such writers are however, for the most part, mere routinists—their only difference, each from his predecessor, being in some matters of mere detail, and never ascending to anything connected with general principles, and least of all with first principles. If we may use a homely comparison, (of more force perhaps in earlier times than in the present,) we should say, that the first writer on any such subjects, is "the bell-wether whose tinklings the whole flock instinctively follow." The individual components of the herd may turn a few feet to one side of their leader's track or to the other, to avoid their mutual jostling: but the same general line of march is preserved by all, and kept as faithfully as if their scientific safety were perilled by any marked departure from it. All men possess the "right of private judgment:" but how few are able to avail themselves of it, even when conceded to the full!

In respect to the doctrine adverted to, Euclid appears to be the great "bell-wether."—The most remote and complex case of perpendicularity in a natural system, is that of the *line to the plane*; and this is testified by the complexity of the definition of this case of perpendicularity given by Euclid, and after him by every writer on the subject. It is even a subject of ordinary discovery by intelligent and attentive students, to whom the definition is for the first time propounded, that for aught which appears, the things assumed may be incongruous with each other.

A good deal of artificial inconvenience is created by the practice of giving the *entire* of

the definitions relating to any one mathematical subject, in the outset of a book or section. Some writers, (amongst English ones, Lardner and Leslie, and amongst the French, Vincent,) wait till a definition is *required*, to introduce it; and it has been attempted by some metaphysicians to meet the objection to which we have just adverted, by viewing it merely as misplaced in the development of the geometrical system. Were this indeed, all the objection that we feel to Euclid's fourth definition, we should have scarcely thought it needed any specific notice. It is, no doubt, proved, (and proved too, by Euclid with an elegance fully equal to that by which any other author has proved it,) that "if a straight line stand at right angles to each of two straight lines at their point of intersection, it shall also be at right angles to every other line passing through that point and situated in the plane which contains those two lines." It therefore follows, that a straight line *can be* at right angles to every line passing through a given point in a given plane, *if it can be at right angles in two of them*. It is remarkable, however, that Euclid nowhere proves this proposition; and that the writers who have attempted it are extremely few. We do not at this moment recollect any English writers except Cresswell* and Lardner who have considered this to be necessary. Neither of these authors has however, made any material impression on the public mind.

The mere absence of a clear proof is, undoubtedly, a serious objection, in such a writer as the author of the "Elements:" but it assumes a graver character when looked at in reference to its implication of the state of his views on this subject. The fundamental canon of logical definition is violated in this case, viz: "to give as many conditions as shall confine the thing to be strictly what it is and no more." If two few, the definition so given may belong to other things besides that under consideration, and is therefore incomplete: if too many, the added ones must be either superfluous or contradictory. If superfluous, they are *properties* of the figure defined, and hence require a *proof*, subsequently to, and dependent on, the definition itself.

By a different arrangement in the order of consecutive dependencies, all this might have been avoided; and the antecedent consideration of the dihedral angle would have removed much of the confusion of ideas—yes, the whole—of which most persons are conscious, when they have read the first half of the eleventh book. We hold that perspicuity is the first

* Cresswell, from his writing during the transition period of the Cambridge mathematical taste, was treated with a neglect that was perhaps natural under the circumstances, but which we are sure is a most unjust criterion of the value of his works; and Dr. Lardner had to sustain, in respect to his writings, a large share of the hostility which was brought to bear upon the then newly founded college in Gower street—whose interests admitted of being wounded through his side. We are, indeed, as well aware as the most captious of our readers can be, that Lardner's works are very unequal; yet they bear undeniable marks of intellectual ability, and his Euclid certainly possesses many meritorious points—although we would not be understood to recommend it as a whole.

and highest test of the naturalness of a scientific development; and in this respect, the book in question is singularly deficient.

But even if we adhere to Euclid's own arrangement in this respect, the superfluous conditions, which are introduced into his definition of a line at right angles to a plane ought to have been avoided—as evidently they might with the greatest ease have been, under the influence of a clear conception of the subject. For instance, take the following obvious route:

Def. "When a line is perpendicular to any two lines in the plane, at their point of intersection, it is said to be perpendicular to the plane."

Prop. "When a line is perpendicular to a plane, it is perpendicular to every straight line in that plane which meets it."

This we believe, is very nearly the form in which every careful student is led by his own reflections to place the matter; and under this form too, we know that some of our most able teachers are in the habit of placing it before their pupils' minds in the outset.

Another singular instance of Euclid's viguence is in *Prop. vii* of this book. He has framed that proposition merely for its use in the next:—whilst it is contained entirely in the definitions of the plane and parallel lines. Thus, the lines being parallel they are in one plane; and a plane superficies is that in which any two points being taken, the straight line which joins them lies wholly in that plane, *defs. 35 and 7, book i.* These are definitions only, and as the "proposition" follows without the aid of an axiom, or the use of any theorem, it is only a modified statement of congruity of the two definitions we have quoted. Euclid however, not perceiving this has given a formal demonstration, *ex absurdo*.

We grant that the arrangement and dependent demonstrations of the 4th, 5th, 6th, 8th, 9th, and 10th propositions follow each the other with much elegance; and indeed, we consider this particular feature to be the main beauty of the eleventh book. At the same time, this entire series would find a more fitting place much further onwards in the development of the subject. They are more akin, especially the first named four, to the 18th and 19th, and would be advantageously placed posterior to them, provided these themselves were demonstrated in the way they might be.

It is unnecessary to dwell further on these topics, than just to allude to the extremely *gauche* demonstrations given, not by Euclid only, but by most (all?) subsequent writers, of *prop. 21*. Euclid indeed, only gives the first case in his demonstration, the trihedral angle, though he enunciates it generally; the second or general case of the demonstration is by Simson; and the *cor. 1, prop. 32, book i.*, is interpolated by him for that purpose. We shall hereafter propose a new demonstration of this property, much more simple and intelligible, and equally conclusive with that in the "elements."

We have dwelt at greater length than we intended upon these topics; and yet have not put down the half that we could urge in fa-

vor of our view of the subject. We have indeed, touched many of the points to which we have adverted too lightly; but we have only expressed our honest convictions formed many years ago, and enforced by every subsequent year's reflection on these questions. Should mathematicians be found who differ from us, all we ask of them is, to scrutinize the solid geometry of Euclid, with the same honest and earnest desire to arrive at correct views that we have done; and should they then be led to entertain an opinion different from ours, we shall entertain the same respect for them that we should in case of their proceeding further in our own route than we have done. We feel convinced, however, upon one point:—that whatever opinion any geometer may entertain as to the merits of Euclid's development of the geometry of space in a logical point of view, no one will be found to contend for its completeness. Properties fully as numerous as those which he has given of plane triangles are required in the application of solid geometry to practical purposes; and that without our going further into the subject than the inclinations, parallelisms, and perpendicularities of lines and planes, and the trihedral angle. The pyramid, cone, cylinder, and sphere, to say nothing of the general surfaces of the second order, are also essential subjects of study, when we study with a practical aim. Will any one contend for the completeness, then, of Euclid's writings on this subject?

We scarcely need add that we would on no account recommend Euclid's twelfth book as a subject of professional study—nor even the latter half of the eleventh. They all relate to quadrature and cubature; the truths at which they arrive are very limited; and the reasonings by which they are obtained, (though the "method of exhaustions" is a very subtle and refined method of proof,) are so much more complex than more modern forms of demonstration, (albeit, the same, or nearly so in principle,) as to render it an almost entire waste of time to enter into them. They are amongst the very simplest of the applications of the Integral Calculus; and, even without having recourse to that method, the method of limits, which is by our best writers considered the true foundation of the calculus itself, will enable us to obtain truths far more recondite and general than those at which Euclid has arrived. "What, then, Mr. editor, do you recommend?" We will answer presently.

Miscellaneous Items.

The earnings of the Mohawk railroad continue to be highly favorable. For the week ending 7th Aug., the receipts were,

Passengers, - - - - -	\$2,788 03
Freight, - - - - -	372 96
Total, - - - - -	2,890 99
Same week last year, - - - - -	2,556 23

Excess in 1846, - - - - - \$334 76

The above earnings are the largest since 1841, when the running expenses were twice as large as they now are.—*Argus.*

Michigan Central Railroad.—The receipts

upon this road for the month of July, 1846 and 1845, are as follows:

1846.	
From passengers, - - - - -	\$10,417 65
For freight, - - - - -	7,054 27
Trans. U. S. mail, - - - - -	872 71—18,344 63
1845.	
From passengers, - - - - -	\$8,280 94
From freight, - - - - -	5,484 74
Trans. U. S. mail, - - - - -	890 11—14,655 79

Increase, - - - - - 3,688 84

Total amount of receipts upon this road since the last report (November 30, 1845,) up to the 31st of July, 1846, inclusive are, - - - - - \$180,492 35

Amount received in corresponding time, 1845, - - - - - 86,589 74

Increase, - - - - - \$93,902 61

The following statement will exhibit the quantity of wheat and flour received at the depot of the Central railroad in Detroit, for the year ending July 31st, 1846:

Flour, - - - - -	249,555 bbls.
Wheat, - - - - -	71,221 bush.

Which is equivalent to 265,381 barrels of flour, or equivalent to 1,184,318 bushels of wheat.—*Detroit Adv.*

Stonington Railroad.—Receipts in July, 1845, - - - - - \$10,125 98
Do. 1846, - - - - - 17,989 50

The net increase of income from the Pennsylvania public works to 1st instant, over the same period last year, is \$21,235.

Railroad.—The directors of the Connecticut and Passumpsic rivers railroad met at Wells River last Tuesday, when they proceeded north to examine the route, and designed to be at Sherbrooke on Friday.

At their meeting at Wells river, a resolution was passed, we understand, directing a committee of the board to make contracts forthwith for building a certain portion of the road, intending to have it completed as soon as the Lebanon road shall be put in operation to the Connecticut.

The board are firm and determined to go straight forward and complete the enterprize as soon as it can be done. That it may be retarded by the radical measures of the government, like other enterprizes, they, as well as other men, are not without fears.

The survey north of Wells river has reached a point some three miles north of Stevens' village.—*Caledonian.*

Erie Railroad.—It is said that upon the decision of the commissioners that the railroad shall be made on the easiest and cheapest route, one hundred miles of the road were ordered to be put under contract at an early day.—*Jour. Com.*

Luxuries of Orange County.—The milk brought down the Erie railroad weighs, with the cans, thirty-five thousand tons a day. It is much richer than the milk which our citizens have heretofore used, and yet is sold much cheaper. The quantity of fruit brought down is very great—40,000 baskets of strawberries on one day in "strawberry time."—*Ibid.*

Loan Obtained.—The Madison (Ind.) Banner informs us that the Madison and Indianapolis railroad company, through their agent, J. F. D. Lanier, Esq., of that city, have succeeded in negotiating in the city of New York a loan of \$100,000 on favorable terms. This will enable the company to complete the road

to Indianapolis by the 1st of March next. The first year the receipts were \$23,000; the second \$43,000; the third, \$62,000; and will probably reach \$100,000 the present year.

Little Miami Railroad.—We are gratified to be able to call attention to the advertisement announcing the arrival and departure of a daily train of cars to and from Springfield and Cincinnati. It will be seen by the superintendent's notice, that on and after Thursday next, the 13th, a passenger train will leave Cincinnati daily, at half past nine o'clock, a.m., for Springfield, and that a similar train will leave Springfield for Cincinnati daily, at 35 minutes past 4 o'clock a.m. The fare between the two points is \$2—distance 84 miles—sufficiently low. The afternoon train from Cincinnati, and the afternoon train from Xenia, will be discontinued after this week.—*Springfield Republic.*

By the following letter from the president of the Cleveland, Columbus and Cincinnati railroad company, says the Cleveland, Ohio, Plaindealer, it will be seen that a portion of the above road is immediately to be put under contract.

OFFICE OF THE CLEVELAND COLUMBUS,
AND CINCINNATI RAILROAD CO. }
Cleveland, July 25, 1846.

Dear Sir: In reply to your request for information as to our movements here in reference to a subject of great interest to this part of Ohio, I have to say, that we have determined to make a specific location of our railroad, to some point not less than 40 miles, probably to Harrisville, beginning as soon as we can get our engineers; say latter part of August. About the same time we shall advertise for proposals, and shall hope to make the contracts by the 1st of October. We have not secured subscriptions enough to complete the 40 miles, but believe we shall make up the deficiency without much trouble. From Harrisville we can take either the Wooster, or Ashland, or Delaware, or Mansfield and Mt. Vernon lines, as the inducements may be. The 40 miles may be made in 12 months probably, but I flatter myself before half that time elapses, 40 miles beyond may be placed under contract; and within a year, the whole line to Columbus. Whether this shall be so depends entirely upon the exertions of the people on the several lines. If they know their own interest and will act as judicious men should, they will furnish the means with a liberal hand. That the road, if made 40 miles, will be continued on to Columbus, I have no doubt; and if so, that it will pay good dividends, I have as little doubt. The difficulty is in making a beginning on a work of this magnitude; but the hazard of this, we here shall assume, and shall only ask our friends below to carry on what we begin, and shall finish to a point so remote as to inspire confidence in the completion of the whole line.—Let this be done, and we shall have friends enough I have little fear.

That this road would add five, and perhaps ten times its cost to the value of the real estate within a range of 15 or 20 miles each side of it, is a proposition susceptible of almost mathematical demonstration, unless the results shall be an exception to those in all parallel cases, and I can see no reason for that. If I am correct in my theory, and if the stock will pay but the legal rate of interest, then this increased value will be obtained without any expense; and if any easier mode exists by which men can add to their property, and not only without doing injury to those about them, but at the same time conferring absolute benefit

upon them, then I am yet to learn what that method is.

Very respectfully, etc.,

JOHN W. ALLEN,
Pres't. C. C. & C. R. R. Co.

H. B. CURTIS, Mt. Vernon, O.

A Powerful Locomotive.—Mr. Ross Winans, of Baltimore, has just done one of four powerful locomotives which he is building for the Reading railroad, and is to be used in the transportation of heavy coal trains. The weight of this engine is 22 tons; its extreme length 25 feet; cylinder 16 1-2 inches in diameter: stroke of steam-rod 20 inches. Its power is equal to that of 250 horses, and it is estimated that it will drag, over ordinary grades, 1,000 tons, gross weight, at the rate from 10 to 12 miles an hour. It runs on eight wheels, all of the same size, and all geared to the driving apparatus; thus giving not only an increase of power, but also rendering the engines less liable to run off the track. A short trip was made by the engine, when it worked very satisfactorily. The American says:

"By a very simple contrivance he has given the engineer the power to contract or expand the exhaust pipe, enabling him to increase or diminish the draft at his pleasure, and thus giving him all the facilities which are generally rendered by a blower. This effectually overcomes the objection which is usually urged against coal on account of the heat of the fire being dampened every time that a fresh supply of fuel is put on.

In order to overcome the crusting over of the fire and the choking of the grate by slag, Mr. W. has built the fire spread much wider and not so deep as is usual. In the present instance the width of the fire-spread extends clear to the inner flange of the wheel. The end attained by this is two-fold. The bed of coals being wider it need not be so thick, and the opportunity for passing a draft through it is thus much better. In the second place the heat in no one part of it being so great as when the bed of fire is thicker, the slate and other refuse of the coal is not so apt to melt and run together, thus forming slag and clinkers. Another improvement in Mr. W.'s engines is to be found in the construction of a door below the one at which the fuel is put in, so that the fireman can get at the very centre of the fire, and, with the aid of his poker, effectually break up any crust that may be forming."

Instantaneous Stopping of a Railway Train.—We, (says Galignani's Messenger of Tuesday,) stated yesterday that we had received an invitation to be present at some experiments with a new break, having for its object the instantaneous stoppage of a railroad train without the slightest shock to the passengers, and that it was our intention to attend. The experiment took place yesterday afternoon at 49 bis. in the Rue Chaussee d'Antin, on a model railway constructed for the purpose. The inventor is an engineer named Alexandre, who has been, it appears, assiduously occupied for four years in bringing the invention to perfection. A model train was let off at different rates of speed, from fifteen to thirty miles an hour, and in all circumstances, the train was checked without the slightest commotion. The break is worked by the conductor of the last carriage, by which means the whole of the carriages, instead of striking each other have a tendency to retreat. As soon as the breaks of the last carriage have taken their position, those of every other carriage in the train act instantaneously, and by another admirable contrivance

the locomotive can, even at the greatest rate of speed be detached from the train. This is not all. The very act of separating the locomotive provides against accident from its running too far forward, for as soon as it has reached a sufficient distance from the train, say fifty to one hundred yards, it stops. We shall not enter into any technical details of the mode in which all this is effected, for they could be understood by only a few of our readers, but as far as the results are concerned we feel convinced that the invention is good. The inventor estimates the expense of adopting his apparatus at a thousand francs for each carriage, which is a small sum, if we consider the importance of the object in view. A commission appointed by the government, have witnessed and it is said, approved of the experiments.

English Iron Trade.

The following quotations are from the London Mining Journal, of 1st August. It will be seen by the remarks of the editor, that they anticipate much benefit to the iron trade from the new American tariff, and also from its introduction, for ship building, into France. We think, however, that the home demand will insure them remunerating prices.

Table with 5 columns: Item, £, s., £, s., d.
Bar a Wales—ton 8 5— 8 10 0
" London 0 0— 9 5 0
Nail rods 0 0—10 5 0
Hoop (staf.) 0 0—11 10 0
Sheet 0 0—12 10 0
Bars 10 10—11 0 0
Rails, average 9 10—10 0 0
Welsh cold blast foundrey pig.... 0 0— 5 5 0
Scotch pig b Clyde 3 12 6 3 15 0
Russian, CCND c 0 0—16 0 0
" PSI 0 0—16 0 0
" Gourieff 14 5—14 10 0
" Archangel 0 0—13 12 6
Swedish z, on the spot 11 0—11 10 0
" Steel, fagt 0 0—15 10 0
kegs e 14 0—14 5 0

a, discount 2 1/2 per cent.; b, net cash; c, discount 2 1/2 per cent.; d, ditto; e, in kegs 1/2 and 1 inch.

Iron [Welsh and Staffordshire] is in good demand at quotations. Scotch pigs have improved within the last few days, and large sales have been made at 72s. 6d. to 75s.

Messrs. Whitcomb & Barton, Old Broad st., say: English bar iron continues in great request, at a shade under our quotations, and large sales made during the week, delivered at the port. Welsh and Staffordshire pig iron are rather more sought after, and holders are asking higher prices. Scotch pig iron very firm at 72s. 6d. for mixed Nos., and 75s. for all No. 1—cash in 14 days. Sales of spelter reported at £18 7s. 6d.—to-day holders have refused £18 10s.

From a correspondent.

Iron in good demand, and full prices realised.—Sales of Scotch pig have been made at 72s. 6d. for mixed Nos. at Glasgow. Swedish steel is flat.

DUDLEY, July 29.—The temporary dullness which has characterized the iron trade the last few months may now be said to be over. Orders are coming in plentifully, and briskness begins again to be the order of the day. Considering the good prospects of the trade for many years hence, the probability is that an advance in prices will shortly take place. It should be understood, that though there had been a slackness in general, prices have been maintained, except by a few houses whose terms of doing business afforded no criterion of selling prices.

ENGLISH ENGINEERS.—One of our large engineers has now on hand work to execute for the French government sufficient to keep employed 500 men for two years—and other engineers have so many orders to complete, that they require more than a year to put new work in hand.—Patent Journal.

In our last Journal we announced the importation of British sheet iron into France, free of duty, as at length about to be conceded by the minister of commerce, under a royal ordonnance, as a boon to the

shipping interest—and this concession we are disposed to regard as the first step to the importation of British iron for railways; it being equally essential to the political and commercial interests of France, that British iron should be permitted to be used in the construction of the lines requiring despatch in their formation—seeing the make of iron in France cannot supply all the requirements for railways and other purposes, without delaying the completion of works of the utmost national importance.

In connection with the foreign demand for iron, it is satisfactory to hear the American tariff has passed the house of representatives by a majority of 19, and is now before the senate. The new scale of duties upon iron, as sent to the senate, provides for iron in bars, blooms, bolts, hoops and pigs, rods, slabs, or other form not otherwise provided for;—castings of iron, old and scrap iron, and vessels of cast iron, to pay a duty of 30 per cent., ad valorem. We transcribe the tariff of 1842, at present in operation, which shows at an exchange to equal 4s. 2d. per dollar. Pig iron to pay a duty of £1 17s. 6d. per ton; bar iron, £3 10s. 10d. to £5 4s. 2d. per ton; sheet, boiler plates, and some other sorts of manufactured iron, £11 13s. 4d. per ton, with duties more or less on other descriptions; iron for railways, since 3d March, 1843 (as provided in the act of '42) have been chargeable with the duty imposed on rolled iron of £5 4s. 2d. per ton. The passing of the new tariff by the senate must, consequently, be of considerable importance to the British iron trade. In the house of lords, on Monday last, 55 railway acts of parliament for new lines, extensions, etc., received the royal assent; and the meeting of the directors of the London and York was unanimous for carrying out the works of this railway [308 miles] with all possible dispatch—the year 1850 being named as the period for its completion.

We have again to congratulate the iron trade on a period of prosperity not hitherto experienced; and the continued favorable weather for the harvest, with the prospect of tranquility at home and abroad in political affairs, cannot fail to have a beneficial influence on all judiciously directed railway enterprises.

(Official) Reading Railroad.

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending Aug. 3, Aug. 2, Aug. 1, 1844, 1845, 1846.
Travel \$2,407 91 \$2,626 17 \$3,073 85
Freight on goods. 806 41 926 66 2,247 37
Do. do. coal.. 11,122 80 27,507 48 55,301 45
Miscell's receipts.
Transp. U.S. mail.

Coal trans., tons.. \$14,337 12 \$31,060 31 \$60,622 67
1844. 9,899 25,483 38,711

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending— Aug. 10, Aug. 9, Aug. 8, 1844, 1845, 1846.
Travel..... \$2,375 85 \$2,444 92 \$3,267 54
Freight on goods. 703 72 926 48 2,116 47
" coal... 13,563 86 25,917 77 51,321 62

\$16,343 43 \$29,319 17 \$56,705 63
Coal trans.—tons. 11,835 24,298 36,076

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending— Aug. 17, Aug. 16, Aug 15, 1844, 1845, 1846.
Travel..... \$2,245 38 \$2,530 09 \$3,092 28
Freight on goods. 758 83 978 65 2,096 62
" coal... 13,622 73 25,495 38 45,909 17

\$16,626 94 \$29,004 12 \$51,093 07
Coal trans.—tons. 12,129 33,920 31,651

A comparative statement of the business on the Philadelphia and Reading railroad for the month ending July 31st, 1844, 1845, 1846.
Travel..... \$10,848 87 \$11,542 84 \$14,982 72
Freight on goods. 3,227 32 4,020 34 10,818 24
Do. do. coal.. 46,182 62 113,155 72 214,802 28
Miscell's receipts. 15 50
Transp. U.S. mail. 763 33 783 34 783 34

\$63,042 14 129,502 24 241,402 08
Coal trans., tons.. 42,849 104,502 150,090

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.

Saturday, August 29, 1846.

Faber's Magnetic Water Gauge.

Some time since, we copied an account of this invention from a Pittsburg paper, prefacing it by some remarks of our own. These remarks have, it seems, given offence to the inventor, who has furnished us with the following statements and certificates, which we publish with the greatest readiness.

Nothing was farther from our mind than to give offence or hurt the feelings of any one; but we noticed the invention precisely for the reason, that it offered means of saving human life, and stated that in the opinion of competent judges, these means were not to be relied upon.

The statements appended are certainly highly favorable, and we should have published them without any other comment, did they not contain a somewhat uncourteous doubt of our veracity. To this we feel bound to reply.

In the year 1838, a commission was appointed by the U. S. government, under act of congress, to inquire into certain inventions, and to examine generally the means of preventing the bursting of steam boilers. The gentlemen constituting the commission were Prof. Renwick, Prof. Silliman and Mr. W. C. Redfield, of this city, well known as a man of science, and practically engaged in the construction and management of steam engines. Among the inventions laid before the commissioners, was one by Mr. Aaron Balderstone Quinby, which was intended to show the level of the water in the boiler, by the action of magnets. The contrivance was ingenious, but the reasons assigned, the uncertainty of the action of magnets at high temperatures and in the presence of such large masses of iron, were sufficient to place this among those inventions which were not recommended. We presume that this report may be found among the congressional documents for 1839. That these statements are correct, the writer of this article, who was secretary to the commission, is prepared to maintain, and willing to prove to any one.

As to the invention of Mr. Faber, we never doubted its ingenuity or asserted its want of originality. The construction differs from that proposed by Mr. Quinby, but like it depends upon the same principle. There is one point upon which the gentlemen, whose names appear below, have misunderstood us. The difficulty lies in the operation of the assigned cause, to impair rather than destroy the power of magnets, and in the danger that the power so impaired may, particularly in boilers which are not stationary, become insufficient to overcome friction and other resistances—and so fail in its indications.

That heat does impair the power of the magnet, is well determined. Mr. Christie has shown that above 100 deg., a portion of the power of a magnet is permanently destroyed, and that its power is weakened

by every increase of temperature.—[Phil. Trans. 1824.]

Still no one would be more pleased than we should to find that so beautiful a contrivance should prove serviceable to mankind, and if by furnishing a large excess of power Mr. Faber can still retain enough to render the indications of his machine trustworthy—as they seem to have been in the cases noted below—no one would more readily aid in making known the merits of the invention. We cannot, however, allow our word to be doubted, when we have only asserted what is known, and well known, matter of fact.

TO THE EDITOR OF THE RAILROAD JOURNAL:

SIR: I have just been informed of an article published in your Journal, relating to the Magnetic water gauge, an invention of mine, calculated to retard its introduction into use. An instrument, having for its object the protection of life and property, as my invention does, deserves more attention than you seem to have given it, and a fair trial to test its merits. In view of this, I appeal to your sense of justice in allowing this and the accompanying certificates a place in your columns.

The instrument has been closely observed by me, from the time I put it into use—more than twelve months since—and I have found it at all times to be a perfect indicator of the level of the water, and the magnet the chief feature in the invention, to retain, unimpaired, its attractive influence.

I think you are equally mistaken in your supposition, that the invention is not original. If it is not, I should like to know when, and by whom, an instrument of the kind has been proposed for use.

GEORGE FABER.

Canton, Ohio, July, 27, 1846.

TO THE EDITOR OF THE RAILROAD JOURNAL:

SIR: I presume that you can have no objection to correct the impression—if found erroneous—made by your remarks, prefatory to the account of Faber's magnetic water gauge, as inserted in your Journal of June 20th, from the Pittsburg Advocate.

You object against the instrument, that the magnet will not retain its power, at the heat to which it will be exposed, and that its action will be uncertain in the presence of so large a body of iron, as is contained in a steam boiler. So far as the experience of more than a year will go, both of your objections have been disproved in practice. Mr. Faber has had an instrument upon his boiler for fourteen months, exposed to the view of the public and witnessed by thousands; any one of whom will testify that so far as his observations have extended, it has acted through that period with precision in indicating the true level of water.

The statements of Dr. H. Stidger and Mr. F. A. Schneider, of Canton, Ohio, are herewith handed you. They are both men of acute observation, and have had excellent opportunities for examining the instrument. Dr. Stidger is a man of considerable science, and rare mechanical talent; and Mr. Schneider has verified his opinion by placing two of the instruments upon the boilers of the engine in his gun barrel factory.

Mr. Faber is by no means one of the quack inventors of the age. His knowledge of mechanics is extensive, and skill as a machinist of the first order. As a man of honor, he has withheld the instrument from sale until its merits were fairly tested, and its construction perfected, by observation and labor. Neither has he relied solely upon his own judgment in the matter. The instrument has been submitted to men of science at home and abroad—

to skillful engineers, and to the test of use in both high and low pressure boilers, in the employment of men no way interested in their success, and approved by them. In no instance have the objections raised by your article been stated by them. One of the instruments is now on the boiler of the engine of Stillman, Allen & Co., at the Novelty Works, and though not in a situation to do it full justice, works correctly. Another one either now is, or in a few days will be, placed upon the boiler of Mr. Bartol, in the upper part of the city, where its operations can be examined.

In one of the experiments made under my direction in Pittsburg, the whole instrument was subjected to as high degree of heat as was possible by the aid of steam in a high pressure boiler, sufficient for whole days to convert water instantaneously into steam, when applied to its face or outward circumference; and yet it continued, and still continues, under the same circumstances, to act correctly. In that situation it was seen by the intelligent editor whose remarks you have copied—and, upon my invitation, by many of the first engineers and steam engine builders in the city; among whom I will refer to Alexander Birkbeck, Esq., engineer U. S. N., and formerly of New York. Not one of these gentlemen, so far as I could learn, expressed a doubt of its capacity for usefulness.

It was also exhibited at the national fair, at Washington, and carefully examined by the most scientific men who attended it, with the same result. I will refer at present to but one more authority—Mr. Seth Boyden, of Newark, N. J.—upon whose judgment, experience and candor, any one—wishing information on the subject—may safely rely.

You also assume that the invention is not original, and in this, too—in my opinion—you are mistaken. The very intelligent examiners in the patent office—after careful examination—decided that it was original. That matter, however, we are willing to test, whenever the question shall arise, in the proper tribunal.

LEWIS VAIL,
Agent for Patentee.

Speedwell Iron Works, N. J. August 8, 1846.

Mr. VAIL: My attention has been called to an article in the American Railroad Journal, on the subject of the magnetic water gauge, invented by our townsman, Mr. George Faber.

I do not know that anything I can say will be of use in refuting attacks made on the value or originality of the invention. But if close observation, frequent inquiries and conversations with Mr. Faber, can be supposed to enable me to determine its value, in any particular, I feel free to give my opinion, and the result of my observations, and let them go for so much as they may be worth.

It is now more than a year since the magnetic water gauge was, by Mr. Faber, placed in his boiler. Very frequently, within the time mentioned, have I seen it, and witnessed the truthfulness of its operation. Of one fact alluded to in the remarks the American Railroad Journal, I can speak of confidently. The power of the magnet, as indicated by its action upon the needle suspended on the dial of the gauge, has not been impaired during ten months use, either by heat, or the presence of all the iron usual about boilers. Its action was as perfect at the end of ten months, as when first observed by me.

I have also witnessed some experiments made by Mr. Faber, with the view to determine whether steam would impair the attractive power of the magnet; all of which show conclusively that the power of the magnet is preserved, under that degree of heat

necessarily raised in generating steam—and in no wise impairing its usefulness for the purpose to which Mr. Faber has applied it.

There are other instruments in use in our town than the one referred to above. I have also seen the operation of them; thus far they operate equally well with that placed in the boiler of Mr. Faber, of which I have spoken. The owner will doubtless testify frankly to its utility, as observed by himself.

With respect, your friend and humble serv't,

HARMAN STIDGER.

Canton, July 27, 1846.

I have recently observed the operations of Mr. George Faber's magnetic water gauge, and have at all times found it to indicate with accuracy the height of the water in the boiler. So well am I convinced of the reliance which may be placed in its correctness, that I have lately had one fixed in each of the two boilers of my engine. I ought to add that I am not myself a sufficient judge in matters of this kind to pronounce on the value of the invention in every respect, but from my intimate acquaintance with Mr. Faber, I am authorized to say that everything contained in his own article on the subject—if my testimony can be of any value—may be implicitly relied on as being true.

F. A. SCHNEIDER.

Canton, July 27, 1846.

Foreign Items.

Embankment of the Bed of the Adige in Tyrol.—The floods of this river have of late caused such damage in the south of the Tyrol, that its embankment has been decided upon—the more important, as its valley is one of the connecting links between Italy and Germany. The court counsellor Dassetti has just completed his report, which is accompanied by an instructive lithographed map of the valley of the Adige, from Meran to Boschetta. After the completion of the cut at Ischia Peratti, another more expensive will be commenced at Ischia Lidorno. The plans for damming up the Noce, one of the most impetuous and mischievous Alpine torrents, are also to be commenced. The expenses will be very great—but only apparently so, as by the regulation of this mighty Alpine stream, 8,800,000 square klafter (cubits) of boggy land will be restored to its pristine fertility, an equal area preserved from the destroying influence of floods, and the air improved for about 50,000 people, who have, hitherto, constantly suffered from fevers and other diseases inherent in damp localities.

General Canal Constructions in France.—Never before has any legislative session been taken up by so many subjects relating to constructions, for the improvement of the working classes, etc. The following is extracted from the *Journal des Travaux Publics*: "The original plan for the maritime canal of Caen is still carried out with energy; 2,800,000 francs have been alone expended in the erection of one of the four walls of the basin, a new bed for the Orme 2,700 metres long, and the two yettier of Oysterham. Some angry observations have been made on account of the opening of the Orme having cost 600,000 francs, while the original estimates amounted only to 280,000. 1,200,000 francs have been voted for improving the navigation of the Vilaine in the environs of Rennes,

comprising earthwork, excavations, aqueducts, bridges, etc. Now a credit of 15,000,000 francs is asked for the completing of the branch canal to the Garonne, between Toulouse and Castets." The allusions made by M. Adolphe Beaumonte to English canals, in the chamber of deputies, are not without interest. "In England," said he, "canals give way to railroads. I have spoken in London of our proposed canals, but no one would believe me. The canal from London to Birmingham, which yields 4 per cent., is merely an adventitious exception, because there has sprung up on its banks manufactories, which are its main support. The only remedy against the monopoly of railroads are the railroads themselves. The expense of 15,000,000 of francs for a canal at the present time is an anachronism."

Submarine Vessel.—Some experiments, have been, of late, made with a boat constructed after the plan of Dr. Payerne, and called by him *bateau cloche* (bell ship). It is made of iron, and to be seen near the Pont Royal at Paris, where it is now moored. On its last experimental trip, eleven persons were on board, and the craft passed (invisibly to the public) through the space between the Pont Royal and that of La Concorde. None of the passengers felt the least inconvenience, although there was a sort of telegraph established for communicating with those above water.

Supply of Water to the City of Madrid.—This metropolis is very scantily supplied with water, which the poorer classes have to purchase. An extensive contract (*subasta*) has just been entered upon for supplying it with water for drink and irrigation. The contractor has to furnish the town with 10,000 reals of water (the standard Spanish measure), which is to be available even to the highest parts. The adjudication amounts to the great sum of 71½ millions of reals, and the works are to be completed within the term of two years. If we compare this projected supply with the present which is only 500 reals, it may be easily imagined what a boon will be conferred on the comfort and healthfulness of the humble classes.

New Galvanic Telegraph.—German journals speak of a new discovery of M. Leonhard, watchmaker, at Berlin, relating to the above subject. At present, it has been only executed between Berlin and Potsdam, but it is to be prolonged successively to Brandenburg and Magdeburg. The outer form of the machine is simply that of a writing desk—on these, two dials are to be seen. A hand indicates the letter or sign which has been made at the other station. Both machines are connected by metal wire chains, and have been hitherto placed on wooden blocks, but will hereafter be conducted under ground. M. Leonhard is also said to have discovered a new system of railway telegraphs.

The Great Danube Docks at Alt-Ofen, Executed by English Engineers.—The extent of the Danube steam navigation company is such, that they possess at present thirty-seven boats for passengers, and two barges for the conveyance of goods, both combined

of 3,926 horse power. The docks of Alt-Ofen, since they have been under the direction of M. Massjohn, who studied in England, have assumed the shape of a real manufacturing colony. Since 1844 alone, there have been built at this place ten boats of 1306 horse power. Thirty iron barges, each of the burthen of 5000 cwt., are in preparation or nearly ready, besides four iron coal barges, and eight for merely conveying pigs and other cattle, one gun boat for the Austrian government, and twenty moveable piers with the boats appertaining thereto. The establishment is now in a position to manufacture in its own workshop all the requisite parts of a steamboat of from 200 to 250 horse power, and even all the tools for ship construction, which hitherto they were obliged to obtain from England. The greatest part of the hitherto wooden building has been replaced by M. Massjohn by fire proof structures, and boats and machinery have been much improved. The passenger boats now ascend the Danube from Pesth to Vienna in 18 hours, and from Vienna to Linz in 17 hours—a considerable saving on former voyages. Boats of 4000 to 5000 cwt. burden do not draw more than four feet water, and can, therefore, safely pass over the sand shoals, which formerly much impeded the navigation of this river. M. Massjohn has also established a superior mode of discipline and order among the 1200 men who constantly work at these docks. Still, the Austrian railroads consume a large quantity of iron, which has had the effect, that the above number of steamboats is only half of what would have been otherwise made. Lately, the dykes around the docks have been heightened for protecting them against the floods, etc. Besides M. Massjohn, both the shipbuilders and chief machinist, Messrs. Pretious & Bisacker are Englishmen.

Supply of Water to the City of Lyons.—It is an inconceivable anomaly that Lyons, situated between two rivers, should have been hitherto entirely deficient of an adequate supply of water for its numerous manufacturing and working population. After many sham proposals of projectors and contractors, the town council are about to take the subject in their own hands, beginning with a complete canalization of the city, and execute the works on a grand scale, letting the public reap the profit of the undertaking.

Deepest Artesian Well in Europe.—In the duchy of Luxembourg, a well is being sunk, the depth of which surpasses all others of the kind. Its present depth is 2336 feet, nearly 984 feet more than that of la Grenelle, near Paris. It is said, that this immense work has been undertaken for working a large stratum of salt rock.—*Civil Engineer.*

The Railway System.

BY MR. CURBITT, C. E.

The following we offer as a condensed and faithful account of the evidence given by Mr. Cubitt before the select committee of the lords. We have divided his plan, as well as we could into sections, notifying the nature of them in italicized side headings. This was done to assist the reader.

Conduct of Existing Railway Companies in Respect to New Schemes.—Established companies spend large sums to secure a district of country for themselves, and to prevent the encroachment of new companies. To effect this, they project schemes not actually required. This evil would be obviated by some general system of lines being planned; and by doing away with local direction and influence. "Men designing a line for their own benefit, or the benefit of a particular company, or a particular class," is a great evil. This, however, is a difficult thing to obviate. Everything is tending to give power to large companies, and, as they get powerful, become proportionately overhearing.

His General System of Management.—"I took the subject of the railway system into consideration in the years 1840 and 1841, when the select committee of the house of commons was sitting upon railways. I then wrote to some members of the committee upon the subject, who I thought understood traffic best, and I propounded a plan to Mr. Loch, the honorable member for the Wick District Burghs, who well understands traffic, and he very much approved of the communication, but it was not in a form that could be brought before the committee, nor was I called upon by the committee to explain any part of the subject; but my opinion then was, and I have seen no reason to change that opinion since, that it would be very desirable to take a certain number of railways which have been in existence a number of years, and to amalgamate them by turning their shares into common stock at its then value, so as to combine all in one common stock, instead of forming a fresh company; that the same proprietors should hold as proprietors of the common stock, instead of holding as members of this or that company, and that then, as time ran on, every railway which had been at work a certain number of years, and upon which a fusion or amalgamation would take place, would then merge into the common stock, and exchange their shares for stock receipts at a certain number of years' purchase, say, twenty years' purchase of their profits. That would bring every shareholder into the concern without loss; it would bring all the property into a common stock or railway fund; and there would be a set of proprietors from whom might be elected men of great weight and knowledge and responsibility to form a central board of proprietors for the management of the property, and then the whole should be put under the control of a government board of high standing, a board of control, to whom all references should be made upon public matters, and to whom might be referred additional lines, if thought proper to be made. That is a general outline of what I would suggest. I think such a thing would be better than the present mode. I think it must ultimately come to government control, and that would be the least objectionable mode of control. In the first place, jobbing would be done away with in a great measure by the mode of election of the principal board of direction from which would emanate the

district boards, and every railway station in the kingdom would be under one kind of management, and one kind of line of proceedings as to police, as to clerks, as to charges and everything else. Whether you went to a railway office in the north of Scotland or in the south of England, you would have the same treatment, charge, and management.—I would place the practical management of the whole in the proprietary board. It would prevent jobbing amongst directors. The stock would be the finest investment for money that could possibly be. Some other out-of-door control there must be than the company's; I would extend it in this way—that if any body of men in any part of the kingdom thought they could make a railway to answer their purpose, the stockholders, or rather the proprietors, should be allowed to do so by a certain act of parliament; that they should arrange with regard to the land and so on, and go to work for a term of years, and if they should then merge in the general concern at the end of that time, and if it was a loss they should merge, with a deduction for their losses." The board of control should have the power to force a company to make a railway, though it should not pay to a distant town, such being to the public advantage. There would be a difficulty, perhaps, in getting companies to agree to it, but the "companies' amalgamations," now going on, is one step to it. The board of control to attend to railways alone. He had not gone into details of amount of power that board would have.

Gauges.—There would be a difficulty in the way of such an arrangement if two gauges existed. In fact, in any case, there should be but one uniform gauge, which is quite practicable. For himself, he advocated a gauge of six feet, not requiring any alteration of tunnels, etc., and at an expense which would be scarcely felt—the minimum cost being £500, maximum £1,000 per mile for alteration; but had made no decided estimate of cost. Would only have to bring the rails out about eight inches, and put the wheels of carriages at a greater distance, and the wheels would still be within the width of the carriages. This gauge would bring down the centre of gravity lower, which is important to safety. He has the prospect of control of nearly 1,000 miles of railway, between north and south. No difficulty to widen rails on embankments or in cuttings. To alter, would not require to take up the rails; and, in respect to those on cross sleepers, "should simply cut with a saw through the sleeper in the middle of the line, and just put each out 8 inches, and then nail a short piece of wood in to connect the two parts of the sleeper.—The thing would cost very little to do." Make the alteration without stopping the traffic.—Has no doubt that it would be of considerable advantage to the country, in many points of view, that there should be one uniform gauge both for traffic and military defences of the country. He would not make one exception, because he did not think one could be found. Thinks this is the best opportunity for the alteration to one uniform gauge. Not a sea-

son should be lost. He said, "I think the thing may be easily done, and economically done, and done without loss to the public, and without loss to the companies, and in a very short time, and at a very moderate expense."

Relaying of Croydon Railway.—Now about to relay this entirely with new set of rails and fixtures altogether; which would not stop the traffic, though 80 trains a day run, 40 each way.

The Permanent Way is the most defective part of railway system; rails often too light. "But the great defect is the want of proper attention to the fastenings of the rails and the chairs. I attribute almost all the accidents that have happened from engines and wagons and carriages getting off lines of railway to the imperfect state of the road; and yet, no sooner has an accident happened, than the engineers go to examine the engines, and examine the carriages, to find out what is the matter. Accidents generally happen from the ends of the rails getting out of the joint-chairs, or the end getting loose, which must inevitably throw off the engine; and throwing off the engine, it tears up the line at the place, and we never can see it, because it is done away with. By a somewhat wider gauge, and better engines, we go as safely 100 as 30 miles an hour. It is not from increased speed that engines burst; one of the 90 to 120 small tubes in the boiler bursts, being defective, or being worn thin by use and the particles of coke. One of these tubes bursting, stops the engine. This is less likely to occur at high speeds, because there is then less pressure upon those tubes. Engines, to be more powerful, require to be larger or longer; the latter does not render it more dangerous.

Long Engines working Curves.—The American "Bogie."—The longer engines are between the wheels, the more they are likely to impinge upon the rails in going round very sharp curves; but that is obviated in America by another plan, and I recommend the plan very much to the gauge commissioners. On narrow gauge railways, they cannot go so fast as on broad, because they cannot get as large driving wheels with safety, without carrying the centre of gravity too high. I could make an engine of any length, which should be better adapted for going round curves, than any engines now are.—For instance, an engine twenty feet long might be made perfectly safe and steady with very large driving wheels upon a narrow gauge, even with wheels as large as the Great Western wheels, simply by having what the Americans call a "bogie" carriage—a small carriage with four low wheels moving upon a centre horizontally. Imagine a small truck with four wheels upon the line; then imagine another small truck behind it with four wheels. Now, those wheels and axles would be stronger than the present ones, and lighter. Then, if we support a very long boiler indeed upon those trucks, the trucks with four wheels can each turn independently at each end. Then, anywhere between those we may have large driving wheels without flanges, there being eight other wheels to take the weight at both

ends. We might have the driving wheels of any height; then they would turn round curves very rapidly indeed. I explain this to show that there are no insurmountable difficulties mechanically, for the wheel might be improved in every respect."

Cost of Altering Carriages for his six feet gauge would be £30 each, average; an engine and tender, £350 to £400.

Parties bearing Cost of Alteration of Gauge.—"I think it should be paid for partly by time gone by and partly by futurity; that is to say, money might be taken up at a certain rate of interest for doing this work, either from government or by transferable bonds, payable off by lot; anything of that sort. Then, the works should be paid for as they were done. Whatever they cost should be apportioned, as nearly as it could be, over about forty years; that is twenty by-gone years, and twenty future years of railway extension; and all newly made railways should pay their quota of the alteration as the past had paid; so that in forty years, or forty-five or fifty years, the thing should be paid off, and the work all done. The work should be all done at once, for the sake of the public. It would be paid for in a long time, for the sake of the parties. It would not tax any company harshly to make the alteration, and, therefore, they could not complain of it in point of expense. All the new railways would have to pay a quota for the same thing, although they would make their gauges right in the first instance.

Improve Permanent Way, by good thickness of ballasting and keeping the road in good order, to inspect which should be a principal duty of the board of control.

Compensation to Families for fatal accidents should be made by the companies.

Two Central Boards of Control are the main features in his plan; one, the government board of control and inspection; the other, for the railway proprietors. The latter would order sub-boards of management for various districts or lines, all referring to their head board.

Fares.—Would have the same rate of fares throughout the kingdom.—*Herapath's Journal.*

Suppression of Smoke.

A report has been recently addressed to the government, by Sir Henry De la Beche and Dr. Lyon Playfair, respecting the means and effects of preventing the smoke of furnaces. The following extracts will sufficiently explain the conclusions arrived at.

"The general principles upon which the combustion, or rather the prevention of smoke, may be effected are now well known, and admitted to be applicable to practice. Smoke consists of vapors produced by the partial combustion or distillation of coal, carrying up small particles of the fuel in mechanical suspension, and depositing, by the combustion of one of their constituents, carbonaceous matter in a fine state of division. The mode of preventing this smoke is to admit a sufficient quantity of air to effect the combustion of the carbonaceous matter, when the vapors are of a sufficiently elevated tempera-

ture to unite entirely with the oxygen of the air. If the temperature be not sufficiently elevated, the hydrogen of the vapors alone is consumed, and the carbon is separated in the fine state of division referred to. The gases produced by the complete combustion of fuel are colorless and invisible, and therefore do not come under the definition of the term smoke.

"As the prevention of smoke implies the complete combustion of fuel, the result, as an abstract statement, always is, that more heat is generated, and a saving of fuel effected, when it is so consumed as to prevent the emission of smoke; but although this theoretical conclusion is undoubtedly correct, the practical results are not always consonant with this statement.

"In consuming smoke in the usual way, a quantity of cold air is introduced into the fire, and as this must be heated up to the temperature of the surrounding fuel, the loss of the latter may be equal to, or even greater than, the saving of the fuel from the combustion of the products of distillation. This often results in the careless use of furnaces constructed on the principle of smoke prevention, and thus leads to the contradictory statements given by those who have used such furnaces. But in all carefully conducted experiments the saving of fuel has been considerable, and the reason of this will be at once perceived, when it is considered that in addition to the combustion of the products of distillation, there is a large amount of fuel saved by the combustion of a gas called carbonic oxide, formed by the proper product of combustion, carbonic acid, taking up in its passage through the incandescent fuel, another portion of carbon, which escapes useless as regards the production of heat, unless burned by the air introduced at the bridge of the furnace, for the purpose of consuming the products of distillation.

"From these considerations, and from experiments conducted under our inspection, with a view to determine this point to our satisfaction, we arrive at the conclusion that although from careless management of fires there is often no saving, and that indeed there is frequently a loss of heat in the prevention of smoke, still that with careful management the prevention of smoke is in many cases attended with, and may in most cases be made to produce, an economy of fuel.

"It may be unnecessary to remind your lordship that the cause of the emission of smoke in manufactories may be classed under three different heads, the relative importance of which involves very different considerations in any attempt to legislate for its prevention. These are—1. The want of proper construction and adjustment between the fire places and the boilers, and the disproportionate size of the latter to the amount of work which they are expected to perform. 2. The deficiency of draught, and improper construction of the flues leading to a chimney of inadequate height or capacity. 3. The carelessness of stoking and management by those entrusted with the charge of the fire places and boilers."

It cannot for a moment be questioned, that the continued emission of smoke is an unnecessary consequence of the combustion of fuel, and that, as an abstract statement, it can be dispensed with. But your lordship will perceive that there are grave difficulties connected with a general law to the effect that it shall be unlawful for chimneys, after a certain date, to emit smoke. With regard to steam engines, the processes for the prevention of smoke have been matured, and in very many instances successfully employed. In this case, therefore, a law to that effect could be most easily and promptly carried out. In other cases mentioned in lord Lincoln's letter, such as distilleries, dyeworks, etc., the legislature has already granted powers in the Manchester local act; and as there are certain instances in which processes for the prevention of smoke have with them proved successful, it may be anticipated that the nuisance arising from these sources may be much abated, if they be subjected to the general law with that forbearance and caution which, under certain cases, is so advisable. There are certain processes in glass works, iron furnaces, and potteries, in which it is neither possible nor desirable to apply a general law for the prevention of smoke; although the nuisance may be partially mitigated, by causing the steam engines employed in them to be so constructed as not to emit smoke.

It is useless to expect, in the present state of our knowledge, that any law can be practically applied to the fire places of common houses, which, in a large town like London, contribute very materially to the pollution of the atmosphere; but it may confidently be expected, that by a wise administration of a legislative enactment, carefully framed, a great progressive diminution of the smoke of large manufacturing towns will be effected, and that the most happy results will thus flow from this improvement, in the increased health and moral feeling of their population—the intimate connection of which with facilities for cleanliness has been so often pointed out.—*Civil Engineer.*

Statistics of Railway Accidents.—In the late sitting of the Polytechnic society at Berlin, Baron von Reden produced a document to prove that accidents on the different railways in Europe are extremely few in comparison with the number of travellers. We extract the following:—In France, at the period when most accidents occurred, in 1842, the time of the great accident of the Versailles left bank, there was 1 accident to 25,000 travellers; in 1844, the most favorable year, the average was 1 accident to 1,320,000 travellers. In England, in 1840, (worst year,) there was 1 accident to 64,000; in 1844, (most favorable year,) 1 to 69,000 travellers. According to this statement, accidents on the English railways are more frequent than on the French. From 1841 to 1845, the accidents on the English railways amounted to 1,057, (993 deaths,) or 1 on 95,000. In Belgium, in 1843, (worst year,) the average was 1 accident on 88,000 passengers; in 1844, 1

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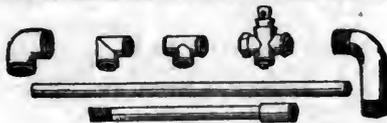
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Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

Wire gauge number.	WIRE ROPES.		HEMPEN ROPES.		CHAINS.		STRENGTH. Tons.
	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.	
11	4 1/4	13 5	10	24 -	50	15-16	20
13	4 1/2	8 3	8 1/2	16 -	27	11-16	13 1/2
14	3 1/2	6 11	7 1/2	12 8	17	9-16	10 1/2
15	2 1/2	5 2	6 1/2	9 4	13 1/2	1-2	7 1/2
16	2 1/4	4 3	6	8 8	10 1/2	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

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PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45

BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes. 171

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolser of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

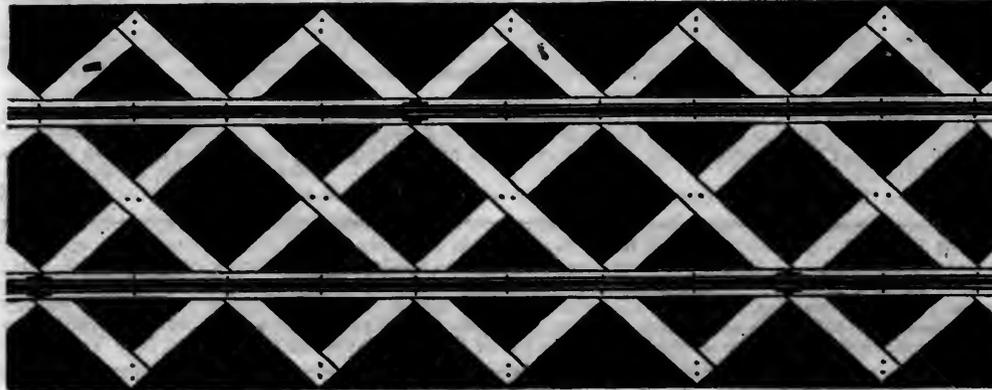
Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Sup't Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan, in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

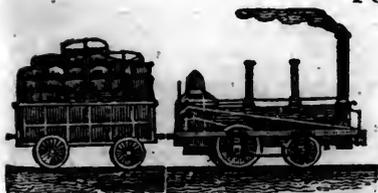
One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
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Professional notices per annum...	5 00

ENGINEERS and MACHINISTS.

- THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)
- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- PHENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

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SECOND QUARTO SERIES, VOL. II., No. 36]

SATURDAY, SEPTEMBER 5, 1846.

[WHOLE No. 533, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m. Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m. Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7-20 a.m. and 3½ p.m. All baggage at the risk of the owners thereof. 31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD AND STAGES CONNECTING WITH THE BOSTON AND PROVIDENCE RAILROAD. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows: Boston for Portland at 7½ a.m. and 2½ p.m. Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m. Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m. Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m. Portland for Boston at 7½ a.m., and 3 p.m. Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m. Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m. Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, *Super't.*

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4, 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams' Bridge trains will be regulated according to the state of the weather. 18

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A. M. and 4 P. M.
" Middletown at 6½ A. M. and 5½ P. M.
FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P. M.
" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, *Sup't.* March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 lf

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced. 1846. Spring Arrangement. 1846

Commencing April 1st. Passenger trains leave daily, Sundays excepted—

Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6½ " and 2½ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush. Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES, Superintendent and Engineer. Western Railroad Office, Springfield, April 1, 1846. } 14 ly

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail—which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

TROY AND SARATOGA RAILROAD.
THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug. 3, 1846.

ly 32

THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky \$8 00
" " Sandusky to Buffalo, Cabin 6 00
" " " " Steerage 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, Sup't, etc.
M. & S. C. R. R. Co.

Sandusky, Ohio.

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sts. 49 1y

NEW RAILROAD ROUTE FROM BUFFALO to Cincinnati.

Passengers destined for Columbus and Cincinnati,

O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

TIME.

From Buffalo to Sandusky 24 hours.
Leave Sandusky 5 a.m. to Columbus.... 14 "
From Columbus to Cincinnati..... 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.

From Buffalo to Sandusky, Cabin \$6 00
" " " " Steerage 3 00
" Sandusky to Columbus..... 4 50
" " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Sup't, etc.
M. & S. C. R. R. Co.

Sandusky City, Ohio.

BALTIMORE AND OHIO RAILROAD.

MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 31y1

RAILROAD IRON.

80 Tons 2 1/2 x 1/2 Flat Bar Railroad Iron.
50 " 1 1/2 x 1/2 " " " "
8 " 2 1/2 x 1/2 " " " "
15 " 1 x 1/2 " " " "
with Spikes and Plates, for sale by

A. & G. RALSTON & CO.,
4 South Front st., Philadelphia:

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and

Afternoon Trains between Baltimore and York.—The Passenger

trains run daily, except Sunday, as follows:
Leaves Baltimore at.....9 a.m. and 3 1/2 p.m.
Arrives at.....9 a.m. and 6 1/2 p.m.
Leaves York at.....5 a.m. and 3 p.m.
Arrives at.....12 1/2 p.m. and 8 p.m.
Leaves York for Columbia at..1 1/2 p.m. and 8 a.m.
Leaves Columbia for York at..8 a.m. and 2 p.m.

FARE.

Fare to York.....\$1 50
" Wrightsville.....2 00
" Columbia.....2 12 1/2

Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Harrisburg via stage to Harrisburg.....\$9
Or via Lancaster by railroad.....10

Through tickets to Harrisburg or Gettysburg.. 3
In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5 1/2 p.m.

Returning, leaves Owing's Mills at.....7 a.m.

D. C. H. BORDLEY, Sup't.

31 1y

Ticket Office, 63 North st.

L EXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

SOUTH CAROLINA RAILROAD.—A

Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent.

CENTRAL RAILROAD-FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.
On measurement goods 13 cts. per cubic ft.
On brls. wet (except molasses and oil).....\$1 50 per barrel.

On brls. dry (except lime)... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.

On hds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.
On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission.

THOMAS PURSE,

40

Gen'l. Sup't. Transportation.

MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer,

Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

2v19 1y



RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATTLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 133 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed,)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,

138 1/2 Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

CUSHMAN'S COMPOUND IRON RAILS etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer, Albany, N. Y.

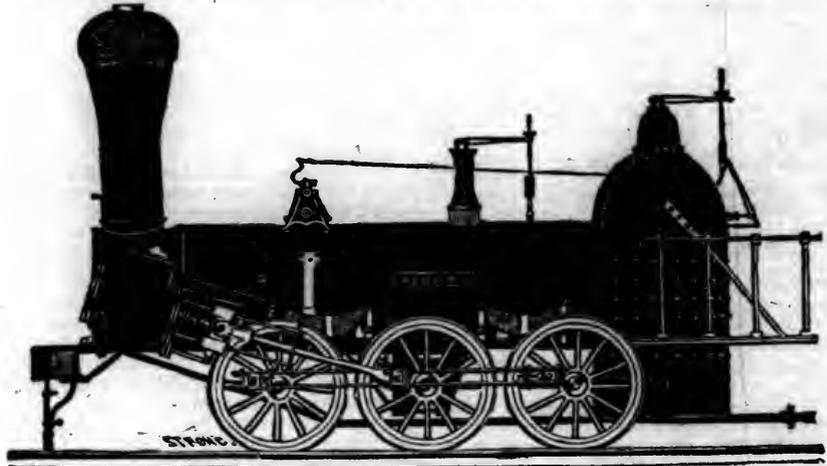
Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gear-ing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY, a45 President of the Newcastle Manuf. Co.

NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	15 inches Diameter of Cylinder,	× 20 inches Stroke.
1,	14	× 24
2,	14 1/2	× 20
3,	12 1/2	× 20
4,	11 1/2	× 20
5,	10 1/2	× 18

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

Direct Lines and the Branch System.

The question whether the country can be best served by *great trunk lines*, sending off into each district, and to each town, a lateral branch on either side, and so concentrating on the main line the whole traffic in both directions, or whether *direct lines* should be made to each individual place, has in a great measure been practically settled in the present session of parliament. The great "direct independents" for the most part have vanished; and, saving the "direct Portsmouth," we do not call to mind the sanctioning of any other "direct" line. It may, perhaps, be regretted that the government should have failed to anticipate the wants of the community, and to provide beforehand some uniform system of trunk and branch lines, by which the traffic should have been guided into the best and most profitable channels. The duty of rulers is to think *beforehand*, and to provide *beforehand*, for the wants and well being of the community; but we well know that government is never *beforehand*, and we must be content with the system as it has been left to struggle through its own difficulties, and tolerate the evils, which the forethought and care of a paternal and wise legislation might have avoided, but failed to foresee.

Having thus a little breathing time, it will be appropriate to consider the following views of a distinguished French engineer, with reference to French lines, and find some other occasion to test the principles in reference to our own country:

We have stated that there are numerous difficulties attending the determination of railway lines, which can only be effectually met and overcome by the study of first principles. In the midst of the fierce struggles and incessant disputes called into action by the competition of rival localities—in the face of private interests, which seek, under the mask of "the public welfare," to veil their individual pretensions, general principles alone present a basis sufficiently firm for the conviction of men desiring nothing but the truth.

We shall begin with the most obvious question—that of the system to be pursued in the combination of the railway lines. May we, without danger, go on multiplying on every side the principal branches from one main trunk? or should we not act more rationally, more prudently, in applying to our railways the rules which nature has prescribed to herself, and, as it were, revealed to us in the distribution of the waterways, dividing France into artificial basins, each of them accommodated by a single great artery into which would flow, like so many veins, the branches conducted to those points of our frontier which we desire to benefit.

In our impetuous and impatient desire to obtain railways, we forgot to reason, and to observe the conditions under which alone these means of carriage can be truly useful or rationally possible. Railways, like all great mechanical instruments brought to perfection, are expensive to establish, and can only be made to work economically upon

the condition of working much and incessantly. As a general rule the tendency of perfection in industrial tools is to increase the general outlay of capital, and to diminish the cost of special production. In manufactures produced by human labor the workman is the chief cost. Far from diminishing with the demand, it generally happens that wages rise with a great increase of fabrication, so as to render production more costly, while a long stagnation produces a contrary effect. With machinery the case is different. In activity or at rest, the factory, once established, equally represents the interest and redemption of the enormous capital expended in its creation. In order, therefore, to work economically, it is necessary that this charge of the capital should be so distributed over a number of objects as to weigh but lightly on each.

Thus, to return to the question which occupies us, the railroad, as a mechanical means of locomotion, may, according as it is well or ill employed, become either the most economical instrument of carriage as yet discovered, or the most expensive. Once established, and whatever be its traffic, necessarily incurring for every mile of length expenses of maintenance and of management of at least £320 per annum—necessitated to provide the interest of the capital sunk in the work, or at least £880 per mile per annum. With a traffic of 500,000 passengers or tons of merchandise, the part cost to each passenger would be 4 centimes (a little above $\frac{1}{2}$ d.) but with 100,000 passengers per annum would amount to 20 (2d.) Such are the general expenses, properly so called; and for the cost of locomotion the case is, to a certain extent, the same. With an expenditure of 2½ francs (1s. 10d.) per mile, a train containing 30 or 300 passengers would cost, in the first case, for each person, 7½ centimes, and in the second, $\frac{1}{3}$ of a centime. It follows, from this twofold consequence, that railway carriage can only be made economical under two conditions: 1st, a considerable traffic of men and of goods, in order to diffuse the general expense over a great number of details; 2d, as limited a number of departures for each day as possible, in order to increase to its maximum the load of each train.

The number of passengers upon one line may be increased by giving to the great arteries the maximum of utility and the minimum of development; by lowering as much as possible the cost of carriage; by multiplying the opportunities and facilities of travelling, and shortening the length of the journey. The maximum of utility is obtained by traversing the important centres of population, the manufacturing localities, by avoiding the creation of rival lines. The minimum of development is the result of the judicious application of the system of common trunks. It is also by means of common trunks that a very moderate rate of charges can remunerate the parties working the line.

Finally, multiplying the opportunities of travelling is in every respect as much an economy of time as great speed or shortness of line. The traveller obliged to wait four

or five hours upon a train loses as much time as he who is detained five hours longer on the road by the sinuosities of its course.—These opportunities cannot be more surely obtained than by spreading diverging lines over a wide extent of country: it is the only means of securing a patronage of persons and things sufficient to make frequent departures necessary.

Again, it is by means of common trunks that a large load for the train is collected.—Suppose that we have united Paris to Lorraine and Alsace, to Burgundy and to the Lyonnais, by what we have agreed to call direct lines; each train leaving Paris contains only the goods and persons belonging to the Strasbourg and Lyons line. Let us take on the other hand, a central point—Troyes, for example—since three great routes converge towards this spot, namely, those from Paris, from Strasbourg, and from Lyons.—Each train leaving one of the extremities will contain travellers destined for two different zones; for example, the train which leaves Lyons would carry passengers destined for the capital on the one hand, and for Lorraine and Alsace on the other. In like manner the trains passing between Paris and Troyes would be filled with passengers for the south and east.

For this reason it is quite incorrect to suppose, as is frequently done, that the cost of transit should be absolutely in proportion to the distances travelled over. When the general expenses are covered, we may say that the surplus travellers or bales of goods cost no more than the price of locomotive power, which is comparatively insignificant, when they form merely the filling up of a load.—Short lines are therefore, far from being the most economical.

To obtain this great concourse of persons and things, some writers have recommended the deflection of the great lines, so as to make them traverse all the localities placed in proximity to the railroad, and to develop the local traffic. But this theory, though true within certain limits, has become, with superficial supporters, the origin of some deplorable errors. In order, in a pecuniary point of view, to justify the lengthening of a line by one mile for the particular advantage of a locality, and to prevent its becoming a charge to the general traveller, it is necessary that it should receive as a counterpoise an increase of traffic of 240,000 persons, and of 120,000 tons to each mile. It is from great towns alone that one can look for such a result; therefore, there is little inducement to seek the amalgamation of those of an inferior order.

With common trunks the question presents itself under a different aspect. Lengthening the lines here appears to be a measure of economy, because, as we explained at the beginning, each branch appropriates to itself a traffic which otherwise would have been shared by two distinct routes. The general expenses are, therefore, diminished by a half for each unit transported.

An example will make this more obvious. Between Paris and Lyon, crossing Dijon, the

line which passes by Troyes is that of least length; that, consequently, whose scale of charges will be less burdensome to the populations of Burgundy, Franche-Comte, the Lyonnais, and the south. This line, with a traffic at least equal to that which passes through Yonne, will abundantly suffice for all its annual expenses, as well as for the payment of interest upon the capital expended in its construction, and will be able, therefore, to receive travellers from Lower Alsace and from Lorraine without an increase of expense. The distance between Troyes and Strasbourg is 215 miles; between Paris and Strasbourg by the valley of the Marne it is reckoned 300—a difference of 85 miles, corresponding to an increase of 10 francs for each passenger and 20 for goods.

Admitting (a thing little probable) that all the travellers on the Strasbourg line were to be conveyed (along the common trunk) by special trains, still the price of the journey from Paris to Strasbourg would be for the passengers 25 francs, for the goods 49 francs, by the line through Troyes. By the direct line it rises to 33 francs for the passengers, and to 64 francs for the goods. But that is not all. The bifurcation established at Troyes, leading at once north and south, would serve for the important communication forming between the basins of the Marne the Meuse and the Moselle on the one hand, and the basin of the Rhone on the other, as well as to supply fuel for the mineral districts and develop important traffic both of passengers and goods. Hence a new reduction in the amount of the general expense which weighed upon the travellers from Paris to Strasbourg; hence a new lowering of the charges.

Another example. An essential condition to be fulfilled by the network of northern communications would be the forming of international relations with England and Belgium—relations between England and Belgium carried on through the French territory and ports—relations of Paris with the northern departments—of Lille with Dunkirk. There is the choice between two courses—that of the direct lines, which would require the immediate construction of the road from Amiens to Boulogne, and from Lille to Dunkirk, with a branch to Calais; that of the common trunks, adopted last year, which would be realized in the formation of a single branch; starting from Ostricourt to join Watten, whence would issue two lines, terminating at the ports of Calais and Dunkirk. The first system, as compared with the second, would shorten by 53 miles the passage from Paris to the sea; by 12 miles that from Dunkirk to Lille and from Calais to Lille. Nothing, however, is easier than to show how much more burdensome it would be, both for passengers and goods, than the system of common trunks. The relative length of the proposed lines is, for the direct line, 163 miles; for that of the common trunks, 80 miles. The expense for earthworks and buildings, estimated at 12½ millions (half a million sterling) in the latter case, rises to 25 in the former. Finally, the

passenger traffic, proved from the report of the commissioners of inquiry, gives the following figures: direct system, 16,420,000 persons travelling a mile: system of common trunk, 11,404,000. We say nothing of the carriage of goods, which, applied to great distances, remains nearly the same in all cases.

SYSTEM OF DIRECT LINES.

Interest and redemption of £1,000,000 invested in the works, and 1,640,000 invested in purchase of lands and material, and in construction of way.	£	s. d.
Maintenance, direction, etc.	54,200	0 0
Locomotive power.	37,071	12 0
Total	249,671	12 0
Which gives for each passenger 6½d. per mile.		

SYSTEM OF COMMON TRUNKS.

Interest and redemption of £480,000 invested in the works, and £800,000 in purchase of land and material, and construction of way.	£	s. d.
Maintenance, direction, etc.	26,600	0 0
Locomotive power.	17,480	0 0
Total	130,880	0 0
Which gives for each passenger 4d. per mile.		

Common trunks are, therefore able to carry goods and passengers on lower terms and with larger profits than direct lines, except in the case where the lengthening of their course is more than 50 per cent. of the direct length—a case which nowhere presents itself.

The general application of the system here indicated would combine the following advantages:—*To the treasury* it would save a large outlay of capital; *to the country* it would give the advantage of earlier construction: *to internal and international commerce* a low scale of charges: *to local districts* more frequent trains and more moderate prices.—*Railway Chronicle.*

Ventilation.

Royal Institute of British Architects. June 8th; W. Tite, V. P., in the Chair.

Sir T. Deane, of Cork, made some observations on the drawings which he exhibited of the Abbey Church of the Holy Cross, at Tipperary.

An address on ventilation was delivered by J. Toynbee, Esq., F. R. S., surgeon to the St. George's and St. James' General Dispensary. He introduced the subject, by stating that during the whole of his professional career he had almost constantly been attached to public medical institutions; and that he had slowly become aware of the existence of an enormous amount of disease in the human race. A large share of this disease was incurable when once produced; but he was in a position to prove that much of it could be wholly prevented. He, therefore, felt that it was the duty of medical men, while they devoted themselves to the cure and palliation of disease, also to exert themselves in behalf of preventive measures. In the performance of this duty, he had investigated the sources of disease; and he found that one of the most fertile was the want of a due supply of air in dwellings and public buildings. In speaking on the necessity for ventilation, it was shown that ten cubic feet of air, or a volume double the size of the person, is required for the purposes of respiration

and transpiration each minute. The circulation of the blood was described as the process of carbonization—respiration as the process of decarbonization, in the 170,000,000 of air cells, forming a surface 30 times as large as that of the skin. In the process of transpiration, the so called insensible perspiration was continually given off; which, together with the vapor expelled from the lungs, amounted to two fluid ounces per hour. Thus, 500 people in a church during two hours, give off 15 gallons of water into the air; which, if not carried away, saturates everything in the building, after it has been breathed over and over again, in conjunction with the impurities it contains collected from each individual.—The use of lamps gas and oil, was shown to deteriorate the air, and to add much moisture to it. The effects of neglect for carrying out plans for ventilation are shown in the production of three of the most formidable and frequent diseases which affect the human race—fever, scrofula and consumption. Numerous facts were adduced in proof of this view; and the way in which these diseases was produced was pointed out. Thus, it was shown that all those who were among the victims, in the Black Hole of Calcutta, and did not perish from immediate suffocation, died, in a short time afterwards, of putrid fever. The proportion of people dying of consumption, who follow in-door occupations is double that of those who work out of doors; and it increases as the space for labor is more contracted. Dr. Guy has shown that it is more common in the upper part of large establishments, as printing houses, etc., where the air is more vitiated. The inhabitants of towns exposed to the wind are much less liable to consumption than those which are well protected and sheltered; and the goitre afflicting the inhabitants of the valleys of the Rhone is produced by a stagnation of air.—Instances were cited of schools in which the mass of the children were scrofulous, and to whom an increased diet, warmer clothing, etc., was not productive of any benefit—and by the aid of proper plans of ventilation the disease disappeared entirely. The same result has taken place in the Zoological gardens, Regent's park, since the new dens open to the air have been in use. It was then shown that hitherto there had been a total absence of plans for the supply of pure air, in a sufficient quantity, to the abodes of human beings. Towns are erected in localities wholly unadapted for residences. They are constructed so as effectually to exclude the air, and often increase to so large a size as to be rendered, from that cause alone, most unhealthy. The last portion of the address was devoted to the consideration of the means to be adopted for securing an efficient ventilation. The example set by nature ought to be followed; and the gentle changes produced by the wind should be as much as possible imitated. The great principle is to admit into rooms and houses a large quantity of air at a moderate temperature (60 to 65 deg.); and that there should be an outlet for the vitiated air; the pure air to be admitted within three or four feet of the floor, and to

be warmed by aid of the fire place. The various plans for warming the fresh air were examined; and their errors were found to have been, that a small quantity was admitted through a narrow channel, and at a temperature much too high, so that its nature was deteriorated. The subject of warming abodes was also alluded to; and it was shown that, from the bad mode of construction of stoves and fire places, and from improper materials being used, the smoke was not consumed, ventilation was rendered impossible, and the greater part of the heat dispersed up the chimney. Mr. Toynebee was happy to say that he had recently examined some plans about to be patented by a gentleman who has devoted a long life to the subject, and brought it to great chemical and practical knowledge—in which these evils would be remedied, and important advantages gained. In speaking of the means for insuring the egress of the vitiated air, it was stated that, as its temperature, on escaping from the mouth, is between 80 and 90 deg., it rises to the upper part of the room—from which there should always be a means of escape. Dr. Arnott's valve had been generally used for this purpose; and thousands of people will be indebted to its use for their lives and health. If it were the custom of this country to erect statues in memory of those who like Jenner, saved the lives of thousands of their fellow men, Dr. Arnott, in manifold ways, had earned for himself this distinction. A modification of Dr. Arnott's chimney valve by Daw, a working man, was alluded to and displayed—having the advantage of always remaining open, unless voluntarily closed. Various suggestions were made, showing how plans of ventilation may be carried out; and Mr. Toynebee concluded by appealing to the architects to adopt efficient plans in the construction of buildings—by doing which they would confer unbounded good upon the public, by the improvement of the public health.

Dr. Buckland and R. A. Slaney, Esq., a member of the health of towns commission, offered some remarks on the ill effects arising from badly ventilated apartments, and from the effluvia escaping out of the gratings in the streets, which are connected with the sewers by means of a gas light burning within lofty air shafts.

Models were exhibited by Mr. Stedall, of his patent Scolecothic ventilator; adapted for the cure of smoky chimneys, and for the admission of fresh air into the engine rooms and other confined parts of vessels.—*Civil Engineer.*

Miscellaneous Items.

Georgia Railroads.—Within the present month there will be a continuous railway of 543 miles in Georgia, in actual operation.—Georgia will make herself great and prosperous, by her splendid system of internal improvements.

Little Miami Railroad.—The receipts on this road show a steady increase of business. Since the road has been opened to Springfield the number of passengers has increased 75 per cent.—*Cincinnati Gaz.*

The Mad river railroad is now open to Kenton, and by the 1st of November will be extended to Bellefontaine, thus reducing the distance to be travelled by stages from this city to about 30 miles.—*Cincinnati Gaz.*

A Railroad.—The Morristown Jerseyman states that the route for the continuation of the railroad from that town to Dover, was settled on Monday of last week, and that the eastern or lower route had been determined on.

Fish and Railways.—Railways have materially affected the value of fish. The number of fishmongers in Birmingham has, since the opening of the various railways which now centre in that town, (since 1829,) increased from 10 to 40; and the quantity of fish consumed, from 400 to 3,910 tons annually. At Manchester the poorer classes are supplied daily at an average of 2d. per pound.—*Railway Chronicle.*

Railroads.—The Concord Courier says the grantees and associates of the Sullivan railroad was held at Charleston, Aug. 15. There was a full attendance, and a committee was appointed to make a permanent survey of the route and estimate, who will immediately enter upon the work.

The directors of the Passumpsic road are engaged in purchasing the right of way, etc., preparatory to commencing operations on their road. The first lettings will be in Fairlee and Bradford, just north of Orford bridge.

The railroad commissioners have adjourned the location of the remainder of the Cheshire road till the 10th of September. The location of the depot in Keene, was to have been determined on Thursday last. On Friday the point and terms of connection of the Cheshire and Rutland railroads were to be determined by committees of the two roads, meeting at Bellows Falls.

A meeting of the stockholders of the Concord road is to be held in Nashua, early in September, to decide upon the propriety of building the Souhegan roads and also of subscribing to the Portsmouth road.

Our Railroad.—The Rutland Herald says, Mr. Gilbert, with his party of engineers, has nearly completed the locating survey from Burlington to this place. We have examined the maps and profiles of the located line from Burlington to Middlebury (33 miles,) and do not hesitate to pronounce it for directness of line, ease of curves and grades, and cost of construction, as good a line as can be found in New England. Mr. Gilbert assures us that the line from Middlebury to this place is equally good with the north of Middlebury: making 65 consecutive miles of cheaper road than any line of the same length in New England. The result of the locating survey so far, is highly gratifying to the friends of the project, as it has established the fact that our road can be built cheaper even than Mr. Gilbert first estimated. We are now assured that the whole 65 miles from Burlington to Rutland can be graded, including masonry and bridging, for \$400,000. As soon as the surveys are completed to this place, and the profiles and estimates are made up, it is the intention of the building committee to advertise portions of the road for contract. Already proposals have been received from responsible contractors for grading portions of the road upon highly advantageous terms for the company. The locating survey has ascertained the feasibility of

new lines that will better accommodate some of the towns upon the line, more particularly through the town of Pittsford.

In the mean time the shareholders are responding to the assessment with the hearty good will which shows them in earnest in the matter, and which is the best guarantee to the directors for a vigorous prosecution of the work.

In several of the towns the assessment has been paid on every share, and in the others it is nearly paid. The shareholders have disappointed themselves in the promptitude with which they have responded to the call of the directors.

We learn too that the president of the Cheshire road has at length satisfied himself that the Rutland road is *twenty miles shorter* than any other route from Boston to Burlington.—Matters now seem in a train for a happy adjustment of whatever difference may heretofore have existed between the Rutland and Cheshire road.

The Courant informs us that cars are now running upon the Connecticut river railroad, as far as *South Deerfield.*

The Philadelphia Times tells us of a new embarrassment upon railroads. A fortnight ago, Monday night, the trains on the Erie railroad were stopped by *grasshoppers*—there being such numbers of them on the track as to grease it as effectually as though lard had been placed on the rails.

Those grasshoppers must have been full grown, very plenty, and *well fed!*

The Lowell Advertiser says that the custom house at Boston, is now nearly completed. Not a splinter of wood is to be found in in the whole edifice; all is Quincy granite and iron, with marble floors, etc.—The roof and dome are formed of solid granite blocks overlapping one another.

It is about time this edifice was completed. Near a million of dollars has been appropriated for, and expended upon it!

Essex Railroad.—This new road will prove a profitable undertaking to those interested, we make no doubt. It will extend from Salem to North Andover—and we are happy to learn that its prospects towards a speedy completion are very promising.—It is but six or eight weeks since the preliminary arrangements were commenced, and the surveys made, and we learn that the first section is already contracted for. The work is under the charge of Jas. Hall, Esq., engineer, a gentleman favorably known in Massachusetts, for his enterprize and ability.—The Salem Register remarks that the contracts for completing the Essex railroad to its first station, at South Danvers, have been made on satisfactory terms. The materials for prosecuting the work, will be brought together this week, preparatory to an immediate commencement, and the cars will unquestionably be running before the expiration of the present year. After the completion of this section of the road, the next step will be to North Danvers.

A Valuable Discovery.—The Buffalo Commercial learns from a gentleman direct from Wisconsin, river, that, in that immediate vicinity, and bordering upon the river, a few miles north of Helena, is *antimony ore* of the richest quality, and in great abundance.

"The ore" says the Commercial, "is as rich as the Galena or lead ore, and will yield about 85 per cent. pure antimony. It is found just where the broad field of copper ore stretching to the north and west crops out on the surface, and is as easily raised as the lead

ore. Furnaces for roasting the sulphur in the ore, leaving the article in the state known as the crude antimony of commerce, can be erected at an expense of about two hundred and fifty dollars. When thus prepared it is worth two or three times as much as lead.

"By a small expenditure the Fox river can be made navigable and connected with the Wisconsin so as to open an uninterrupted navigation from the lead mines of the Mississippi to Green Bay. Congress recently appropriated land for this purpose. We may therefore, confidently look to this source for a large addition to the commerce and trade of the lakes."

New Lion Works.—We find in the *Buffalo Advertiser*, an account of the opening of an extensive iron works, just commenced at Poland, on the Mahoning river, in Ohio. The proprietors are Messrs. Wilkeson, Wilkes & Co., and are gentlemen of enterprize and excellent business character. The Advertiser remarks:

"This is the first American furnace in which pig iron has been made with raw bituminous coal. This object was sought to be accomplished by Messrs. W., W. & Co., and they are entitled to the honor of being the only iron masters in the United States who have conducted this oft-tried and important experiment to a successful result. The iron made by them by this process is fully equal to the best Scotch pig, being made from as good ore and a better quality of coal and smelted in precisely the same manner. These works have been one year in construction, and are very extensive, being calculated to afford employment to two hundred men."

Cost of Telegraph.—The telegraphic line from Baltimore to Boston—it is estimated will be five hundred and fifteen miles in length. Its total cost will be about \$25,000, or an average of about \$230 per mile.

Boston Water Works.—Late Boston journals are filled with the most glowing accounts of the recent celebration which took place on the occasion of "breaking ground" upon the Long Pond aqueduct, by which means the city of notions is so be supplied with water. The ceremonies are represented to have been highly interesting. The mayor, city council and some hundreds of others were present. Any number of fine speeches and sentiments were given. Among the invited guests was ex-president Adams.

New Iron Furnace.—In a late number of the *Miners' Journal*, we find an account of a new and extensive iron furnace, now in process of erection, by Burd Patterson, Esq. The *Journal* gives some interesting particulars in relation to the enterprize, and enters upon the following calculation, touching the benefits which may accrue from its operations:

"This furnace," says the *Journal*, "will produce 80 tons of iron a week, or 4,000 tons a year, which manufactured into bar or railway iron, will give 3,200 tons, worth at \$75 per ton, \$240,000. Now all the coal used in manufacturing this iron, would at Pottsville be worth at \$2 a ton, only \$40,000, leaving a difference of \$200,000 in favor of the establishment. But let us look at it in a more extended point of view; the coal produced this year will be about 1,400,000 tons, worth at \$2 per ton, \$2,800,000. Now

eleven such establishments as the one spoken of above, would pay \$2,200,000, a sum very near as great as the whole product of this region, while they would require to put them in operation, not a larger sum than \$1,000,000."

Important to Travellers.—We see it asserted that some distinguished medical authority, informs the public that the great loss of life attendant upon steamboat explosions arises from the fact that people open their mouths and swallow the hot steam. The *New York Tribune* says this is very important information, and in addition to the usual labels posted about the different parts of steamboats, we shall hereafter see them conspicuously placed "keep your mouth shut when the boiler bursts."

An advertisement of the 'Central railroad,' (Michigan,) appears in a late number of the *Detroit Advertiser*, announcing that the books for subscriptions to the capital stock of said company will be opened at the Michigan State bank on Monday, the 7th day of September next, at 10 o'clock a.m., and continue open for two days only. The subscriptions will be valid of course only in case the road shall be taken mainly by eastern capitalists. A vigorous effort is now making to accomplish the object, with hopes of success, and as subscriptions in Michigan will contribute greatly to that, it is hoped that they may be made with a liberal hand. Subscribers in this state will stand on the same level, and receive stock upon the same terms precisely as will the eastern capitalists. By order of the board of directors.

The Advertiser remarks that "if every citizen will do what he can, the aggregate may be large, and may be the means of promoting an object desired by all who regard the true interests of the state."

Extension of the Magnetic Telegraph.—A good deal of interest is being manifested throughout the west, in reference to the extension of the magnetic telegraph. We notice that an earnest movement has been made in Cincinnati, in reference to the subject—and the press in that city especially, as well also, as at Louisville, St. Louis, etc., is urgent in its appeals to the citizens, to take the matter into immediate consideration. The practical advantages of the telegraph are now well known, and its success in our Atlantic cities has stirred up the enterprize of our western men. We shall be proud to know (and the day we opine is not far distant when it will be accomplished,) that the space between the extreme east and west is "annihilated" by means of this important discovery. The *U. S. Gazette* contains the following in relation to the subject:

"A lively interest is felt by western merchants in this city, in the extension of the telegraph towards the Ohio and Mississippi. It is stated confidently, that any reasonable amount of funds necessary for the work can be readily obtained at Cincinnati, Louisville, and St. Louis, as well as at Pittsburg and Wheeling, which places some agents of the western telegraph company are now about to visit, to ascertain the amount of stock that will be taken. An efficient organization is completed here, to run the line of telegraph rapidly to the Ohio. Hugh Downing, Esq., one of the most efficient business men in Market street, known extensively westward, as well as in this city, is named as the president, and the company is styled the 'Atlantic and Ohio.' Most of the stock is said to be

secured, and the balance will not long remain on hand. We should suppose that the usefulness and importance of this wonderful agent in the transaction of business would manifest themselves to every business man in the community, and induce them all to lend their aid in extending it to every place of importance in the Union."

Central Railroad.—A late number of the *Harrisburgh Argus* says that Horace Binney, Esq., has published a long and able opinion against the power of the authorities of Philadelphia, to subscribe to the stock of the Central railroad company.

"In a subsequent note, Mr. Binney gives a statement of a decision of the supreme court of this state, which he conceives to be decisive of the question. The case was that of *McDermond and others vs. Kennedy* determined at Harrisburg in July, 1839, but not reported. The case was as follows: Kennedy, the plaintiff below, was an inhabitant of Newville, an incorporated town in Cumberland county, and the defendants were the burgesses and members of the council. The action was trespass for seizing the plaintiff's goods; and the defence was rested on the authority of a by-law, laying a tax to enable the corporation to fulfil a contract it had made with the Cumberland Valley railroad company, to contribute to the expense of shifting the location so as to bring the road nearer to the borough. The plaintiff recovered damages in the common pleas on the ground that the by-law was bad, and the judgment was affirmed in the supreme court, 'where the question stood on the abstract right of a municipal corporation to tax the inhabitants for objects not immediately involved in the local government,' which right the court denied."

A Farmer's Notion of the Electric Telegraph.—A worthy old farmer who resides near the line of the York and North Midland railway, having been told a few days ago, that a communication had been made from York in two or three minutes, said, "Blabe, lad, it fair down caps me how t'feller rides upon them there wires when he carries t'news!"—*Railway Record.*

(Official) Reading Railroad.

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending

	Aug. 24, 1844.	Aug. 23, 1845.	Aug. 22, 1846.
Travel.....	\$2,303 65	\$2,429 04	\$3,354 83
Freight on goods.	727 68	1,109 50	2,729 84
Do. do. coal..	13,839 17	25,340 19	44,657 35
Miscell's receipts.	....	....	....
Transp. U.S. mail.	....	....	....
	\$16,870 50	\$28,878 73	\$50,742 02
Coal trans., tons..	12,368	23,686	31,029

Utica and Schenectady.—Receipts from passengers in,

July, 1845, - - - - -	\$42,011 92
" 1846, - - - - -	36,491 02
Deficiency, - - - - -	\$55,20 90

The amount of receipts for July, 1845, was equal to 14,004 through passengers at \$3 each. Amount of receipts for July of 1846, is equal to 18,245 1-2 through passengers at \$2 each. Increase of passengers 4,241 1-2. Passengers decrease of receipts \$5,520 90.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.

Saturday, September 5, 1846.

Eight-Wheel Cars.

We see by a late English paper, that eight-wheel cars have been invented in England, by the well known and ingenious secretary of the Liverpool and Manchester. This is the only safe and convenient car for passengers, and is not the invention of Mr. Booth, but of Mr. Imlay, who constructed cars upon this principle some nine or ten years since.

We have seen no form of eight-wheel car which differed from the plan of Mr. Imlay, which was not in fact a retrograde from the original.

Valuable Works on Engineering for Sale.

The following works, belonging to the late Wm. R. Casey, have been deposited at this office for sale. It will be seen that they comprise most of the standard books. The reports and non-enumerated pamphlets are however among the best part of the collection, as many of them are not to be found or purchased at any price. So desirable an opportunity seldom offers for securing an excellent set of professional works.

LIST OF ENGINEERING BOOKS BELONGING TO W. R. CASEY, deceased.

- 1.—The Civil Engineer and Architect's Journal, quarto, vols. 1, 2, 4, 5 and 6, and nos. 79 to 81, and 84 to 95—remaining numbers expected from Montreal, Canada.
- 2.—Railroad Journal, quarto, vols. 1, 2, 3; octavo, vols. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 and 17; octavo vols. 18, and loose nos. to date; being nearly a complete set.
- 3.—Reports and Documents, 6 or 7 octavo vols.
- 4.—Tredgold's Carpentry, quarto, with plates.
- 5.—Barlow on Strength and Stress of Timber, octavo, with plates.
- 6.—Turnbull on Iron, octavo.
- 7.—Nicholson's Masonry and Stone Cutting, octavo, with plates.
- 8.—Tredgold's Tracts on Hydraulics, octavo, with plates.
- 9.—Gregory's Mathematics for Practical Men, octavo, with plates.
- 10.—Wood on Railroads, octavo.
- 11.—Pambour on Locomotives, octavo, with plates, (Philadelphia edition.)
- 12.—Lecount on Railroads, octavo, with plates.
- 13.—Smeaton's Tracts, 1796, octavo, with plates.
- 14.—Seward's New London Bridge, octavo, with plates.
- 15.—Storrow's Treatise on Water Works, duodecimo.
- 16.—Report on Atmospheric Railway, etc., quarto, with plates.
- 17.—Gallier's Price Book and Estimator, octavo.
- 18.—Public Works of Great Britain, folio, \$25.
- 19.—Weale's Bridges, new and valuable, \$23.

The above books will be sold by the single volume, if desired, and forwarded by express, or otherwise, as directed by the purchaser.

Please address E. HEDOE, Railroad Journal Office, 23 Chambers street, New York.

We would call the attention of Railroad Companies to the following Advertisement and testimonials. Orders for Ballard's Jack Screw through this office solicited, and will be attended to with punctuality.



BALLARD'S NEWLY IMPROVED PATENT JACK SCREW.

The advantages of this Jack Screw for Stonequarries, Railroads, Steam Boiler Builders, and other purposes, are superior to any other machine.

The improvement consists in being able to use either end of the Screw, as occasion requires.

It is capable of raising the heaviest Locomotive with ease, being portable, strong and powerful, and not likely to get out of order.

Many Railroad Companies and Boiler makers have them in use, by whom they are highly recommended.

JACK SCREWS of various kinds, sizes, power and price, constantly on hand at the manufactory, No. 7 Eldridge St., near Division. 4435

We the undersigned have used Ballard's Jack Screw on our Railroad and for other purposes, and we consider them superior to any other machine that we have had.

GEO. B. FISK,
 Pres't. Long Island Railroad Co.
 TIMOTHY L. SMITH,
 Agent New Jersey Railroad Co.
 H. R. DUNHAM & CO.,
 Locomotive and Steam Engine Builders.
 GEO. VAIL & CO.,
 Speedwell Iron Works, Morristown, N. J.

OFFICE NEW YORK AND ERIE RAILROAD CO.,
 45 Wall Street, New York, Aug. 28, 1846.

NOTICE IS HEREBY GIVEN, THAT PROPOSALS will be received until the 13th day of October next, for the Grading, Masonry and Bridging required to complete that portion of the New York and Erie Railroad between a point three miles east of Port Jervis in Orange county, and the village of Binghamton in Broome county, a distance of about 133 miles.

Maps and profiles, estimates and specifications, will be found after the 10th of September in the office of the company, at New York city, where every necessary information will be given. The engineers on the line of the road will also furnish all requisite facilities to contractors desirous of examining the route.

The line will be divided into sections of convenient length for construction, and proposals in writing will be received at the New York office for the whole or any part of the work. By order of the President and Directors.

T. S. BROWN, Chief Engineer.

ST. LAWRENCE AND ATLANTIC RAILROAD.—Notice to Contractors.—Proposals will be received at the office of this St. Lawrence and Atlantic Railroad Company, No. 18 Little James Street, in the City of Montreal, until the 24th of September next, for the Grading, Masonry and Bridging, of a division of the Road, extending from the St. Lawrence River to the Village of St. Hyacinthe, a distance of about 30 miles.

Plans, Profiles and Specifications will be exhibited, and the requisite information given at the Engineer's Rooms in the Company's Offices, at Montreal, on or after the 15th of said month.

Persons offering to contract for the work, or any part of it, will be required to accompany their proposals with satisfactory references.

By order of the Board,
 THOMAS STEERS, Secretary.
 Office of the St. Lawrence and Atlantic R. R. Co.,
 Montreal, 25th August, 1846.

NEW YORK AND ERIE RAILROAD CO. The stockholders of the New York and Erie Railroad Company are hereby notified that an instalment of Five Dollars per share on all shares on which the payments already made do not exceed 20 dollars, is required to be paid, (agreeable to the terms of subscription) at the office of the company, No. 45 Wall street, on or before the 1st day of October next. By order of the Board of Directors.

NATHANIEL MARSH, Sec'y.
 New York, August 31st, 1846.

Accommodation of Passengers--Cars.

In the infancy of the railway system, alterations and improvements succeeded each other so rapidly, that very many inconveniences were patiently endured, as being compensated by the increase of facility in travel. The attention of the managers of a railroad was directed mainly to the engines—it was sufficient that passengers were transported at much higher speed than in former times, and by other modes of travel.

This state of things exists no longer—and at present many things in connection with a railroad have become matters of first rate importance, although not belonging to the mere machinery. None of these are more worthy of attention than those which belong to the comfort, convenience and safety of passengers. Experience has shown that small matters have a great influence upon the business of a road, and that passengers will not use a railroad merely because it is a railroad, seeking in this, as in all other things, their convenience and comfort. The accommodation of passengers is therefore a question directly concerning the profits of the railway—and although the argument to the pocket has done much to improve matters, there is yet room for further improvement. We propose from time to time examining into the various details of railway management, which relate more directly to the accommodation of passengers. In the first place we shall speak of the cars.

Passenger cars should be made sufficiently strong to resist all the ordinary force to which they may be exposed, and should never be used when out of this condition.—That human life should be risked by exposure to the violent action of a powerful engine, in an unsafe vehicle, is to the mind of even the most mercenary, so horrible, that we should suppose at first sight that no one would directly or indirectly be concerned in producing such a fearful hazard. It is notorious, however, that such risks are often produced, sometimes knowingly and sometimes ignorantly.

We have seen, and to our risk have travelled in, cars which squeaked and groaned as if complaining that their aged and jaded limbs should be compelled to rattle along at the rate of twenty or thirty miles an hour with a grievously heavy load. Generally, we have found upon inquiry that the company have felt themselves too poor to use better. If this argument were a good one, we might reply that the company was then too poor to undertake the transportation of passengers. Sometimes we have found such cars used where this excuse would not and could not be made. In such cases we can imagine but one instance in which any palliation could be offered, and this we are persuaded does often occur. From accident or other emergency, when the ordinary good ones are insufficient in number, or not at hand, it often happens that some old affair is taken out of the depot hospital and put upon the road. Circumstances may very urgently call for such a procedure, but it must be remembered that the risk is fearful, and the consequences in a single instance, may be such as would have rendered it preferable to have encountered all the disadvantages from uniformly

adopting the more cautious course. No temptation of profit, or even the desire to oblige, should lead to the peril of human life.

Where even this excuse cannot be offered, what language is strong enough to express the wickedness of the practice. Unfortunately, however, the danger is concealed from most eyes, paint and varnish on the car, or ignorance in the observer in most cases prevent the hazard from being visible. In this, as in the parallel instance of steamboats with machinery in an imperfect or dangerous state, there is hardly any remedy, and when an accident occurs, the usual verdict is, "no blame to be attached to any one." There is blame to be attached to those who, while they share the profit, should share the responsibility—we mean the stockholders and their delegates, the directors. Pains are taken to secure profit to the concern—but who looks after the safety of the passengers? This to be sure, and we are glad that we can say it, is not always the case; but who can deny that it does occur, and one instance is one to many.

Where accidents do happen, and it is evident that passengers have been exposed needlessly to danger, it is the duty of every good citizen to use every exertion to bring the guilty to punishment.

Railroad cars are generally, when new, made of sufficient strength, but it must be recollected that they are in ordinary use exposed to severe treatment, and a provision against the greatest strain to which they are subjected must be made in the outset. We have often thought that, if less money were expended upon the mere ornament of cars, and more upon their strength and comfortableness, it would be better for all parties.

Most railroad accidents have had their origin in deficiency of strength in the cars. The breaking of axles and wheels are notorious, but there is another source of danger in weak or badly constructed cars which few regard. We contend that the action of such cars upon the train and the track is pre-eminently productive of mischief. Every departure from the proper condition of a car, causes more or less interference with the uniformity of the motion, and creates new resistances, great where they are least able to be borne. Few seem to have taken this view of the subject, but we are satisfied that it is correct, and moreover confirmed by experience. The strain upon an axle or a wheel has a direct reference to the strength of the car body—the whole of these effect the motion, this acts upon the track, which in its turn re-acts upon the train. It is thus that upon a railroad every irregularity is magnified and propagated with wonderful rapidity.

There are many very excellent contrivances, which tend to promote the strength of cars and their parts, and the safety of passengers. These have been noticed in the Journal from time to time, and need not be repeated in this place.

Mississippi and Toledo Railroad Meeting.

Agreeable to public notice the meeting was organized at the appointed place on the 16th inst., by the appointment of Alphonzo Wilson, Esq., president, and E. F. Dibble and S. P. Hart, Esqrs., secretaries.

Mr. Delano stated the object of the meeting to be the calling of citizens together to ascertain what amount of stock was likely to be subscribed in Penn township, to aid the superstructure of the Mississippi and Toledo railroad, and to report the same to E. Whittlesey, Esq., of Toledo.

Dr. Eddy being called upon, moved that

the gentlemen present be presented with the subscription list and invited to subscribe.

John Niles, Esq., responded to the call, in a few, but emphatic words, declaring himself "a laboring man and a friend to the road," stepped forward and signed for eight shares. He was afterwards followed by several others of 6 and 8 shares each.

Mr. Delamater rose to explain some points of difference which appeared to exist between the statements he had made to the farmers and those of A. Delano, Esq., which, having been explained, he continued in a warm and animated speech, full of truth and interest to the farmer, to show how a market might be obtained for our coarse grains, and how the farmers of St. Joseph co., might compete with those of Ohio in an eastern market.

Mr. Delano rose again to give some statistical calculations, full of interest to the farmer and consumer. He exhibited an extract from the report of the county assessor to show the amount of produce raised in St. Joseph county, as follows:

400,000 bush. wheat, equal to 80,000 bbls. flour; 180,000 bush. oats; 400,000 bush. corn; 35,000 lbs. wool.

An amount which far exceeds the calculation of our best informed citizens, and which was but a type of the other counties along the route of the proposed road. In addition, he presented the following calculations and estimates: 100 tons of merchandize annually brought from New York into the county, amounting to \$100,000. The risk of lake navigation makes it necessary to insure its safe transportation which at an average price is 1½ per cent., making the sum paid for insurance \$1,500.

Owing to the limited time of getting produce to market, and the time required to get merchandize from New York, by reason of the dangers and close of lake navigation, from 20th October to about the 1st of June, merchants are compelled to buy at long time, at higher prices in New York, and pay a balance of interest against them; or say one-half of the amount purchased at 7 per cent., for 6 months, \$1,750.

Freight on 100 tons merchandize to St. Josephs at the low rate of 65 cts. per 100 pounds, and 20 cts. river freight from St. Josephs to Mishawaka, makes 82 cts. per 100 from New York. Allowing freight to be 50 cts. per 100 to Toledo and thence by railroad to Mishawaka, 15 cts., which is a high estimate from the latter place, makes 65 cts. to Mishawaka from New York instead of 82 cts.—difference in favor of railroad, besides time, risk and dangers of upper lake navigation \$4,900.

Wheat is ordinarily worth at Toledo 75 cts., when it is worth 50 cts. here. It can be carried there in 24 hours by the railroad at 10 cts. per bushel, making it worth here 65 cts. instead of 50 cts. Difference between 50 cts. and 65 cts. on 400,000 bushels, \$60,000, and making it worth at Toledo nearly a thousand miles nearer New York, at least as much as it is at St. Josephs, saving the risk, insurance and delays of navigation of lakes Michigan and Huron—making an aggregate of \$67,250.

Nearly enough to grade the road and lay the superstructure through the county, which is actually paid out or lost to this county every year, and who pays or loses this large sum of money.

The merchants add the insurance, interest and transportation to the per centage on his goods, and he is compelled to do it to save himself. The forwarding merchants on the river and the lakes must be paid for their services. It is right that they should be, and these incidental expenses are to be deducted there, from the price of the grain, flour or pork transported. Who, then, but the consumer of the goods:—who but the cultivator of the produce, the farmer, does this sum come out of?

He then went on to show why our farmers could not send coarse grains to market, and why it lay a drug upon their hands. Simply because it could not reach a market in the fall or winter; and if shipped in the spring it is liable to spoil in the hold of a vessel from the length of time required to go around the lakes. Mr. D. presented many other facts: a map of the lakes, with the route of the proposed road prepared for the occasion.—*Mishawaka Bee.*

The following statistics were prepared by Hon. E. Whittlesey and H. D. Mason—bearing on the contemplated railroad, and submitted to the railroad convention at South Bend.

"The undersigned having been appointed by the committee on publication to compile such statistical statements as would show to the company the importance of the contemplated railroad from Toledo to the west line of Indiana or Chicago, and the certainty of profits to the stockholders; have attended to the duty assigned, and present the following general statements.

"A report which is soon expected from Mr. Baldwin, of Boston, who made a reconnaissance of the route last fall, will more fully show in detail the proceeds of the country and the number of passengers which will be transported on the road when constructed. When this link of the Buffalo and Mississippi railroad will be completed, the other portion of it will very soon be in operation; such is the location of this main trunk that the improvements in Indiana and Ohio, which give to the produce and travel of the country a northern direction, will be tributary to it and enhance its profits beyond the anticipations of its most ardent friends. The most rigid examinations should be invited, and the strictest comparisons with other routes made. We regret the time limited was not sufficient for doing the most ample justice to the subject.

I.—A.	
Distance from Buffalo to Chicago, through Canada, via Detroit.....	280
" Detroit to Kalamazoo.....	147
" Kalamazoo to the mouth of St. Joseph river.....	55
" Mouth of St. Joseph river to Chicago.....	60
Total distance—miles.....	542
I.—B.	
Distance from Buffalo to Kalamazoo, through Canada.....	427
" Kalamazoo to New Buffalo direct.....	66
" New Buffalo to Michigan city.....	12
" Michigan city to Chicago.....	50
Total distance—miles.....	555
I.—C.	
Distance from Buffalo to Toledo, via shore of lake Erie.....	297
" Toledo to Michigan city.....	186
" Michigan city to Chicago.....	50
Total distance—miles.....	533

II.—A.
 The time it will take for each route from Chicago to Buffalo, at 40 miles an hour.
 From Chicago to mouth of St. Joseph river by boat..... 5 hours.
 " St. Joseph to Buffalo, by railroad, 482 miles..... 12 "
 Add for crossing at Buffalo..... 1 "
 Total time..... 18 hours.

II.—B.
 From Chicago via Michigan city and New Buffalo, through Canada, 555 miles. 14 hours.
 Add time for crossing at Buffalo..... 1 "
 15 hours.

II.—C.
 From Chicago to Buffalo via Toledo and south shore of lake Erie, 533 miles, in..... 13½ "

III.—A.
 Cost of railroad from Detroit to Chicago Central railroad, 147 miles long..... \$2,000,000 00
 To lay T rail 56 lbs. to the yard, 95 tons and 56 lbs. to the mile, \$93 50 per ton, Baldwin's estimate, inclusive of spikes and bolts..... 1,477,255 92
 From present terminus of road to Chicago via New Buffalo, 128 miles, as per Baldwin's estimate, will cost..... 2,037,195 52
 Total cost..... \$5,514,451 44

It will probably take the value of the light iron, on the road at this time, to make the alterations and fit the bed of the Central railroad for the T rail.

Cost of Making Railroad by Toledo Route.
 From Toledo to Chicago, 236 miles new road, estimated same as above. \$3,537,109 00

Being less than Detroit route..... \$1,977,342 44

IV.—A.
 Business and Travel between Buffalo and Toledo, on the south shore of Lake Erie, for a Railroad, when made.

1840—Population of Chataugue county... 47,975
 Western district of Pennsylvania had 815,289—allow for road..... 400,000
 State of Ohio, at this time..... 2,000,000
 South shore of lake Erie, by canals and railroads..... 450,000
 Population to furnish way travel..... 2,897,975
 Internal Improvements that will be connected with this road when made.
 1. Erie railroad—southern tier of counties of N.Y.
 2. Erie and Beaver canal, Pennsylvania.
 3. Ohio canal and tributaries..... 334
 4. Sandusky and Mansfield railroads..... 70
 5. Lake Erie and Mad river railroad..... 220
 6. Wabash and Erie canal to Covington..... 275
 7. Miami canal to Cincinnati..... 247

IV.—B.
 NOTE. What the route through Canada will furnish as way business and travel, when compared with the foregoing, we are not able to say, but in our opinion it will be very small.
 The entire population in Upper Canada in 1843, was..... 506,644

V.
 The counties included within twenty miles of the line of the projected railroad from Toledo to Chicago, had in 1840, a population of..... 89,970
 At this time by enumeration of the state of Indiana, and the census of Michigan, is, 135,000 Square miles 9,000, containing 6,144,000 acres, having at this time a population of 14 to the square mile.
 Bushels of wheat raised in the above district in 1845..... 3,740,936
 Corn..... 4,430,000
 The state of Massachusetts has 7,800 square miles, equal to..... 4,992,000 acres.
 This route from Toledo to Chicago will secure the business and travel twenty miles each side of the road beyond competition.

Ohio, Indiana, Illinois, Michigan, Wisconsin and Iowa in 1810 had a population of 272,324
 1820 802,719
 1830 1,470,018
 1840 2,967,840

The increase from 1810 to 1840 was over 990 per cent., equal to 33 per cent. per annum on 272,324, and 12½ per annum, computing upon the population of each decimal term.

Contrast the above with Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey and Pennsylvania, The population of which in 1810 was.... 2,486,586
 " " " 1820 " 4,359,651
 " " " 1830 " 5,542,381
 " " " 1840 " 6,761,082

The average increase in these states for the thirty years was 2½ per cent. per annum, computing upon the population of each decimal term, and computing upon the population of 1810 for 30 years, the increase was 94 per cent, a fraction over 3 per cent. per annum.

AGAIN: Missouri, Indiana, Illinois, Michigan, Iowa and Wisconsin had a population in 1830, of..... 672,579
 1840, of..... 1,832,072

The increase for the ten years was 170½ per cent. equal to 17 per cent. per annum, and the population only 3¼ to the square mile. The same rate of increase to 1850 will swell the population to 4,992,376, and there then will be less than ten persons to the square mile.

The wealth of the country increases faster than the population, as appears by the following table: New Hampshire, Massachusetts, Rhode Island, Connecticut, Vermont, New York, Delaware, Maryland and North Carolina valuation of lands in 1798..... \$559,233,067
 1813..... 802,870,909

In fifteen years the increase was over 123 per cent. equal to 82 per cent. for ten years. The increase of the population in these from 1800 to 1810 was 30 per cent.

Virginia in 1798 valued at..... \$71,225,127
 " 1813 " 211,930,538

In forty-one years the increase was 197½ per cent., the increase of population from 1800 to 1840 was less than 41 per cent.

The business of the western country increases faster than the population, as appears by the following: the earnings of the steamboats on lake Erie, Huron and Michigan, in 1833, amounted to..... \$229,212
 1841, " 767,860

equal to 235 per cent. for the period of eight years, averaging 29½ per cent per annum.

The increase in the population in the north-western states and territories from 1830 to 1840 was a fraction over ten per cent.

AGAIN: The earnings of all the boats and propellers for the business alone, to and from lake Michigan with lake Erie, in 1841, was..... \$226,342
 1845, " 448,491

Increase in four years as above, 115 per cent., being 28½ per cent. per annum.

It will be recollected that the price of passage from Buffalo to Chicago was, in 1841, cabin, \$20..... deck, \$12
 1845, " 12..... " 6

The number of passengers taken from lake Erie to ports on lake Michigan, and from ports on lake Michigan to ports on lake Erie, in 1845, was 57,993.

And the receipts for freight and passengers, for that portion of the business, was \$487,491.

We sought the most correct sources of information, and believe the statements will be found to be correct, but if any error shall be detected we shall be prompt to correct it. Under IV.—A., and head of "Internal improvements that will be connected with this road when made," you will see the 1st and 2d heads of distances are not filled up. The 3d head, "Ohio canal and tributaries," does not include the Pennsylvania and Mahoning cross cut canal, which connects the commerce of the Ohio with the commerce of the lake at Akron; this canal with its slack water is about 90 miles.

Most sincerely and respectfully yours
 H. D. MASON,
 ELISHA WHITTELEY.

The Anthracite Coal Trade.

Continued from page 540.

First, or South Anthracite Region.—Lehigh District.—That part of the Lehigh coal and navigation company's lands which contain the coal veins, is bounded on the south by the continuation of the 'sharp,' locally called 'Mauch Chunk mountain,' and on the north by the 'Locust mountain,' the continuation of 'Mine hill.'

At Tamaqua, the western extremity of the Lehigh estate, and about fourteen miles from the Lehigh river, the summits of these two mountains are one and a quarter miles apart, while near the river Lehigh, they join and terminate in a point, a short distance northward from the town of Mauch Chunk.

The mines now in work on the company's estate, are the 'Summit Hill' or 'Old Mine,' the 'Room Run' and the 'Tamaqua.'

The Summit Hill or Old Mine is an immense coal quarry, its extreme length east and west, being upwards of 3,000 feet, and extreme width north and south, 1,500 feet, it covers a surface of more than 30 acres. It is situated 9 miles from the Lehigh and about 5 miles west from Room Run. It is 760 feet above the Lehigh river, at Mauch Chunk.—The coal strata of this mine forms a saddle and is from 50 to 60 feet in thickness. It is worked by taking off the super-incumbent strata, which consists chiefly of alluvial.—The coal is then exposed and quarried in open day. Upwards of one million of tons of coal have been sent to market from this mine.

There are two railroads from the mine to the Lehigh navigation, the one a gravity railroad by which the loaded cars descend to the navigation at Mauch Chunk, the other called the 'Back Track,' upon which the empty cars return to the mine.

Another quarry or coal mine, called the 'New Mine,' lies on the east of the 'Old Mine,' and nearer to the Sharp mountain.—This is of much smaller area than the 'Old Mine.'

The Sharp mountain, which in its course from Tamaqua to a short distance east of the 'New Mine' on the Summit hill, a distance of five miles is very regular, at this place it is broken, and turns toward the north. At about 2,000 feet northward from its broken end, its prolongation is again continued eastward, until it meets and joins the Locust mountain, terminating in the point before named.* The latter termination of the mountain is locally called 'Mt. Pisgah.' The Summit Hill 'Old Mine,' lies in a direct line, with the crest of Mount Pisgah.

I shall not venture in this place to give an opinion as to the effect produced by this change in the course of the mountain on the coal strata, for the reason I think I may be able to explain more clearly and satisfactorily, this phenomenon, when I give the description of the coal basin, as it appears at Tamaqua, where it is cut through by the stream of the little

* A similar change in the course of the Sharp mountain appears opposite Middleport, which is of greater magnitude than that found on the Lehigh estate; and which will be hereafter noticed. See the course of this mountain, marked on the small map of the region published by me.

Schuylkill, at a right angle to the range of the stratification, and affords the only perfect section in the coal region.

The Room Run coal mines are situated in the gap of the Locust mountain, made by Room Run, a branch of Nesquehoning.—They are about 5 miles westward from the Lehigh, and the coal is transported upon a gravity railroad to the Lehigh navigation, a short distance above Mauch Chunk. In passing through the gap, and entering the coal basin, the following coal veins are developed.

1st coal vein, 5 feet thick. Two drifts or gangways have been driven in this vein westward.

2d vein of 3½ feet in thickness, cut in the tunnel now being driven.

3d coal vein 28 feet in thickness. Three drifts have been driven in this vein westward and one eastward.

4th coal vein 'Rowland,' 6 feet thick, considerably worked.

5th and 6th two small coal veins.

7th coal vein 28 feet thick.

8th coal vein varying in thickness from 25 to 40 feet, called the 39 foot vein, worked a long distance westward.

9th coal vein 'Barber,' 12 feet thick, worked eastward.

10th coal vein 5 feet thick.

11th coal vein 12 feet thick, worked eastward.

All the above veins dip south; the last two are supposed to form a basin, and in a short distance rise to the surface making a north dip. No. 9, or 'Barber,' lies underneath the above, also forming a north and south dip. Nos. 7 and 8, basins underneath the former, and rises to the south forming one vein of 50 feet in thickness—this 50 feet vein saddles over, and then dips south, and is supposed to rise again, forming a north dip in Mount Pisgah. The coal veins which overlie and underlie the 50 feet vein, make the same curves (excepting that the continuity, or saddle of the overlying veins is broken,) and rise to the surface on Mount Pisgah, thus forming two basins of synclinal axis and one saddle or anticlinal axis. The coal basin here is about 1,600 feet wide. The Tamaqua mine consists of the workings in one of the coal veins of the Sharp mountain. This vein has been worked into, eastward from the gap a considerable distance, it produces coal of fine quality, and is free from any serious fault. Besides this, there are a number of other coal veins in the Sharp mountain range, which this part of the Lehigh estate command. These will be enumerated and treated upon, in the description of the Little Schuylkill comp'y's estate at Tamaqua.

The Lehigh coal and navigation company's estate embraces about 13 miles of the Sharp mountain range of coal veins. Five miles of which, the western part, is most valuable for mining. The crests of these mountains are on an average about 500 feet above the level of the valleys. The company has on their coal estate from 35 to 40 miles of railroads in operation, with steam engine attached to the inclined planes, coal breakers, etc.

The Lehigh company is making extensive preparations to open and work other parts of its estate. Railroads and inclined planes have been surveyed, and are under construction, and seven or eight different tunnels to the coal veins have been laid out and commenced. One of considerable extent has been driven across the strata in Room Run gap, for the purpose of gaining workable breasts of coal below those now in operation.

Buck Mountain Coal Mine.—The geological situation of this mine, has been represented by some as belonging to, and forming the eastern extremity of the Hazleton coal basin, by others it is said to be in Dreck Creek coal basin, and some have pronounced it to be an extension of the Beaver Meadow coal field. These conflicting statements as regards the position of the mine, and have a desire to be acquainted with its geological locality, for the purpose of making out a map I am now preparing, the true place of the different colerics in that part of our anthracite formations with the boundaries of the various coal basins, led me to make a minute examination of the direction and dip of the strata of the mountains and valleys in its vicinity. These examinations, I am pleased to state, have resulted in some interesting facts, which tend to show the true situation of the Buck Mountain company's coal mine, as regards its geological position with the different coal basins before named.

These facts, (recently collected) I respectfully submit.

'Buck Mountain,' the name of the mine, is not the name by which the mountain is known, on which the company's works are located. The Buck mountain is nearly three miles north from the mine, with the vallies of Black creek and Sandy creek intervening.

The local name of the mountain on which the mine is situated is Pismire Ridge, and is a continuation of the hill that lies between the Beaver Meadow and Hazleton coal vallies. In the origin of the works the owners did not approve of the appellation 'Pismire Ridge Mine,' they therefore called it Buck Mountain, the name by which it is now known.

Before I proceed to give the particulars of my examinations, it may be well to state that the country north and south of the Buck Mountain coal mine, is composed of alternate hills and narrow vallies, ranging parallel to each other in nearly an east and west direction, and extending several miles in length.—Streams of water run through to the Lehigh on the east, and the Susquehanna on the west the head quarters of which rise on the table land between the hills, and in consequence of the vallies being narrow the table land is of small area. The head quarters of the streams that rise between the northern mountain, are a shorter distance from the Lehigh river, than those that rise between the southern mountains, consequently the table land is found in a northeast and southwest direction.

A better idea of the topographical and geological character of the country may be shown by taking a well known starting point, say from the Summit Hill coal mine on the Lehigh company's estate, and proceeding from

thence in a northern direction, crossing the hills and valleys, giving their local name, with a brief description of each as they come in order.

From the Summit Hill coal mine we, (supposing the reader in company,) cross the coal valley to Locust mountain the north boundary of the Lehigh district of the South Anthracite Region.* After passing the conglomerate, the rock that underlies the coal strata, and crops out in immense masses on the summit of this mountain, we descend into the Nesquehoning valley, a red shale formation through which the Nesquehoning creek flows to the Lehigh river. The headwaters of the Nesquehoning rise about four miles to the west, and about one mile north from where the Locust creek (which rises about nine miles further west in the prolongation of this valley,) joins the Little Schuylkill, and passes south through the gaps of Locust and Sharp mountains at Tamaqua, (see my small map of the South Anthracite Region.)

Leaving Nesquehoning we ascend Broad mountain, and pass over the eastern extremity of the Mahoning, or Middle Anthracite Region, and then descend into the Quakake valley.

The extension of the Lehigh and Susquehanna, or Cattawissa railroad is through the the Nesquehoning valley, it connects with the Beaver Meadow railroad five miles west from the Lehigh.

On the high ground about six miles to the west and where the road leading from Tamaqua to Hazleton and Wilkesbarre passes, are the head quarters of the Quakake which runs east to the Lehigh, the head waters of south branch of Cattawissa creek, that runs west to the Susquehanna, and the head waters of the Little Schuylkill, which runs south, and joins the Locust creek before spoken of.

Ascending the Spring mountain, north of the Quakake, and arriving at its top, we perceive the range of conglomerate rock dipping to the north. This rock forms the bed of the Beaver Meadow coal veins, and the Spring mountain is the southern boundary of this celebrated coal basin.† The extension of this mountain eastward to the Lehigh, is south of the Buck Mountain coal mines two miles.—Westward it extends, and bounds on the south of the Summit company's coal lands, the coal estates of the Northampton and Luzerne company, and passes through the coal estate of John Hare Powel, Esq., and from thence west until its continuation is disturbed by the waters of the Cattawissa.

In the valley north of the Spring mountain and about fourteen miles west from the Lehigh, is the summit dividing the waters of Beaver creek from those of the main branch of Cattawissa. Beaver creek runs through the valley eastward from its head, seven miles where it joins Hazle creek and thence passes through the gap in Spring mountain to the

* See a former communication descriptive of the Lehigh estate.

† It is my intention to give a description of the Beaver Meadow coal basin, which from the contorted nature of the coal strata, may prove an interesting communication hereafter.

Lehigh. The confluence of Beaver and Hazle creeks with the Quakake, is at the connection of the Cattawissa extension with the Beaver Meadow railroad. In the continuation of this valley eastward, the Laurel creek rises, and runs through it to the Lehigh.—The main branch of the Cattawissa runs west.

W. F. ROBERTS,
Engineer of Mines, Phila.

P. S.—Having an unexpected call to Schuylkill county on professional business, is the reason the above communication is so abruptly broken off. Next week I hope to continue it.

The Clergy and Railways.—It is curious to notice the gradual approximation to each other, between the ministers of public instruction and the managers of public works. Oxford and the clergy were not long since the determined opponents of railways, and are now converted into warm friends. Not long ago we had Oxford, through Dr. Buckland, welcoming those beings which "make rough places smooth, and the high places plain," and which herald the progress of civilization and truth. At the recent opening of the Leeds and Bradford, recorded in our last, (see ante p. 261,) the very estimable and energetic vicar of Bradford, Dr. Scoresby, came forward as a guest of Mr. Hudson, to bear testimony to the value of railway communication. He took occasion to refer to the importance of the event they had that day met to celebrate. He also referred to the wonderful achievements of mechanical science, which in its application to railways had accomplished an almost annihilation of distance, and by this and other means had contributed inconceivable advantages to this country, in the enlargement of that commerce and the stimulation of that enterprise which have enabled us to maintain our pre-eminence in the scale of nations. He urged that it was needful for this country to go on; it was needful that our men of enterprise, our manufacturers, and our railway directors should still keep a-head of the world. Every essential part of machinery used in this country, he believed, was of English invention; but he called upon them to contemplate what would have been our railways and our mills and our factories, if there had not been a Marquis of Worcester, a Savory and a Newcomen to suggest, and a Watt to carry out that mighty principle of steam which enabled the machinery of this country to do the work of the whole world. It had been estimated by M. Dupin, that it required 100,000 men for twenty years to raise the stone of the great Egyptian pyramid of Cheops; and the same author tells us that the steam engines of Great Britain would do the whole work in thirteen hours. After some further remarks illustrative of the mighty power of machinery, he concluded by expressing his hope that the connection that had this day been formed between Leeds and Bradford would not, poetically speaking, be a bond of silken ties; but one of a much more substantial kind to mercantile men—an iron chain of union between these great manufacturing towns. There was a moral as well as a social benefit produced

by an economical, rapid and easy intercourse between one town and another. The face of man brought into contact with the face of man was beneficial to man, and he trusted that the result of the improved mode of communication between Leeds and Bradford, though still apparently separated by distance would be a close alliance in reciprocity of interest, and in every department of social life and of commercial intercourse.—*Railway Chronicle.*

School Trips.—The London and Birmingham recently enabled the Rev. Mr. G. Weight of the Wolverton station schools, to give a trip to his scholars. 278 children and about 120 adults, together with the station music band, proceeded to Tring; and thence to the village of Albury. On returning to Tring the children feasted on plum cake, oranges, and milk. All was provided at the cost of the company.—*Railway Chronicle.*

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,
Albany Iron and Nail Works,
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RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.
Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
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THE SUBSCRIBERS, AGENTS FOR the sale of
Codorus, }
Glendon, } Pig Iron.
Spring Mill and }
Valley, }

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAML. KIMBER, & CO.,
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Jan. 14, 1846. [ly4] Philadelphia, Pa.

THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

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PATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly *indestructible*. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

28tf J. BALL & CO.

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.
Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
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KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Allaire, } New York.
 - Peter Cooper, }
 - Murdock, Leavitt & Co. }
 - J. Triplett & Son, Richmond, Va.
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 - J. Patton, Jr. } Philadelphia, Pa.
 - Colwell & Co. }
 - J. M. L. & W. H. Scovill, Waterbury, Con.
 - N. E. Screw Co. } Providence, R. I.
 - Eagle Screw Co. }
 - William Parker, Supt. Bost. and Worc. R. R.
 - New Jersey Malleable Iron Co., Newark, N. J.
 - Gardiner, Harrison & Co. Newark, N. J.
- 25,000 to 30,000 made weekly. 35 ly

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,
45 North Water St., Philadelphia,
or by their Agent, ROBT. NICHOLS,
79 Water St., New York;
28tf

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ¼ inch Flat Punched Rails, 20 ft. long. 25 " 2½ x ¼ " Flange Iron Rails. 75 " 1 x ¼ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

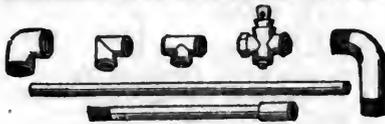
For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by MORRIS, TASKER & MORRIS, Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture and for sale by

MORRIS TASKER & MORRIS, Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. ift

LAP—WELDED WROUGHT IRON TUBES FOR TUBULAR BOILERS, FROM 1 1-4 TO 6 INCHES DIAMETER, and ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee, 28 Platt street, New York.

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

For sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP, 75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	Tons.	
11	4 1/4	13 5	10	24 -	50	15-16	20	
13	3 1/2	8 3	8 1/2	16 -	27	11-16	13 1/2	
14	3 1/4	6 11	7 1/2	12 8	17	9-16	10 1/2	
15	2 1/2	5 2	6 1/2	9 4	13 1/2	1-2	7 1/2	
16	2 1/2	4 3	6	8 8	10 1/2	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee G. A. NICOLLS, Reading, Pa. ja45

LAWRENCE'S ROSENDALE HYDRALIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions.

CALIGRAPHIC BLACK LEAD PENCIL, Manufactured by E. Wolff and Son, 23 Church Street, Spitalfields, London.

The Caligraphic Pencils have been invented by E. Wolff and Son, after the expenditure of much time and labor. They are the result of many experiments; and every effort that ingenuity and experience could suggest, has been made to insure the highest degree of excellence, and the profession may rely upon their being all that can be desired.

They are perfectly free from grit; and for richness of tone, depth of color, delicacy of tint, and evenness of texture, they are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use.

The Caligraphic Pencils will also recommend themselves to all who use the Black Lead Pencils as an instrument of professional importance or recreation, by their being little more than half the price of other pencils.

An allowance will be made on every groce purchased by Artists or Teachers. May be had of all Artists, Colourmen, Stationers, Booksellers, etc.

A single pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

Caution.—To prevent imposition, a highly finished and embossed protection wrapper, difficult of imitation, is put around each dozen of Pencils. Each Pencil will be stamped on both sides, "Caligraphic Black Lead, E. Wolff and Son, London."

The subscriber has on hand a full supply of Wolff and Sons celebrated Creta Loevis, or Colored Drawing Chalks, also their pure Cumberland Lead and extra prepared Lead Pencils, and Mathematical Lead Pencils.

P. A. MESIER, Stationer and Sole Agent, No. 49 Wall Street.

N. B.—A complete assortment of Steven's Genuine Inks, Fluids, Imitating Wood stains, and Gaining Colours at the Manufacturers prices. 19ft

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.

No 23 Pear street, 1y10 near Third, below Walnut, Philadelphia.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

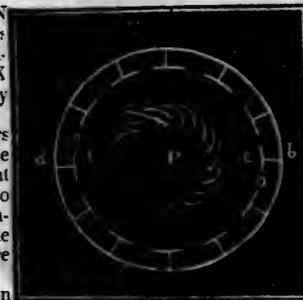
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

** The letters in the figures refer to the article given in the Journal of June, 1844. ja45



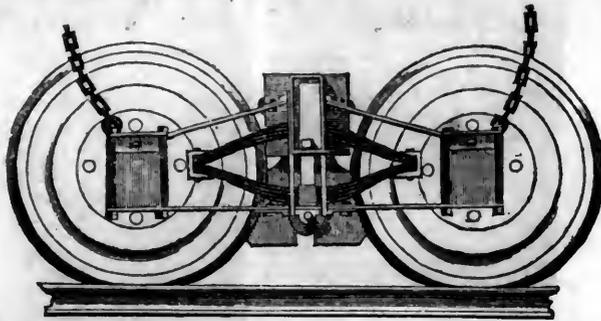
BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco Pressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes. 1y1

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846. W. H. CALKINS, and Others.
To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] WILLIAM ROE, Sup't of Power.
I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845. [Signed,] G. A. NICOLL, Sup't Transportation, etc., Philadelphia and Reading Railroad.

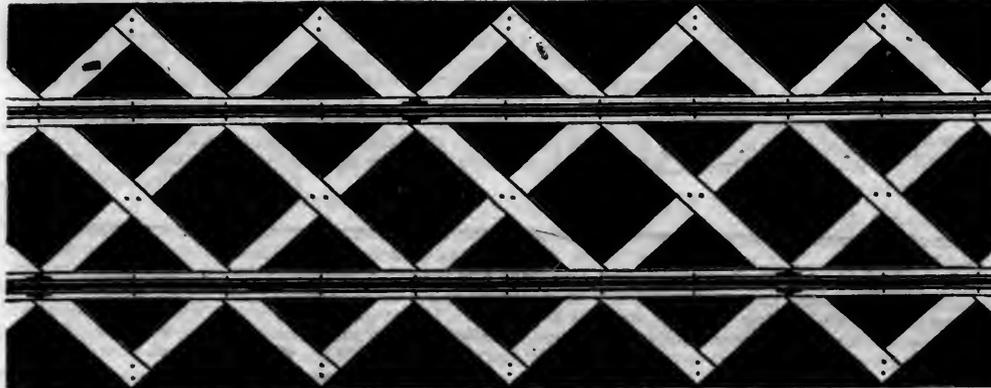
To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH, Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.
This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, Jamaica November 12, 1845. [Signed,] JOHN LEACH, 1y19 Sup't Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON, Civil Engineer and Patentee. No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. (It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum...	5 00

- ENGINEERS and MACHINISTS.**
- THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)
 - J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
 - TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
 - ROGERS, KETCHUM and GROSVENOR, Patterson, N. J. (See Adv.)
 - S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
 - NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
 - KITE'S Patent Safety Beam. (See Adv.)
 - FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
 - NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
 - ROSS WINANS, Baltimore, Md.
 - CYRUS ALGER & Co., South Boston Iron Company.
 - SETH ADAMS, Engineer, South Boston.
 - STILLMAN, ALLEN & Co., N. Y.
 - JAS. P. ALLAIRE, N. Y.
 - PHENIX FOUNDRY, N. Y.
 - ANDREW MENEELY, West Troy.
 - JOHN F. STARR, Philadelphia, Pa.
 - MERRICK & TOWNE, do.
 - HINCKLEY & DRURY, Boston.
 - C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass. 1y1

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.
SECOND QUARTO SERIES, VOL. II., No. 37.] SATURDAY, SEPTEMBER 12, 1846. [WHOLE No. 534, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD.—Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.
Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.
Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.
Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7-20 a.m. and 3½ p.m.
All baggage at the risk of the owners thereof.
31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD AND STAGES Connecting with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston. New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich. New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:
Boston for Portland at 7½ a.m. and 2½ p.m.
Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m.
Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m.
Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m.
Portland for Boston at 7½ a.m., and 3 p.m.
Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.
Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m.
Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, *Super't.*

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3 30, 4 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams Bridge trains will be regulated according to the state of the weather.

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A. M. and 4 P. M.
" Middletown at 6½ A. M. and 5½ P. M.
FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P. M.
" Middletown at 12 M.
The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, *Sup't.* March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 if

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced. 1846.. Spring Arrangement.. 1846

Commencing April 1st. Passenger trains leave daily, Sundays excepted—

Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6½ " and 2½ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush. Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES,
Superintendent and Engineer.
Western Railroad Office,
Springfield, April 1, 1846. } 14 ly

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail—which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

TROY AND SARATOGA RAILROAD.
THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burroughs at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug 3, 1846.

1y 32

THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00
" " Sandusky to Buffalo, Cabin..... 6 00
" " " " Steerage..... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.,] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, Supl, etc.
M. & S. C. R. R. Co.

Sandusky, Ohio.

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO., Agents.**

Corner of Cedar and Greenwich Sts. 43 1y

NEW RAILROAD ROUTE FROM Buffalo to Cincinnati.

Passengers destined for Columbus and Cincinnati, O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance..... 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance..... 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

TIME.

From Buffalo to Sandusky..... 24 hours.
Leave Sandusky 5 a.m. to Columbus.... 14 "
From Columbus to Cincinnati..... 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.

From Buffalo to Sandusky, Cabin.....\$6 00
" " " " Steerage..... 3 00
" Sandusky to Columbus..... 4 50
" " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Supl, etc.
M. & S. C. R. R. Co.

Sandusky City, Ohio.

BALTIMORE AND OHIO RAILROAD.
MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7 1/2 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pitsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburg \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburg \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

RAILROAD IRON.

80 Tons 2 1/2 x 1/4 Flat Bar Railroad Iron.
50 " 1 1/2 x 1/4 " " " "
8 " 2 1/2 x 1/4 " " " "
15 " 1 x 1/4 " " " "
with Spikes and Plates, for sale by
A. & G. RALSTON & CO.,
4 South Front st., Philadelphia:

BALTIMORE AND SUSQUEHANNA

Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains—run daily, except Sunday, as follows:
Leaves Baltimore at.....9 a.m. and 3 1/2 p.m.
Arrives at.....9 a.m. and 6 1/2 p.m.
Leaves York at.....5 a.m. and 3 p.m.
Arrives at.....12 1/2 p.m. and 8 p.m.
Leaves York for Columbia at...1 1/2 p.m. and 8 a.m.
Leaves Columbia for York at...8 a.m. and 2 p.m.

FARE.

Fare to York.....\$1 50
" Wrightsville..... 2 00
" Columbia..... 2 12 1/2

Way points in proportion.
PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg.....\$9
Or via Lancaster by railroad..... 10
Through tickets to Harrisburg or Gettysburg... 3
In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5 1/2 p.m.
Returning, leaves Owing's Mills at.....7 a.m.

D. C. H. BORDLEY, Supl, etc.
Ticket Office, 63 North st.

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.
Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

SOUTH CAROLINA RAILROAD.—A

Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.
1y25 JOHN KING, Jr, Agent.

CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods..... 13 cts. per cubic ft. On brls. wet (except molasses and oil).....\$1 50 per barrel. On brls. dry (except lime)... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred. On hdds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd. On molasses and oil.....\$6 00 per hhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, 40 Gen'l. Supt. Transportation.

MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tilters etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburg, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

CENTRAL AND MACON AND WESTERN Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad 190 Miles
 Macon to Atlanta—Macon and Western.....101
 Atlanta to Oothcaloga—Western and Atlantic.. 80
 Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20	pr. 100lbs. 35
Crockery, per cubic foot.....	0 15	" " 35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.		

Goods consigned to the subscriber will be forwarded free of Commissions.
 Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846. 1y34

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.
 AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot.....	16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs.....	95 "
" Sugar, coffee, iron, hardware, etc.....	65 "
" Flour, bacon, mill machinery, grindstones, etc.....	33½ "
" Molasses, per hogshead \$9 50; salt per bus. 20 "	
" Ploughs and cornshellers, each.....	75 "
Passengers \$10 50; children under 12 years of age half price.	

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON, Ch. Eng. and Gen. Agent. Augusta, Oct. 21 1845. *44 1y

BOILER IRON.—55 TONS ASSORTED Boiler Iron, Nos. 3, 4 and 5, and of widths of 26, 32 and 36 inches, random lengths, in store, and for sale by A. & G. RALSTON & CO., 1m30 4 South Front st., Philadelphia.

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chautanoga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT, Chief Engineer. Atlanta, Georgia, April 16th, 1846. 1y1

LITTLE MIAMI RAILROAD.—1846.— Summer Arrangement.

Two passenger trains daily.

On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1½ p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m.

On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m.

Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.

Tickets may be procured at the depot on East Front street.

The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount.

W. H. CLEMENT, Superintendent. 19

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00
 " " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to 1y14 STOKTON & FALLS, Agents.

MARAMEC IRON WORKS FOR SALE.

By Authority of a power of Attorney from Messrs. Massey and James, I will sell at Public Auction, at the Court House in the city of St. Louis, on MONDAY, the 2nd day of November next, the above named valuable IRON WORKS—together with 8,000 ACRES OF LAND, more or less, on which there are several valuable and productive Farms open and in cultivation.

The Maramec Iron Works are situated at the Maramec Big Spring, in Crawford Co., Mo., and consist of 1 BLAST FURNACE; 1 AIR FURNACE; 1 REFINING FORGE, with large Hammer for making Blooms and Anchovies;

2 CHEFFERY FORGES for Drawing Bar Iron;

1 ROLLING MILL for Rolling Blooms into Bars and Plates;

1 SAW AND 1 GRIST MILL,

All within 300 Yards of the head of the spring. There are 2 large frame Coal Houses, and all other Buildings necessary, such as Shops and Houses for the workmen.

This Spring is one of the largest in Missouri, discharging at the lowest time 7,000 cubic feet of water per minute. The Ore Bank from which the Ore has been heretofore taken is about 600 yards from the furnace; it is the Specular Iron Ore, the best for making Bar Iron, and the quantity inexhaustible.—It is an Iron Mountain, 400 feet above the level of the Maramec River; the ore is entirely uncovered, and there is an easy descent and a good road from it to the furnace.

The lands have been carefully selected by one of the owners with a view to the interest and convenience of the Works, and are situated principally on the Maramec River and its tributaries, embracing the best bottom lands and water powers. The following detached tracts, comprized in the above quantity, were selected for the advantages they possess;

183½ ACRES in T. 40 N. of R. 8 W. in Sec. 3, near Wherry's Mill, in Osage Co.; entered to secure a very valuable Mill power on the Branca Spring and a good landing on the Gasconade River.

80 ACRES on Benton's Creek, 12 miles from the Works; entered to secure an extensive and valuable Ore Bank 2½ miles from the Maramec, at a point where there is ample water power.

320 ACRES in T. 38 N. of R. 4 W. in Sec. 22 and 23, affording an extensive and valuable water power on the Maramec river.

160 ACRES in T. 37 N. of R. 3 W. in Sec. 4, embraces two inexhaustible and valuable Ore Banks and is 1½ miles from Water power sufficient for a furnace and Grist Mill, and is distant 6 miles from the above site on the Maramec.

80 ACRES in T. 37 N. of R. 8 W. in Sec. 33, including an extensive bank of excellent Ore, and distant 1½ miles from water power on the waters of the Gasconade River, in Pulaski Co., sufficient for Furnace and Mills. All those Banks are of the same kind as the one at the Works, and deemed inexhaustible.

1 LOT, containing nearly one Acre, on the South Bank of the Missouri River, 4 Miles above the town of Hermann, purchased for a warehouse and landing, and is one of the best landings on the River.

The lands above described are well timbered, and have been selected with a view to have an ample supply of wood and coal, for fences, building and other purposes. There are on the land valuable quarries of Limestone well adapted for Fluxes for the Ore, and also good quarries of Rock suitable for building. There are also on the land a great number the finest kind of Springs. A large portion of the lands are bottoms well adapted to the production of Corn and other crops. The Works are situated in a very pleasant and healthful part of the country. The Maramec ore is believed to be admirably adapted to the manufacture of steel.

A further description of the property at this time is considered unnecessary, as those wishing to purchase will no doubt view the property, which will be shown by the Agent, residing at the works.

The terms of payment required will be one-third of the purchase money in hand and the balance in three equal annual payments, secured by mortgage on all the property.

A more particular description of the property will be given, and further conditions of the sale made known, on the day of sale.

Jno. F. ARMSTRONG, Agent. St. Louis, June 6, 1846.

The Louisville, (Ky.) Journal, Cincinnati Gazette, Tribune (Portsmouth, O.), Nashville Whig, Pittsburg Gazette, National Intelligencer, United States Gazette, (Phila.) Railroad Journal (N. Y.) and Boston Atlas, will publish the above once a week until the 20th day of October next, and send bills to this office for settlement, and mark price on first paper. 1825

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.



RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATAILLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed,)

W. M. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138 1/2 Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

CUSHMAN'S COMPOUND IRON RAILS etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
Albany, N. Y.

Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

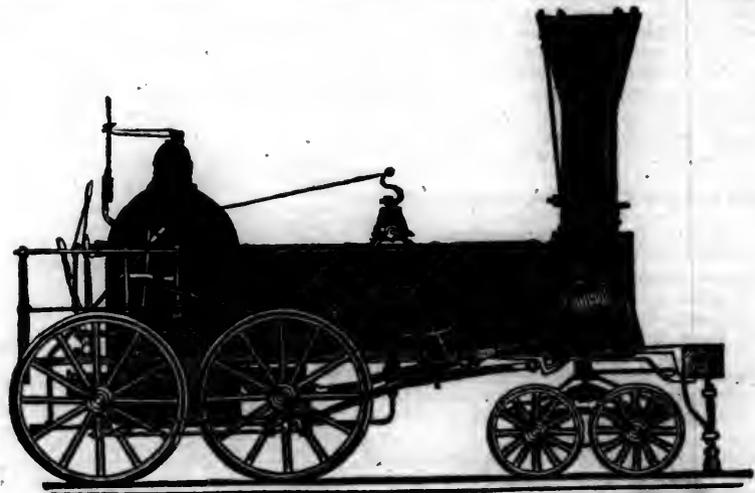
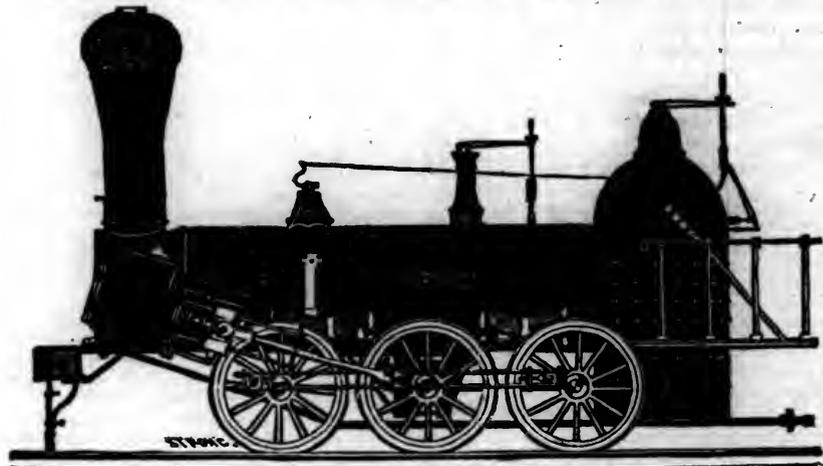
RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by
A. & G. RALSTON
Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following Descriptions, viz:

Class 1,	15 inches	Diameter of	Cylinder,	× 20 inches	Stroke.
" 2,	14	"	"	× 24	" "
" 3,	14 1/2	"	"	× 20	" "
" 4,	12 1/2	"	"	× 20	" "
" 5,	11 1/2	"	"	× 20	" "
" 6,	10 1/2	"	"	× 18	" "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

Traffic on Short Roads.

It is not often that we find railroad statistics of such value, and so well digested, as in the following notice on the influence of proximity in increasing the travel on railroads. We find it in a report of the West Flanders railroad company. The calculations are partly from government returns, but mainly from a recent Belgian work of M. Desart, government engineer and divisional inspector.

The statistics are drawn from Belgian experience, but are universally applicable. They establish, beyond a doubt, the profitable character of short roads, between places of moderate size.

In our own country, experience has shown that this doctrine is correct: some of our long lines receive the bulk of their income from short portions, while most of the short roads do an excellent business. This is partly the cause of the remarkable success of the New England roads—the reader cannot fail to notice the striking resemblance between their routes and the Belgian. Particularly is this to be noted in the state of Vermont, where the new lines connect many villages within but a few miles of each other—it needs no great city to make a road profitable in the midst of a population thus distributed.

The statements worked out from the government traffic returns establish beyond all doubt the following principle, viz: that the number of passengers between two towns connected by a railway, does not depend only on the population or commercial importance of those towns, but most materially on the distance between them. Thus the number of passengers will be greater on a line connecting a succession of small towns and villages, situated as they generally are in England and Belgium, than on a line of equal length connecting two large towns.—In proof of this, during the year 1845, Brussels sent,

Passengers.	Kilometres.	Miles.
57,726 to Vilvorde.....	10 distant, about	6½
76,232 to Malines.....	20 "	12½
94,698 to Antwerp.....	44 "	27½
38,359 to Louvain.....	44 "	27½
14,717 to Termonde ..	47 "	29½
11,000 to Tirlemont ..	62 "	38½
39,443 to Ghent.....	76 "	47½
4,732 to St. Trond...	86 "	53½
21,322 to Liege	114 "	70½
4,147 to Courtrai.....	120 "	74½
6,177 to Bruges.....	121 "	75 "
2,200 to Verviers....	139 "	86½
3,283 to Tournay....	151 "	93½

"Brussels, it is shown, sent, 57,726 to Vilvorde, a town of 4,000 inhabitants, and of no commercial importance, but only 10 kilometres [about 6½ miles] distant. 76,232 to Malines, a town with a population of 24,000, and of very small commercial importance, but only 20 kilometres from Brussels [about 12½ miles.] 38,359 to Louvain, a town quite as important as Malines, with equal population, but 44 kilometres [about 27½ miles] from Brussels—more than twice the distance between Brussels and Malines. 39,443 to Ghent, a town with a population of 96,000 inhabitants, and of great commercial importance.

"The number of passengers are thus about the same between Brussels and Ghent as between Brussels and Louvain. It has already been observed that Louvain is unfavorably situated with regard to distance, being 44 kilometres [about 27½ miles] from Brussels. The number of passengers between Brussels and Ghent was not above half as many as between Brussels and Malines. The reason is that Ghent is 76 kilometres [about 47½ miles] from Brussels, and Malines only 20 [about 6½ miles.]

"Again, in 1845, Malines [24,000 inhabitants] sent,

Passengers.	Kilometres.	Miles.
32,448 to Antwerp.....	24 distant, about	15 "
5,218 to Termonde....	27 "	16½
7,028 to Ghent	55 "	34½
757 to Bruges	100 "	62 "

"But what is more striking is, that Ghent, with its population of 96,000, and great commercial importance, should in the year 1845 have sent only 13,439 passengers to Antwerp, a town of 78,000 inhabitants, and also of great commercial importance—these two towns being, as M. Desart remarks, the Manchester and Liverpool of Belgium.

"On the other hand, Malines, comparatively unimportant, sent 32,448 passengers to Antwerp.

"The explanation is, that Ghent is 79 kilometres [about 49½ miles] from Antwerp, and the railway most circuitous; and Malines is distant only 24 kilometres [about 15 miles.]

"As a further illustration: suppose Ghent, which is ten times as important a place as Termonde, to be at the same distance from Brussels as Termonde is, viz: 47 kilometres [about 29½ miles.] Brussels ought to send ten times as many passengers to Ghent as it now does to Termonde, that is to say, 14,717 multiplied by 10—or 147,170; whereas, in 1845, Brussels, with its population of 140,000, and its importance as capital of Belgium, sent only 39,443 passengers to Ghent.

"Such a result can only be accounted for by the respective distances between the places connected by the State railway.

"M. Desart has reduced these facts to a system. By calculations founded on the population and situation of the towns and villages connected by the government railways, and on the number of passengers moving between the different stations, he has succeeded in forming a table, showing the average number of passengers on the state lines from 2 kilometres [about 1½ mile] to 250 kilometres distance [about 155½ miles.]

"According to this table, which is drawn up with great care, the number of passengers goes on increasing at a very rapid rate from 2 to 9 kilometres [between 1 and 5 miles.]

"The climax is at 9 kilometres [about 5½ miles.] From that distance the number diminishes.

"When the distance between two places is excessively small, the number of passengers by railway is also small.

"The most productive distance consequently is from 8 to 10 kil. [between 5 and 6 miles]" * * *

"In further illustration of the principle, let a small station on the Louvain Liege line, Waremmé for instance, be taken.

"Waremmé is 5½ leagues from Liege. Its population is 1,589 inhabitants. It has four fairs a year, chiefly frequented by horse dealers.

"In 1845, 23,621 passengers left Waremmé. Of these,

947 left for Brussels....	89 kil. distant, 55½ miles.
154 " Malines.....	69 " 43 "
198 " Antwerp....	93 " 57½ "
58 " Ghent.....	127 " 79 "
544 " Louvain.....	45 " 28 "
1,784 " Tirlemont ..	25 " 15½ "
1,809 " Landen.....	14 " 8½ "
1,695 " St. Trond...	25 " 15½ "
1,584 " Fexhe.....	11 " 6½ "
4,397 " Ans	24 " 15 "
9,772 " Liege	20 " 18½ "

395 for all the remaining stations between Liege and the Prussian frontier.

"Thus of 23,621 tickets delivered at Waremmé, a place of 1,589 inhabitants, only 1,357 were for Brussels, Antwerp, Ghent and Malines.

1,357 for Brussels, Ghent, Antwerp and Malines. 544 Louvain.

1,784 Tirlemont, more than three times as many as for Louvain, and nearly equal to the preceding five towns.

1,809 Landen. 3,399 Fexhe and St. Trond. 4,397 Ans. 9,772 Liege.

"These returns strongly illustrate the principle before stated. Waremmé is a small place; population under 2,000; the inhabitants are employed in agricultural pursuits."

"Tirlemont has a population of 8,362. It is 3½ leagues [about 10 miles] from Louvain, the same distance from St. Trond, and 12½ leagues [about 25 miles] from Brussels.

"In 1845, 51,405 passengers left Tirlemont. Of these,

10,688 left for Brussels....	62 kil. distant, 38½ miles.
2,077 " Antwerp....	66 " 41 "
15,569 " Louvain....	18 " 11 "
5,328 " Landen.....	13 " 8 "
3,709 " St. Trond...	24 " 15 "
3,682 " Liege	47 " 29½ "

"As a proof of the tendency of the country people to travel by railway, the village of Haecht may be referred to. The population is 2,000, and it lies on the line between Louvain and Malines. Haecht is 2½ leagues from Louvain, about the same distance from Malines, and 5½ leagues from Brussels.

"In 1845, 14,103 passengers left Haecht, viz:

3,599 for Brussels.....	31 kil. distant, 19½ miles.
4,835 for Malines.....	11 " 6½ "
5,213 for Louvain.....	14 " 8½ "
456 for the rest of Belgium."	

Miscellaneous Items.

A New Invention.—There is a model of a steamboat to be seen on the Chesapeake, invented and constructed by Cyrus Williams, Esq., which is exciting considerable interest among steamboat men. It is in the usual form of boats except it is more flat bottomed, and much longer in proportion to its width, than the boats now in use, giving it a greater surface to the water, and of course a lighter draught. The improvement is in applying the bridge principle of bearers in supporting length to boats. It looks perfectly feasible. Mr. Williams thinks it will be a great saving of expense, as it takes much less timber and all of it can be sawed in a mill, being straight stuff. He offers to build a boat on this model, furnishing one-third of the stock, and if it does not make 25 miles to the hour, he will forfeit his share.

Worcester Railroad Cars.—On Thursday last the directors of the Worcester railroad placed, for the first time, upon the track, two new cars, for the conveyance of persons to the celebration at 'lake Cochetuate.' These cars were constructed in a manufactory attached to the Worcester railroad depot. The company, for the past few years, have built all their own cars. The two cars to which we refer, possess several very decided improvements over the old forms. The backs of the seats are considerably higher, and consequently it is easier to sit upon the seats; the number of windows is less, leaving a space between each window of some four or six inches, thereby strengthening the car—the windows are quite as large, if not larger, than the old form, and are much lower, so that one does not have to make any painful effort to look out of them; the blind is in two parts, one rising and the other falling, so that a person can readily accommodate the shade to suit his own pleasure. There are also racks on the sides, for hats, umbrellas, coats, etc.—This is a great improvement, as it affords persons travelling an opportunity to dispose of their coats, etc., without incommoding themselves and their neighbors. The seats are covered with plain red velvet, and the cars are very neatly painted.—*Boston Evening Journal.*

The Coal Trade for 1846.—The *Miners' Journal* of 22nd, says:

The quantity sent this week is only 31,101-16 tons, being upwards of 5,000 tons less than last week, caused entirely by the stoppage of orders.

For the information of dealers abroad, we are authorized by John Tucker, Esq., president of the Reading railroad company, to state that no reduction in coal and transportation on coal, will take place this year.

The demand for red ash coal for household purposes continues good, and also for some kinds of white ash. Prepared white ash is also inquired for more freely than last week. Several of the white ash collieries have suspended mining entirely, and closed their works for the present.

Cost of Pictou Coal.—The Anthracite Gazette gives the following as the cost of a cargo of Pictou coal, received last week at Providence from Pictou:

62 chaldrons, Pictou measure, a \$3.....	\$486 00
Measured by custom house in Providence, 7,776 bushels, equal to 216 chaldrons of 36 bushels each, and weighed 274 tons 18 cwt. 2 qrs. 8 lbs.	
Duties a \$1 75.....	475 87
Freight on 216 chaldrons custom house measure a \$2 87½.....	621 00

Cost of ton of 2,240 lbs., \$5 82.....\$1,582 87

New tariff.	
162 chaldrons a \$3.....	486 00
Freight a \$2 87½.....	621 00
Duties a 30 per cent.....	145 88

Cost of 2,240 lbs., \$4 60.....\$1,252 80

The coal at present is charged \$3 30 per chaldron, but a discount is made of 30 cents per chaldron. The coal is of a good quality and much used for work that cannot be well done with the hard coal. The price under the new law will bring the price the same as the hard coal.

James River Improvement.—We learn from the Fincastle Democrat, of the 15th instant, says the Richmond Whig, that Major Gwinn the president of the James river and Kanawha company, with two engineers, passed down the river a few days before, having been as far as Charleston, Kanawha.

At a public meeting in Fincastle, on the 10th, a committee was appointed to ascertain as far as practicable, the tonnage that now passes down James river from that section of country along the canal from Lynchburg to Richmond, and what would be the probable increase of tonnage in the event of an extension of the canal from Lynchburg to Covington—to be communicated to the James river company at the next meeting of the stockholders, and also to the legislature of Virginia.

Central Railroad.—Information from the east has rendered it necessary for the commissioners to alter the notice for subscriptions to the Central railroad stock. The time for opening the books is changed from the 7th to the 10th September, to remain open three days. Ten dollars on a share are required to be paid down.—*Det. D. Adv.*

Every line of railroad that is constructed forms an inducement for the construction of other railroads, either in extension or as collateral roads. If a good railroad were formed from St. Louis to the Wabash, or to Springfield, Illinois, it would speedily lead to the construction of other roads connecting with it. *St. Louis New Era.*

Toledo and Adrian Railroad.—We understand that the cars on the above named road, were stopped about a week since. In "due course of law," there has sprung up two parties who claim the ownership of the road.—The party having possession obtained an injunction against the other party upon that part of the road lying in Ohio; upon which the other party got out an injunction upon that part of the road lying in Michigan. The day it was to be served, the party in possession heard of it, and detained the cars at Toledo.

The state of Michigan has been trying for some time to break down this road; and what it has yet failed to do, the owners themselves are in a fair way to accomplish.—*Buffalo Com. Adv.*

Forty miles of railroad from Cleveland towards Pittsburg are to be immediately put under contract. The surveys for the balance of the road will be soon made. The citizens of Cleveland are active in the matter, and their example should stimulate the capitalists of St. Louis to action.—*Cleveland Herald.*

Canal from Enfield Falls.—We understand that Mr. Anderson, the engineer selected for the purpose, will to-day (Monday), commence making a survey for a canal from Enfield falls to this city. It is thought a greater water power can be obtained here than at Lowell.—*Hartford Courant.*

Cast Iron Roofing.—A specimen of cast iron plates for roofing of buildings, says the Philadelphia Ledger, has been exhibited at the exchange, in Philadelphia, by the inventor and patentee, Mr. Wm. Beach. The plates are about a foot square, and are made to fit one into another so as to render the roof perfectly water tight, with the application of white lead to the joints. In every respect this material for roofing is preferable to any other description now in use. As to its durability there can be no doubt that it would remain perfectly whole for ages, if covered occasionally with a coat of paint, and even without that preservative, rust would not affect it materially for a period of fifty years, at least. As compared with copper, the cost would be nearly one-half, as it is expected the iron can be furnished at 16 cents per square foot, while copper would at the most moderate estimate cost 28 cents. As regards the weight of an iron roof, which at first sight would appear an objection, it is far less than one formed of slate and does not much exceed one of copper.—The iron plates weigh 3½ pounds per square foot. A slate roof would cost about 8 cents per square foot, but for durability and the ease with which it can be put on and made water tight the iron roofing would appear to be far preferable. The plates exhibited were cast at Troy, New York, and are of the very best quality. The patent for the eastern states is now owned by Mr. Hiram Hemmestone, of Troy, in which neighborhood the adaptation of such a durable material for roofing is rapidly attracting public attention there. Starbuck's machine shop and foundry at Troy has been covered on this plan, and it has also been adopted for the roofing of an arsenal at West Point. The patent for the middle and

western states has been reserved by Mr. Beach and he is about entering extensively into the business at his foundry at Bush Hill. The directors of the academy of fine arts have the propriety of using this material for roofing the fire proof building now erecting for the reception of their valuable collections. The rafters and supports for the roof are of iron, and it was proposed to use tin as the exterior covering, but the advantages to be derived by substituting cast iron are so evident that it is to be hoped they will at once seize the opportunity of roofing it with a material that will be as durable as the building itself.—The specimens will remain at the exchange for a day or two longer, and the attention of builders and others is directed to the fact for the purpose of inducing them to examine the advantages of a general adoption of the plan.

Railroads.—The St. Louis New Era says: "The latter experiments prove that railroads can be profitably used in carrying heavy freights at low rates, and that they will come into successful competition with navigable rivers. The experience of the past year shows that they can be successfully used in transporting southern cotton to the north, and in carrying the produce of the valley of the Mississippi to the Atlantic ports. We need a railroad direct from St. Louis to the Atlantic," and must have one too at no distant day. The subject ought to be agitated, agitated, agitated constantly.

The Iron Trade.

Our readers will find, by reference to page 626 in the last year's volume of the *Journal*, an able article, over the signature of "A LOOKER-ON," upon the subject of "The Iron Manufacture." In that article, the writer assumed the ground, (more than a year ago) that the English parliament would sanction not less than 2,000 miles of railroad, during the year 1846, and 1,000 miles additional in 1847. He also estimated that an increased demand for between two and three millions of tons of iron would arise, to complete this additional amount of road—a demand much beyond the existing manufacturing ability of the country—which it would be impossible to supply. The result of the past twelve months' operations has more than substantiated these predictions—as is clearly shown by the same able writer, in another article, published in a recent number of the *London Mining Journal*, which is appended hereto, and earnestly recommended to the attention of all in this country engaged in the *iron manufacture*.

It is not our intention to enter into lengthy dissertation upon the merits or demerits of the tariff law, passed by the late session of congress; but so far as the question arises, legitimately, as to its effect upon a certain branch of business as important as is the *iron trade* in this country, we have, and shall express freely, our opinion.

That legislative regulations will affect the operations of trade, to a greater or less degree, requires neither proof nor argument to show. We see its effects daily on nearly all the great interests of the country. Capitalists become alarmed, and cease to invest, especially in those branches which require the largest outlay, and thus the laboring man, who relies upon his daily efforts, is out of employ. Yet, under the present, and unparalleled, condition of the iron trade in Europe, we do not apprehend as serious results to that particular interest in this country, from the new tariff, as do many others—and we therefore would say to those who have been

disposed to embark in the iron business, do not be alarmed. Look thoroughly into the subject, and then decide. We must have iron in large quantities, and we must make it too. To those now in the business it is hardly necessary for us to say a word; as there is, in our opinion, no other branch of manufacture in the country which promises a more sure and ample return to those who manage discreetly—especially those who are making railroad iron.

The article we allude to is well worthy the attention of the people of Pennsylvania. The estimates made, show that the supply of iron demanded for the chartered railways in England, is far beyond the capacity of England, Scotland and Wales to furnish—and that the amount of iron already virtually bespoken is equal to the total make of these three countries for four years to come! This statement originates "from parties of great practical knowledge and discernment," and it is believed to be unbiased, and mainly accurate. If the assertions therein contained are correct, it is pretty plain that our home market can scarcely be much injured while this enormous demand exists in England. There is far more reason to believe that the price of iron will reach such a point as to defer the prosecution of some of the projected roads, than that the fears of some people will be realized.

In our judgment—and we base our opinion upon the facts which are now in existence—the business of making iron cannot be otherwise than largely profitable for years yet to come. By a careful perusal of the article to which we have referred, in our last year's volume, it will be seen that the estimates there made by "A Looker-on," immense as they were, have been far more than realized, and that instead of 2,000 miles of road (as there set down,) parliament has already granted charters, this year, for nearly 4,000 miles, upon which instalments have been paid, and for which orders to a considerable extent have already been forwarded for the iron. These roads must be made, and the orders for the iron will be filled by the erection of new works. If, then, there exists such a state of things in the English market, what fear need there be entertained of a foreign competition? The fact is set down as certain, that the entire capacity of all their existing furnaces, is altogether inadequate to supply the iron for the immediate wants of England's railroads, and the writer very reasonably makes out that to supply the wants of only the 2,000 miles of road, (as he originally calculated for,) this increased demand can in no possible way be answered in England, save by a very large additional number of furnaces and other works, which, even with such addition, will require four years to accomplish. If, then, the estimates can be relied on, and we think they can, we see little occasion for uneasiness among iron manufacturers, or cause for alarm.

After a careful examination of the statistics furnished us, we repeat our conviction, that the business of iron making must of necessity continue to be profitable, notwithstanding the check which it may for a time, under existing circumstances, receive; and that the iron trade will become more profitable than it has ever yet been in this country.

We have extended our remarks to a greater length than we intended, but the subject is one of such vast importance—not only to those now embarked in the manufacture, but also to the entire railroad interest—that we feel bound to speak freely, and earnestly to urge those interested to hold steadily on and bide their time. Read carefully the remarks of a "A Looker-on," and then survey the whole field, and act prudently but decidedly.

THE IRON TRADE—PROBABLE SUPPLY AND CONSUMPTION.

Sir: When I addressed you, at the close of the last session of parliament, under the above title, I ventured to predict, that "the impetus for railway making having been given, nothing would check it until every town in the kingdom is accessible by railway."—I presumed that "not less than 2,000 miles of railway would be sanctioned by parliament in the present session, and (at least) 1,000 miles in the session of 1847." I calculated that, in the three years (1846, 1847, and 1848,) an extra demand for between 2,000,000 and 3,000,000 tons of iron would be created by railway enterprise; that such a deficiency of labor, of materials, and of manufacturing capability, would be experienced, as to make it impossible to meet that demand; and that "the difficulty of obtaining iron at any price would shortly present a novel feature in the commercial history of this country."

The course of events has more than confirmed those expectations; and has interfered with those calculations, only to make the result more remarkable, and more certain.

The impetus for railway making has surpassed all precedent. Old and young, male and female, peer and peasant, clergy and laity, merchant and clerk, shopkeeper and journeyman, all became enamoured of the new investment. Political economists, legislators and daily journalists were alarmed—"leading articles," "city articles," "bankers circulars," speeches in the lower house, and speeches in the upper house, grave dissertations in bulky periodicals, and humerous illustrations in ephemeral productions, all conspired to impede the rapid movement. Sessional orders of a novel description were passed with extraordinary haste, in order to extricate the multitude of scripholders from the meshes of the net in which they were considered to have entangled themselves. And what has been the effect of all these attempts to suppress the railway "mania" and to relieve the "deluded" speculator? A few injudicious schemes have been abandoned—a few deposits have been returned; but by far the greater number of the railway projects are progressing, and will progress in spite of the loud outcry, the grave warnings, and the fearful apprehensions. Instead of 2,000 miles of railway being sanctioned this session, there is every probability of 4,000 miles receiving the royal assent; AND INSTEAD OF 3,000,000 TONS OF IRON BEING REQUIRED FOR RAILWAY PURPOSES, BETWEEN 4,000,000 AND 5,000,000 TONS WILL BE WANTED.

We stop to inquire—How will this singular movement affect the commercial interests of the country? Will it derange the whole of our monetary system, as has been hastily asserted, and a thousand times repeated? Will it absorb all the spare capital of the country, or create confusion for leaving all ordinary undertakings too scantily supplied? No such thing will happen. Railway enterprise differs from every other, and the distinction has been wonderfully overlooked.

A railway is a stupendous piece of machinery,

which, unlike all other machinery, cheapens cost, without either increasing production or diminishing human labor.

Railways call for a large amount of capital, but by expediting the transit of goods, they so reduce the stock of every tradesman, that they create a disposable capital, in many cases equal to that required for their construction.

The mode of raising railway capital, and the manner of expending it, serve also to neutralize the inconvenience which often attends the subtraction of a large amount of money from the ordinary channels. Being divided into small shares, and payable by small instalments, a great portion of such capital is made up of inconsiderable sums, which would otherwise have been unappropriated and unproductive. Nor is railway capital long idle—it quickly returns into the hands of engineers, lawyers, land owners, iron masters, timber merchants, contractors, and workmen—all of whom become possessed of extraordinary funds, a considerable portion of which reverts, either directly or indirectly, into similar investments.

Instead of requiring an increase of the circulating medium, which is the natural consequence of investments in trade or manufactures, railways convey the gold and silver to the provinces, and back to the metropolis, with such rapidity, that every new line lessens the required amount of the circulation, and accumulates the bullion in the coffers of the bank of England. They create also a new and a large paper currency in the shape of scrip and share certificates—the value of which is ever fluctuating, but taken as a whole, is fully equivalent to the nominal amount.

Taking into consideration all these circumstances, the position may be fairly maintained, that there cannot be too large an outlay in railways, provided the expenditure is regulated by economy, and such lines only are sanctioned as will, at moderate fares, yield a proper return for the capital employed, and not materially reduce the returns of previously existing lines. These desiderata will, no doubt, be sometimes wanting; yet it does not follow, that an ill-paying line to the shareholders, is a losing line to the public. There may not be sufficient traffic to remunerate the proprietors, yet the saving to passengers and traders may be greater than the dividends on the best paying lines. It is therefore, the interest of the public, that as little delay as possible should occur in completing the projected railways. There is no fear of their progressing too rapidly; but there is reason to apprehend, that they cannot be executed with speed equal to the public requirements.

The great check which will be given to railway making, both at home and abroad, is the necessary restriction to one material, and the impossibility of supplying the demand, which railways must create for that material. It has been asserted over and over again, that such a vast number of miles of railway ought to be distributed over a period of seven or ten years. That such a distribution ought to be made, is very questionable; but that such a distribution must be made, is absolutely cer-

tain. The money may be found—THE IRON CANNOT BE SUPPLIED.

At the close of the present session, the railway companies incorporated by act of parliament will have virtually *bespoken a quantity of iron equal to the total make of England, Wales and Scotland, for the next FOUR YEARS*—leaving NONE for ordinary uses at home, the requirements for which are steadily increasing, and will be further stimulated by the liberal commercial policy recently adopted by our government; and leaving NONE for the supply of foreign countries, whose wants already exceed their own capabilities, and who will ere long, follow the example of Great Britain, and abolish those restrictions which have hitherto prevented them from purchasing in the best and cheapest market.

WHERE THEN IS THE IRON TO COME FROM? Our make of iron is not at present, on the increase. A few new furnaces have been built—a few more are in progress; but most of the old works have reached their maximum and several are on the decline. Whatever ingenious theorists may surmise, respecting the formation of iron ore, and the growth of coal, the practical iron master is every day reminded of the disappearance of those minerals. He knows too, that as wages advance his stock of minerals is apt to diminish; and that the quantity of iron manufactured does not depend so much upon the demand, as upon the readiness or reluctance of the miners to keep to their work, which is so laborious, that they would rather do less and earn the same wages, that do the same work and earn more. *These circumstances will, for a long time, operate to prevent any addition to the quantity of iron now manufactured; meanwhile, the excess of the demand beyond the supply must create exorbitant prices, and many a railway will present the strange anomaly of being incomplete, because it cannot be provided with the article which gives it both its name and its utility.* It may be asked, why has the price of iron receded, rather than advanced, during the last year? Because of the uncertainty and the gloom which have hung over our commerce, our government, and our foreign relations. *These clouds have all passed over; and with a free trade, a strong administration, and peace with all the world, nothing can prevent the natural tendency of an article to continue to rise in price, so long as the manufacturer is unable to meet the wants of the consumer.* A LOOKER ON.

The following extracts from the London Mining Journal, of Aug. 14th, show an advance in the price of iron, and fully sustains—as will the next arrival—the views of "A Looker-on," published in this week's Journal, it confirms, also, our often repeated statements. We also give an extract from a letter recently received from an intelligent Pennsylvanian on the subject of the iron business. He says:

"It will surely be profitable to those now in it, or who may soon embark in it, if they can go through the present crisis of apprehension. We cannot get railroad iron from abroad, and must therefore; make it or do without it—it follows of course then, that those who are now in it, and can hold on until the alarm is over, or those who may now go into the business, will be successful."

English Iron Trade.
LONDON, AUGUST 14, 1846.

	£.	s.	d.
Bar a Wales—ton	8	5	8 10 0
" London	9	5	9 10 0
Nail rods	0	0	10 5 0
Hoop (staf.)	11	5	11 10 0
Sheet	0	0	13 0 0
Bars	0	0	11 0 0
Rails, average	9	10	9 15 0
Welsh cold blast foundrey pig	4	5	5 0 0
Scotch pig b Clyde	0	0	3 15 0
Russian, CCND c	0	0	0 0 0
" PSI	15	0	15 10 0
" Gourieff	14	5	14 10 0
" Archangel	0	0	13 10 0
Swedish d, on the spot	11	0	11 10 0
" Steel, fagt	0	0	15 5 0
" kegs e	14	0	14 0 0

a, discount 2½ per cent.; b, net cash; c, discount 2½ per cent.; d, ditto; e, in kegs ½ and ¾ inch.

IRON.—Welsh and Staffordshire remain without change. In Scotch pig several large sales have been made within the last two days, owing to the change in the American tariff, at 72s. 6d. for mixed nos. and 75s. for No. 1—which price must still be considered to rule, although some holders ask 2s. 6d. more. Some contracts for railway bars have been entered into this week at our quotations. In Swedish iron and steel nothing doing.

Messrs. Whitcomb and Barton, Old Broad street, say: The demand for all kinds of English iron has improved during the week, but prices remain the same. Considerable business done in Scotch pig iron, and we quote the price 75s. mixed nos.

Glasgow Pig Iron Trade.—Aug. 7.—We have had a very quiet week for iron, and there are few sales to report; prices have not however given way much, but the few sales reported have been rather in favor of buyers. We quote 69s. to 70s. No. 3; 71s. 6d. to 72s. 6d. mixed; and 74s. to 75s. all No. 1—cash, free on board.

Aug. 8.—The price of Scotch pig iron, delivered free on board here, may be quoted to day at 73s. 6d. to 74s. for No. 1; 68s. 6d. to 69s. 6d. for No. 3; and 72s. for 3-5ths No. 1, and 2-5ths No. 3 per ton—net cash. At these prices a considerable business has been done this week, and dealers in general hold for a higher figure.

Aug. 11.—We have no change to notice this week in prices; and, though still dull, there is more inquiry for iron.

Bombay.—Manufactured iron is without particular change, except that the market is reported scarcer, but sales were limited. Bar was becoming scarce, but no advance in price had been obtained. Swedish iron and steel were both dull of sale, but without change in price. The following are the exports of iron to this port from the United Kingdom during the last three years to the first of May.

	Swedish bar.	English bar.	Sheet.	Rod.	Hoop.
1844	541 tons	3,335 tons	421	229	71
1845	24	778	110	81	18
1846	812	197	50	140	—

After a sharp contest, the new American tariff has passed the senate, by the casting vote of the vice president—ayes 28, nays 27; and in the house of representatives, on the subsequent question of concurrence—ayes, 115; nays, 93. On the 30th ult., the signatures of the presiding officers of the two houses of congress were affixed, and the approval of the president was anticipated on the following day. The period for the new scale of duties to come into operation is fixed for the 1st December next. Iron of all descriptions will then pay 30 per cent. ad valorem, in lieu of the hitherto heavy scale of duties, detailed in our publication of the 1st instant. Attention appears to be directed in America to the advantages to be derived from the construction of the railways now in contemplation, and in progress, that will render recip-

rocally beneficial the intercourse between the Canadas and the United States.

By the India mail, the report has been received from the engineers appointed to make a survey upon the practicability of introducing railways in India, and upon an eligible line to connect Calcutta with Mirzapore and the northwestern provinces. In this report, a railway from Calcutta to the northwestern provinces is traced of 900 miles in length, with branches of about 200 miles to diverge therefrom, to give the most suitable accommodation to the country at large, and, to relieve the traffic of the Ganges, proceeding to Calcutta, from its great drawback during at least eight months of the year. An extension of the line from Mirzapore to Delhi is likewise suggested, which in length will be about the same as that of the line above described—Mirzapore being about midway between Calcutta and Delhi; and from this upper portion of the main line from Calcutta to the northwest, four important branches, (the last extending to Agra) are recommended, of together about 250 miles. The engineers that furnish this report think the line from Calcutta to Delhi should be granted to one company, who would then have a great length of line for a reasonable average outlay—the lower half from Calcutta to Mirzapore, costing considerably above the average, and the upper part, from Mirzapore to Delhi, much below it. The lieutenant governor of the northwestern provinces, suggests that a suitable line of country might hereafter be found for the construction of a railway from Agra to Bombay, to join the main trunk line between Allahabad and Calcutta; and by these two lines the northwestern provinces would be effectually supplied with communication, not only with the seat of the supreme government at Calcutta, but with the great seaports of the two opposite coasts of the continent of India.

To construct these contemplated Indian railways, the various localities produce stone, timber, etc.; but the one all important material for a railway—(iron)—must be sent from England—a fact of which the British iron trade cannot fail to experience the benefit, not only in demand, but in the price, to be obtainable for the numerous requirements of the various railways now constructing at home and abroad; added to which, there will be, from the operation of the new American tariff, shipments to America of other manufactured iron, hitherto prohibited from the excessive duties to which it was subject by the tariff, to cease on the 1st December next.

The number of acts of parliament for railways that have received the royal assent this session, are 257—the length of which are 3,951 miles; and last evening, in the house of lords, seven more bills were added to this number. These additions to the works now in progress of the companies, incorporated in the previous sessions, shows the requirements at home will be most important, allowing for these undertakings to be carried on with the judgment and discretion, the respective directors will, doubtless, exercise in making the calls to complete them.—Lond. Mining Jour.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

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Saturday, September 12, 1846.

Cars.—Room, Cleanliness and Ventilation.

Next to furnishing passengers with safe cars, it is necessary that there should be room enough for those who take passage. The rapid increase in the number of travellers, particularly in the summer season, has given rise to an abuse which is always attended with discomfort and inconvenience, and may produce serious or fatal consequences. We refer to the abominable practise of crowding into a train many more persons than can be comfortably seated—or even seated at all.

We have seen as many as 30 or 40 persons more than seats were provided for thrust into a train of three cars, and compelled to stand for miles, until the number of sitters became gradually reduced. This, too, happened when the thermometer was about 80 deg., and when no grown man, whose head reached above the half opened windows, could endure the suffocating atmosphere. Of course the platforms were full of passengers—who were insulted by a notice that no one was permitted to stand upon the platforms, etc. If any accident had occurred, the lives of all the unseated passengers would have been endangered, with the poor consolation of being blamed as the cause of their own misfortunes.

We have said that such treatment is abominable, and if any one is inclined to deny this, the worst we wish him is, that he may be served so himself. We contend that a company undertaking to carry passengers, is bound to furnish them with seats, and comfortable seats too. There will be found in almost every car one or more persons who are from some reason or other very disagreeable companions, to be compelled to sit beside such a person in very close contact is too bad. We have seen and have heard of cases of this kind, where drunken men have insulted quiet people who were most unwillingly their neighbors, and even soiled the clothes of those next them.

The evil of which we complain is caused sometimes by bad management in suffering the cars to be out of reach when wanted, and sometimes by the pitiful economy of having one car less in the train. Whatever the cause may be, we propose a remedy speedy and certain. It is this: let no passenger pay his fare who is not furnished with a comfortable seat for the whole distance he may ride in the train. This is but fair and just, and the determined conduct of the aggrieved parties would soon terminate this monstrous imposition upon the good nature of the public.

Cars should be kept as clean as possible, and thoroughly ventilated by suitable means, beyond the control of passengers.

If cleanliness is next to godliness, and fresh and pure air necessary to the support of life—should the one be disregarded and the other shut out from the very place where both are most needed? There are few situations in which men willingly place themselves, where the accumulation of vitiated air and animal exhalation, is equal to that of a closed railroad car. Sixty persons inclosed within a space but a few times larger than the bulk of their bodies, is as horrible an imprisonment as that of the famous Black Hole.

The mere vitiation of the air by the lungs of so many persons, would require large apertures constantly open to preserve the atmosphere in a tolerable condition—but if we add to this the exhalation from the bodies of the same number, increased by the heat, and rendered more nauseous in wet weather—when the cars are always closed—and still more, if we add the effects of uncleanness of person or garment, we have a composition offered us to take into our lungs which might well constitute one of the means of torture in the infernal regions. We ask pardon of our readers for giving one stroke more to this truly horrible picture. Let the floor of the car be covered with tobacco juice, orange skins, peanut shells, and worse things, the windows not cleansed since the 31st of February last, and the whole interior covered by a time-honored accumulation of grime—in winter we may add a red hot stove, and the well known odors of singed coats, toasted india rubber overshoes and smouldering quids—and what worse dungeon could be imagined—to what torments should the guilty wretches be exposed who treat us in this villainous manner? Alas! they are no more nor less than the very respectable gentlemen who compose the direction, but know nothing of the management, and the horrible dungeons are no other than very elegant cars, which have cost untold sums of money for their decoration, but have not one single hole of any size for the regulated admission of pure air.

We have seen the reality of which this is but a feeble description—it is not often to be found quite as bad—but it is often found nearly as bad—and we might say is never other than bad. It is true that two "ventilators," as they are called, are placed in some cars, but they are never what they ought to be. Cleanliness is much more observed within the last few years, but ventilation is never thought of.

Several years since we proposed a simple and convenient method of ventilation, by means of apertures covered by wire gauze. No particular ingenuity is required to arrange them in the ends of the cars, so as to produce no sensible draught, and yet admit of the rapid renewal of the air, where it is most needed—at the top of the car. Even in warm weather, when the windows are all open, the space above is constantly filled with foul air which cannot be removed, and from time to time is mixed up with the other air so as to give a constantly offensive atmosphere.

We have dwelt the longer upon this topic in hopes that those whose business it is to direct, may have their eyes opened to the enormity of the nuisance. Gentlemen who would not ask a stranger into a room where odor assaulted the duller olfactories, must not as directors of a railroad commit the offence upon the whole travelling portion of the community.

Steamboats, stage coaches, in fact all other means of conveyance are better in this respect than close railroad cars, for in these the largest number of human beings are crowded into a given space than has ever been so confined without loss of life. But

there is no sort of necessity for the risk—it is for this reason that we complain, and shall continue to complain, to remonstrate and to warn, until we see the nuisance abated.

Low Fares upon Railroads, And the Camden and Amboy Railroad.

We have long contended that the principle of low fares upon our railroads is the only correct one to enhance the value of the stock, and to increase the business of the road; and ample experience has already been had in this country, especially with the roads upon our Atlantic cities, which have tried the experiment, to determine this fact beyond any question. There are some few exceptions among the most important routes in the United States, which still adhere to their established exorbitant prices for carrying passengers, to which we have hitherto had occasion to allude, and which are still the subjects of great complaint among travellers. Our attention is again drawn to this matter, from statements made in late eastern journals, in reference to the effect of low fares upon some of the New England routes, and we take occasion to commend this information to the particular notice of the stockholders and managers of other routes, nearer home. The Boston Courier informs us, that during the summer of 1845, the fares between Boston and New York were reduced, by opposition, to \$2, first class, and \$1 62½, second class. By a recent arrangement, the rates have been advanced to \$4, and \$2 50, or nearly doubled. Upon comparison of corresponding months soon after the change, the numbers and receipts have been as follows:

	Numbers.	Receipts.
July, 1845.....	18,110.....	\$45,208
July, 1846.....	12,301.....	35,963

Diminution 5,801 decrease... \$9,245

It will be seen from these statements, that the number of passengers was forty-six per cent. more, and the receipts twenty per cent. more during the season of extremely depressed rates—and though the first named price is even below the estimate contended for [by the friends to low fares] upon this particular route, or for that distance, yet the experiment shows a proportionate gain over the higher price. The Courier adds that if, in place of \$4, [the present price from Boston to New York] a medium summer fare of \$3 had been adopted, "it may well be presumed from the facts that it would have been still more successful, and many additional thousands would have enjoyed the privilege of travelling."

And in considering these results, adds a correspondent of that paper "it should not be forgotten that the first effects of elevating fares is an almost invariable gain, as many passengers are compelled to pay advanced prices who have been tempted from home by low rates of charge."

Now it is a well established fact that low rates of fare, when introduced upon any road, or any route, immediately increase the receipts—and the practical truth of this assertion has been proven over and over again. The reduction of the rate of fare upon the Boston and Lowell road, within the year past, has proved of immense benefit to the stockholders, and the price which was formerly one dollar, and afterward seventy-five cents, is now but sixty-five cents. This reduction of thirty-five per cent. has caused a great increase in the number of passengers, and the result has proved of the greatest advantage. This is but a single instance.

The fare between New York and Philadelphia is the most exorbitant in the country. This road maintains its price at four dollars for a distance of

eighty-eight miles, or about 4-9 cents per mile! Now it has long been a settled fact, that a handsome profit will accrue over a well travelled route, at 2½ cts. per mile, and thousands of miles of routes, by coach, cars or steamer, in this country, are now rendered profitable by a charge not exceeding this price. Yet the managers of the route between this city and Philadelphia, adhere to four dollars, when there can be no doubt, were they to reduce the price to three dollars, or even to *two and a half dollars*, for their first class passage, that *two to one* would pass over that road, who go at the existing high rate. It will not be questioned for a moment, that the business men who are *compelled* to visit New York, from Philadelphia, and vice versa, once or twice a year, would not go four, or five, or six times, in the same space of time, could they go at the cheaper rate; nor will it be contended that strangers who are constantly visiting New York city, would not, in a majority of instances, extend their visit to Philadelphia, were the fare any where within a *reasonable* amount.

We again call the attention of the stockholders and directors of this road, to these facts, and ask them, for their own advantage, as well as for the good of the travelling public, to take these matters into careful consideration—believing that the proposition is well worthy their *special* notice.

We have for some time had in hand a pamphlet, put forth by the Camden and Amboy railroad company last winter, addressed to the legislature of N. Jersey, which has been carefully perused, and which, *at an early day*, will be the subject of further comment, as regards the principle of *low fares upon railroads*, and the practice of this company on the lines between New York and Philadelphia.

Ohio Railroads.

We find in the late Cincinnati papers an interesting account of the opening of the "Little Miami railroad," from the "Queen city" to Springfield—a distance of 85 miles. A large concourse of the citizens of Ohio assembled at Springfield on the occasion—composed of ladies and gentlemen from all sections of the state. This is the *first* road in Ohio which has been *completed*, and the event was the cause of a good deal of interest. At 4 o'clock, p.m., on the 12th of August, about 350 persons were seated at tables arranged in the car house, and toasts and speeches were the order of the day. One of the first toasts was as follows:

"The President, Directors and Company of the Little Miami Railroad—By their zeal, energy and patience, they have this day completed the first railroad in the state of Ohio, over ground where some of them probably assisted in opening the first wagon road in the Miami valley."

This was received with applause, and a suitable response was made.

The Cincinnati Enquirer remarks that it is really "amusing to see the sensation a train of railroad-cars produces on all animate beings, human and brute, for the first few times it passes over a section of road. We saw herds of cattle, sheep and horses, stand for a few seconds and gaze at the passing train, then turn and run for a few rods with all possible speed, stop and look again with eyes distended, and head and ears erect, seemingly so frightened at the tramp of the iron horse as to have lost the power of locomotion.

"Men, women and children also seemed dumbfounded at the strange and unusual spectacle. As the cars came rumbling along

early in the morning, they seemed to bring everybody out of bed, all eager to catch a glance as we whirled past. Old men and women, middleaged and youth, without waiting to put on a rag in addition to their night gear, were seen at the doors, windows and round the corners of log huts and dwellings, gaping with wonder and astonishment at the new, and to them grand and terrific sight."

Unfortunately, in returning to Cincinnati, the company were exposed to an accident which somewhat marred the recollection of the festivities which had been so pleasurable. The Enquirer relates it as follows:

"As the train of cars were coming from Springfield with a large number of passengers, it came in collision with the upward train, about one mile this side of Plainville. The concussion was very severe, completely disabling the two engines, and making wrecks of the tenders and wood cars. The engineer and fireman on the down train saw the up train approaching in season to shut off the steam and jump from the engine, escaping with little or no injury. Not so with the engineer and fireman on the up train; they had to remain on the engine and bide their fate. The engineer was dreadfully scalded, and thought to be in a very critical situation. The fireman had his shoulder dislocated, and was otherwise severely bruised. There was but little damage done to the passenger cars, and as far as we could ascertain, every passenger escaped."

The energies of the enterprising engineer of this road, W. H. CLEMENT, Esq., have been untiring during the construction of this last branch of the route—and the flattering reputation he has so long enjoyed as engineer upon the section between Cincinnati and Xenia, is well earned. We are happy to learn that the road is now complete, and under the superintendence of Mr. Clement we are sure that it will prove both prosperous and profitable.

The following account of the town of Springfield we copy also from a Cincinnati paper. It is given at the close of a narrative of the proceedings on the 12th ult.

"That Springfield is a very pretty village. Within the corporation line there are fifty springs bursting to the light and air, the sources of bright streams, and the best specifics for health. One near the village is highly medicinal; another, of considerable size, breaking from the foot of a limestone cliff, falls into a basin furnished for its use by General Anthony; while the streams which unite at Springfield are perennial, flowing over rocky beds, and leading their small tributaries through glens of picturesque beauty. Springfield is on the highest ground of that region, and is set in the prettiest scenery of the state. Northwardly stretch the lovely prairies of Champaign, while a few miles to the southward, we come to the Yellow Springs, the destined Saratoga of the west.

"The public have to expect from the directors of the Little Miami railroad the most *exact certainty* in all their arrangements. As we were returning last Saturday morning, August 15th, another collision was *barely* avoided. The downward train started from Milford on a single track, after waiting there

some time for the other train to pass. As we approached a point, where a sudden curve obstructed the view, the engineer checked our speed, and sent a woodman forward. It was most fortunate, for the other train was right ahead, and a collision was avoided by our backing to Milford, and letting the up train pass on the double track which is laid opposite that village. If it had not been for the panic of the recent accident, our chance for a grand crash would have been about even. Surely these things might be safely arranged."

Southern Railroad.

By late papers from the south, we are happy to learn that a new interest has lately arisen along the line of the Southern railroad, from Raleigh to Fayetteville, and thence to Cheraw and Camden, S. C., in reference to the extension of the Raleigh and Gaston railroad. This embraces the great connecting link in the Washington route, and thence through to the north, and is a subject of the greatest importance to the southern travel. The National Intelligencer says:

"Of the importance of this work, in every point of view, nothing need be said. But a correspondent of ours is desirous to impress upon the capitalists of the country, north and south, the very favorable opportunity this road, from Raleigh to the South Carolina line, offers for the investment of money.

The road from Gaston to Raleigh cost \$1,600,000, and may be purchased for \$400,000. The road from Raleigh to Fayetteville and thence to the South Carolina line, may be laid down for a million of dollars. Thus the entire line from Gaston to the South Carolina line would cost \$1,400,000 for a road 170 miles long, and the cheapest in the country. But the country through which the road will run is one in which no spare capital can be found, but in which materials are plenty, and of the best kind, where provisions are cheap, and where, best of all, the people are honest, and are all ready, every man, to do all he can. Capitalists at the north or abroad may safely trust their money in this good old anti-repudiation north state.—Her people are ever true to themselves, and they will ever be so those who trust them."

A correspondent of the Charleston Courier, speaking upon this subject, holds the following language:

"This is a question of vital importance to Charleston, and one which it behooves her to revolve deeply before taking any decided step. There are two lines of railroad in North Carolina proposing to form a connection with us; the one which now terminates at Wilmington, and the one terminating at Raleigh. The road from Wilmington, along the seaboard to Charleston, could not be expected to bring any freight to the city, nor increase its trade in any respect. The transportation of freight between the city and points along the coast can always be made cheaper by water than by railroads. If the town authorities should use the precaution to keep the two depots half a mile apart, there will be 25 cents per head on the passengers secured to the omnibus owners, and should the hour happen to suit, the tavern keepers will have 50 cents per head for a breakfast

or dinner. A portion of the travel going to the southwest will continue to be, as it now is, diverted at this point, and carried by way of Savannah; on this portion the tavern keepers and omnibus owners will be certain of at least 75 cents per head. These are really and truly the only advantages which Charleston can derive from this road. But suppose that the road from Wilmington be made to terminate at some point on the railroad between Charleston and Columbia. The only difference would be that neither the tavern keeper nor the omnibus owner would make anything out of the passengers, and still not one pound of freight nor one dollar's worth of trade would be brought to Charleston by it. On the contrary, it is evident that some small amount of trade which now goes to Charleston, would be carried to Wilmington.

"Now let us see what will be the effect of extending the road from Raleigh, through Fayetteville and Cheraw to Camden. It must inevitably secure to Charleston the entire trade of that whole country, at least as far as Fayetteville, and from the country west of Fayetteville. This trade will add greatly to the prosperity of the city and to the revenue of the railroad.

"The travel from the city of Charleston north, will pay a revenue to their own road. This line being through a healthy country, will better answer the purpose of general travel, and being sustained by the local business of Raleigh, Fayetteville, Cheraw and Camden, will be more profitable than a line nearer the seaboard.

"The great stream of travel would then be secured to the South Carolina railroad without competition. C."

The above remarks from the Courier, are from a correspondent of that paper—and it is very evident that his inclinations, and perhaps his individual interest, lies in the direction of the upper route. That a material benefit will most assuredly accrue to the city of Charleston, by the establishment of the other route, none can question—though it is certainly difficult to determine how much profit may be realized from either. Still, one of these roads must be established, and those who are the most prompt to act in the premises, will be the parties who will be first and most benefited by the enterprize. There can be but one opinion as to the utility and practicability of this great connecting link between the north and south, and we hope that measures will be taken at an early day to determine the question, and move in this matter so important to the interest of all.

Muscogee Railroad Meeting.

A meeting of the citizens of Columbus and its vicinity was convened at the court house on Saturday evening, the 22d August, 1846. On motion, Col. John Banks was called to the chair, and Wm. P. Yonge appointed secretary.

His honor the mayor, after explaining the object of the meeting, had read the letters received by him from Thomas Pollard, president of the Montgomery and West Point railroad company, John P. King, president of the Georgia railroad company, and Thos. Gadsden, president of the Charleston and Hamburg railroad company, which were in reply to

his invitation to those gentlemen to attend a meeting at this place, for the purpose of ascertaining their views in relation to a connection of the contemplated railroad with the Montgomery and West Point railroad, and the Georgia, Central, and Macon and Western railroads.

The meeting was then addressed by the following gentlemen, viz: John G. Winter, Esq., R. R. Cuyler, Esq., president of the Central railroad company, and Dan'l Tyler, Esq., president of the Macon and Western railroad company, also by Gen. McDougald, who called upon the chairman for his views: whereupon he addressed the meeting in a few interesting remarks. Major Williams then made a few preparatory remarks, and offered the following preamble and resolutions which were unanimously adopted,

The great enterprize in which the state of Georgia has exhausted her resources, and entailed a debt of some magnitude upon her citizens, being now nearly completed, it may not be unimportant to examine very summarily the influence which it is likely to wield upon the great interests of this state. The original plan upon which the state of Georgia prosecuted the immense expenditure of public money in her Cherokee railway, contemplated that Augusta, Savannah and Columbus would connect with it by railroads from each of those cities, and we have seen that the two former have done so, by the completion of immense works, which do honor to them and the companies engaged therein.

The great Central road from Savannah to Macon, and the Macon and Western road from Macon to Atlanta, have fully realized to the people of Georgia all the advantages which were contemplated, and while they afford ready facilities to the merchant and planter, the profits are kept within the state; an object which is much to be desired in all great works of internal improvement by a state or its citizens. As much cannot be said of the Georgia railroad. It is true that equal facilities are afforded to the planter, but that road in connection with the South Carolina railway, make a constant drain from the state of Georgia, for the benefit of South Carolina.—Important considerations for the people of Columbus, who have so long slumbered over their interests, and should induce them speedily to make an energetic effort to carry out their part of the great original plan contemplated by the legislature of Georgia. In view of this effort, the Muscogee railroad company has been chartered, and whether the times be propitious or not for entering into this enterprize, it must be done as a work of necessity to our self-preservation. In comparison with what has been done by other companies in the state, the work which remains for Columbus to do, is a small one. A line of road 70 miles in length will give to this city all the advantages afforded by the Georgia, Central, and Macon roads, at the expense of less than one million of dollars! Ought we then longer to hesitate? Our actual interests and necessities admonish us that we ought not.—Be it therefore,

Resolved, That this meeting recommend

to the Muscogee railroad company immediately to organize and proceed to open books of subscription at Columbus, Talbotton, and Thomaston, and such other places as may be deemed necessary for the purpose of receiving subscriptions to the stock of said company.

Resolved, As the opinion of this meeting, That the Central and Macon roads have a deep interest in the speedy completion of a railroad from this city to Barnesville, and that said companies and their individual stockholders be requested to afford such subscriptions to the stock of this company as their interest may deem to require.

Resolved, That in the opinion of this meeting, the road from this city to Barnesville should be placed under immediate construction, and that it ought to be completed by the 1st day of November, 1847.

On motion, Resolved, That the proceedings of this meeting be published in the Gazettes of this city.

The meeting then adjourned *sine die*.

JOHN BANKS, Chairman.

WM. P. YONGE, Secretary.

Pennsylvania Coal.—It is no uncommon thing now to see boat loads of Pennsylvania coal passing from the west. It reaches the Erie canal from the new avenues lately opened in western Pennsylvania, and bids fair to become quite an article of trade

The Anthracite Coal Trade.

Continued from page 573.

First, or South Anthracite Region.—*Lehigh District.*—The coal basin at Tamaqua in which is situated the estate of the Little Schuylkill navigation and railroad, and coal company, with coal lands of Messrs. Buck and Co., Levan and others, is bounded on the north by Locust mountain, and south by Sharp or Tuscarora mountain.

In crossing the coal basin, the stream of the Little Schuylkill runs at a right angle to the range of the stratification, and the gaps formed in the mountains of its north and south boundaries, afford an opportunity to enter the coal veins where they cross these gaps, giving workable breasts from 400 to 600 feet above the water level.

A stream called the Wabash, which rises about three miles west of the town of Tamaqua, runs through the coal valley east of the Little Schuylkill. Another stream heads north of the Summit Hill coal mine and runs through the coal basin, west of the Little Schuylkill. The confluence of both of these streams, with the Little Schuylkill is at Tamaqua.

In the Locust mountain gap, the coal and iron ore veins are developed and worked as follows: commencing with the lowermost, or the coal vein that crops out to the surface farthest north on the mountain, proceeding south towards the centre of the basin.

No. 1, coal vein, said to be six feet in thickness including slate, but it has not been sufficiently opened to give its true character.

No. 2, coal vein, locally called A vein, this is said to be six feet in thickness, it has been worked several hundred feet into the mountain east of gap.

No. 3, coal vein, locally called B vein.—The place where this vein crosses the gap is

much washed and broken, it has not therefore yet been opened by drift. A shaft was sunk upon the vein on the mountain east of the creek which proved very satisfactory.

From the large and well marked depression in the place of its outcrop, along the side of the mountain, we may refer that a workable vein of coal may be found in this direction. It is my opinion that two veins of coal outcrop in this depression, and from the quantity of iron ore lying on the surface along the range of this depression it may be presumed that a workable vein lies near the coal.

No. 4, vein of coal locally called C vein, worked in the mountain east of the stream, said to be six feet in thickness.

No. 5, vein of coal locally called D vein, this contains a top bench of coal $4\frac{1}{2}$ feet in thickness, and a bottom bench of coal of 3 feet in thickness; between these benches of coal is $1\frac{1}{2}$ feet of dirt overlying the D vein of coal and separated from it by 2 feet of rock, is a vein of coal 3 feet in thickness called the out-vein. These two veins are worked by one drift, on the east side the gap, on the west side the cross cut vein has not been discovered. The D vein is being extensively worked in the mountain on both sides the gap; it is very regular, and has hitherto proved free from fault.

No. 6, vein of coal locally called E vein, is about 23 feet in thickness between its top and bottom slate—it comprises the following strata: Top coal 3 feet thick, slate parting 1 foot, good coal 4 feet, slate parting 1 foot, superior glassy coal 6 feet, parting 1 foot, middling coal 2 feet, and bottom coal 3 feet. This vein is being worked on both sides the gap, regular and free from fault; underlying the E vein of coal is 2 feet of Nodular iron ore.

No. 7, vein of coal locally called F vein, contains, top 1 foot of dirt, then 6 feet of solid hard glassy coal, underneath this is 1 foot of dirt, and 3 feet of coal at bottom. This coal vein is being worked on both sides the gap and proves well.

The whole of the before described coal veins, are of the white ash class.

No. 8, vein of coal is gray ash; it has not been opened by drift sufficiently to prove its thickness. I think from appearances it may be considered to contain say 4 feet of marketable coal. The outcrop of this vein is upon the line between the Baum tract, and the Little Schuylkill estate, see situation on my small map of the First or South Anthracite Region.

No. 9, vein of coal is red ash. This has been opened and worked in the Baum tract, it contains about 2 feet of marketable coal.

No. 10, vein of coal is red ash, 6 feet in thickness, superior coal, this is being considerably worked in the Baum tract vein, the property of C. Levan, Esq.

No. 11, vein of coal is red ash, containing about 3 feet of marketable coal; it has been worked in the Baum tract.

The veins of coal and iron ore before enumerated dip to the south at an angle of 65 to 70 degrees.

From surface indications, I am led to believe that another vein of coal and perhaps two more exist north of those already described. Some distance south of the vein No. 11, two perpendicular veins of coal show themselves on the side of the hill where a range of perpendicular strata is seen. These veins have not been opened, and from their appearance I do not consider they will pay to work—the one shows about 6 feet of coal and slaty matter, the other is small. Still farther south is a coal vein inclining slightly from the perpendicular toward the north. This vein has been worked on both sides the stream of the Schuylkill. It is about 6 feet in thickness and a red ash.

In crossing the coal valley, after passing the range of perpendicular strata, the measures undulate until we approach the range of coal veins of the Sharp or Tuscarora mountain.—These are supposed to be the uprising to the south of the veins before described of the Locust mountain range which uprise to the north from the centre of the coal basin, thus forming the two boundaries. The coal basin in one place is one mile and $\frac{1}{2}$ of a mile wide.

The coal veins before enumerated, No. 1 to No. 11, inclusive are at Tamaqua within the space of 570 yards, measuring across the range of the strata. The same range of coal veins at Silver creek on the Valley Furnace estate, occupy a space of one mile.

W. F. ROBERTS,
Engineer of Mines, Phila.

Durability of Timber in a Wet State.

A week or two since, the authorities of Philadelphia received a report from a committee of the city council, in relation to the repairs of bridges, sewers, etc., in that city. The report recommends that wherever any foundation is to be laid, that it be placed upon *timber imbedded in clay*. It was contended by the committee that this foundation was lasting, and of the most permanent character; in evidence of which, the timber foundations of Pratt street bridge had been examined, and were found to be perfectly sound, after being in the water upwards of fifty years. This fact is fair proof in regard to the durability of timber, when completely immersed in water and earth, and we are inclined, from other evidences also, to agree with the committee. It has been preferred to a *granite* foundation, even—and there can be no doubt that this will answer an admirable purpose. An exchange paper contains the annexed remarks on this subject.

“Of the durability of timber in a wet state, the piles of the bridge built by the Emperor Trajan across the Danube, is one example. One of these piles was taken up and found to be petrified to the depth of three-quarters of an inch; but the rest of the wood was little different from its ordinary state, though it had been driven more than sixteen centuries.

“The piles under the London bridge have been driven about six hundred years, and from Mr. Bann’s observations, in 1746, it does not appear that they were materially decayed. In 1819, they were sufficiently sound to support the massive superstructure. They are chiefly of elm.

“In digging away the foundation of old Savoy palace, London, which was built six hundred and fifty years ago, the whole of the

piles, consisting of oak, elm, beach and chestnut, were found in a state of perfect soundness; as also was the planking which covered the pile heads.

Communication with the Pacific.

We find in a late English Journal that the British government has granted \$100,000 per annum to the royal company of Atlantic steamers, for the establishment of a post route to the Pacific, across the Isthmus of Panama.

“Each month a steamer will depart from Panama for Valparaiso and Lima, touching at Guayaquill, Payta, Lambayique, Huanchaco, Cosmo, Callao, Pisco, Islay, Arica, Iquique, Cobija, Copiapa, Huasco and Coquimbo, arriving at Valparaiso the 24th or 25th of every month. The company at London have published the following notice: A steam packet will leave Southampton the 17th of every month, and, by the way of Jamaica, proceed to Chagres, where letters and passengers will arrive the 20th or 21st of the following month. The price of passage is, for a forward state room, \$250; for an after state room, \$300; this price includes everything except wines and liquors. At Chagres the vessel will stop for the discharge of passengers and letters destined to ports on the Pacific. On return, with passengers and mail, the steamers touch at Jamaica, Havana and the Bermudas. At Havana, the passengers from Chagres, who have paid \$80, find a steamer departing every month for New Orleans, and packets to New York. Mr. Perry, the English consul at Panama, is the agent of the company. The rate of freight for precious metals, monies or ingots, comprising all expenses across the isthmus, and to their delivery at the Bank of England, is $\frac{1}{4}$ per cent. For precious stones of all species, unwrought and paying no duty, the freight is $2\frac{1}{2}$ per cent. ad valorem, payable as before; on jewelry, subject to duty, and delivered at Southampton, the freight is $2\frac{1}{2}$ per cent.”

A Brilliant Whitewash.

As many of our readers may have occasion to make use of whitewash at times, we annex below a receipt from the Augusta Chronicle, for making it in such a way as will render it very durable, and difficult to rub off. If it is desired to *color* it, it is only necessary to add sufficient *dry* color, of such a tint as is wanted, when the wash is prepared, and it will be found to be an excellent and cheap composition for ordinary uses.

Take half a bushel of nice unslacked lime, slack it with boiling water, covering it during the process to keep in the steam. Strain the liquor through a fine sieve or strainer, and add to it a peck of clean salt, previously dissolved in warm water; three pounds of rice, ground to a thin paste, and stirred and boiled hot; half a pound of powdered Spanish whiting, and a pound of clean glue, which has been previously dissolved by first soaking it well, and then hanging it over a slow fire in a small kettle, within a larger one, filled with water. Add five gallons of water to the whole mixture, stir it well, and let it stand a few days covered from the dirt. It should be put on quite hot; for this pur-

pose it can be kept in a kettle on a portable furnace. It is said that about one pint of this mixture will cover a square yard upon the outside of a house if properly applied.—Brushes, more or less small, may be used according to the neatness of the job required. It retains its brilliancy for many years; there is nothing of the kind that will compare with it either for inside or outside walls.

OFFICE NEW YORK AND ERIE RAILROAD CO., }
45 Wall Street, New York, Aug. 28, 1846. }

NOTICE IS HEREBY GIVEN, THAT PRO-posals will be received until the 13th day of October next, for the Grading, Masonry and Bridging required to complete that portion of the New York and Erie Railroad between a point three miles east of Port Jervis in Orange county, and the village of Binghampton in Broome county, a distance of about 133 miles.

Maps and profiles, estimates and specifications, will be found after the 10th of September in the office of the company, at New York city, where every necessary information will be given. The engineers on the line of the road will also furnish all requisite facilities to contractors desirous of examining the route.

The line will be divided into sections of convenient length for construction, and proposals in writing will be received at the New York office for the whole or any part of the work. By order of the President and Directors.
6:36 T. S. BROWN, Chief Engineer.

ST. LAWRENCE AND ATLANTIC RAIL-road.—Notice to Contractors.—Proposals will be received at the office of the St. Lawrence and Atlantic Railroad Company, No. 18 Little James Street, in the City of Montreal, until the 24th of September next, for the Grading, Masonry and Bridging, of a division of the Road, extending from the St. Lawrence River to the Village of St. Hyacinthe, a distance of about 30 miles.

Plans, Profiles and Specifications will be exhibited, and the requisite information given at the Engineer's Rooms in the Company's Offices, at Montreal, on or after the 15th of said month.

Persons offering to contract for the work, or any part of it, will be required to accompany their proposals with satisfactory references.

By order of the Board,
THOMAS STEERS, Secretary.
Office of the St. Lawrence and Atlantic R. R. Co., }
3:36 Montreal, 25th August, 1846. }

NEW YORK AND ERIE RAILROAD CO. The stockholders of the New York and Erie Railroad Company are hereby notified that an instalment of Five Dollars per share on all shares on which the payments already made do not exceed 20 dollars, is required to be paid, (agreeable to the terms of subscription) at the office of the company, No. 45 Wall street, on or before the 1st day of October next. By order of the Board of Directors.
NATHANIEL MARSH, Sec'y.
New York, August 31st, 1846. 4:36

THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order; Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER, 17 Burling Slip.
1y10 New York.

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.
Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/4 x 1/2 inch Flat Punched Rails, 20 ft. long.
25 " 2 1/4 x 1/2 " Flange Iron Rails.
75 " 1 x 1/2 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures.
11 36tf

NO LOCOMOTIVE AND MARINE EN-gine Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture and for sale by

MORRIS TASKER & MORRIS,
War-house S. E. corner 3d and Walnut Sts., Phila-
delphia 1tf

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.
Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
a45 Paterson, N. J., or 60 Wall street, N. York.

Valuable Works on Engineering for Sale.

The following works, belonging to the late Wm. R. Casey, have been deposited at this office for sale. It will be seen that they comprise most of the standard books. The reports and non-enumerated pamphlets are however among the best part of the collection, as many of them are not to be found or purchased at any price. So desirable an opportunity seldom offers for securing an excellent set of professional works.

LIST OF ENGINEERING BOOKS BE-longing to W. R. Casey, deceased.

- 1.—The Civil Engineer and Architect's Journal, quarto, vols. 1, 2, 4, 5 and 6, and nos. 79 to 81, and 84 to 95—remaining numbers expected from Montreal, Canada.
- 2.—Railroad Journal, quarto, vols. 1, 2, 3; octavo, vols. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 and 17; octavo vols. 18, and loose nos. to date; being nearly a complete set.
- 3.—Reports and Documents, 6 or 7 octavo vols.
- 4.—Tredgold's Carpentry, quarto, with plates.
- 5.—Barlow on Strength and Stress of Timber, octavo, with plates.
- 6.—Turnbull on Iron, octavo.
- 7.—Nicholson's Masonry and Stone Cutting, octavo, with plates.
- 8.—Tredgold's Tracts on Hydraulics, octavo, with plates.
- 9.—Gregory's Mathematics for Practical Men, octavo, with plates.
- 10.—Wood on Railroads, octavo.
- 11.—Pambour on Locomotives, octavo, with plates, (Philadelphia edition.)
- 12.—Lecount on Railroads, octavo, with plates.
- 13.—Smeaton's Tracts, 1796, octavo, with plates.
- 14.—Seward's New London Bridge, octavo, with plates.
- 15.—Storror's Treatise on Water Works, duodecimo.
- 16.—Report on Atmospheric Railway, etc., quarto, with plates.
- 17.—Gallier's Price Book and Estimator, octavo.
- 18.—Public Works of Great Britain, folio, \$25.
- 19.—Weale's Bridges, new and valuable, \$23.

The above books will be sold by the single volume, if desired, and forwarded by express, or otherwise, as directed by the purchaser.

Please address E. HEDGE, Railroad Journal Office,
23 Chambers street, New York. 1y

PATENT INDESTRUCTIBLE WATER Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.
28tf J. BALL & CO.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- | | |
|--|-------------------------------------|
| James P. Allaire, | } New York. |
| Peter Cooper, | |
| Murdock, Leavitt & Co. | } Philadelphia, Pa. |
| J. Triplett & Son, Richmond, Va. | |
| J. R. Anderson, Tredegar Iron Works, Richmond, Va. | } Providence, R. I. |
| J. Patton, Jr. | |
| Colwell & Co. | } Waterbury, Con. |
| J. M. L. & W. H. Scovill, | |
| N. E. Screw Co. | } Newark, N. J. |
| Eagle Screw Co. | |
| William Parker, Supt. Bost. and Worc. R. R. | } Newark, N. J. |
| New Jersey Malleable Iron Co., | |
| Gardiner, Harrison & Co. | 25,000 to 30,000 made weekly. 35 1y |

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,
45 North Water St., Philadelphia,
or by their Agent, ROBT. NICHOLS,
79 Water St., New York.
28tf

RAILROAD SCALES.—THE ATTEN-tion of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT,
Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
Philadelphia, Pa.
1y25

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/4 to 6 inches in width, and of any thickness required; large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,
Albany Iron and Nail Works,
1y

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 63,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

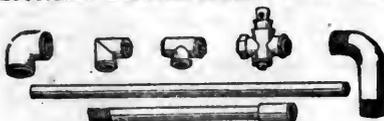
Blacksmith shop, 49 feet long by 20 feet wide For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ½ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by MORRIS, TASKER & MORRIS. Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER,

Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut, 1y10 near Third, Philadelphia.

THE SUBSCRIBERS, AGENTS FOR

the sale of Codorus, Glendon, Spring Mill and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L KIMBER, & CO., 59 North Wharves, Philadelphia, Pa.

Jan. 14, 1846. [1y4]

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP, 75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	Tons.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4½	13 5	10	24 -	50	15-16	20	
13	3½	8 3	8½	16 -	27	11-16	13½	
14	3½	6 11	7½	12 8	17	9-16	10½	
15	2½	5 2	6½	9 4	13½	1-2	7½	
16	2½	4 3	6	8 8	10½	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee G. A. NICOLLS, Reading, Pa. ja45

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.

This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

GEORGE VAIL & CO., SPEEDWELL IRON

Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions.

BALLARD'S NEWLY IMPROVED PATENT JACK SCREW.

The advantages of this Jack Screw for Stonequarries, Railroads, Steam Boiler Builders, and other purposes, are superior to any other machine.



The improvement consists in being able to use either end of the Screw, as occasion requires.

It is capable of raising the heaviest Locomotive with ease, being portable, strong and powerful, and not likely to get out of order.

Many Railroad Companies and Boiler makers have them in use, by whom they are highly recommended.

JACK SCREWS of various kinds, sizes, power and price, constantly on hand at the manufactory, No. 7 Eldridge St., 4135 near Division.

We the undersigned have used Ballard's Jack Screw on our Railroad and for other purposes, and we consider them superior to any other machine that we have had.

GEO. B. FISK, Prest. Long Island Railroad Co. TIMOTHY L. SMITH, Agent New Jersey Railroad Co. H. R. DUNHAM & CO., Locomotive and Steam Engine Builders. GEO. VAIL & CO., Speedwell Iron Works, Morristown, N. J.

LAP—WELDED WROUGHT IRON TUBES

FOR TUBULAR BOILERS, FROM 1 1-4 TO 6 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET. These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee. 28 Platt street, New York.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

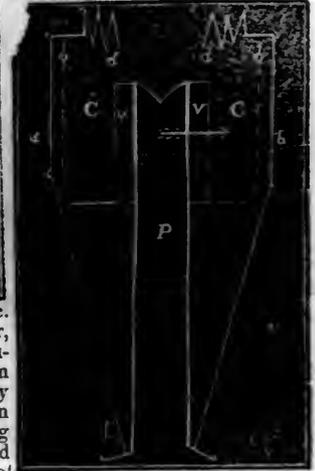
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Supt Hartford and New Haven Railroad; W. R. M'Kee, Supt Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Supt New Jersey Railroad Trans. Co.; J. Elliott, Supt Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Supt Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Supt Macon Railroad, Macon, Ga.; J. H. Cleveland, Supt Southern Railroad, Monroe, Mich.; M. F. Chittenden, Supt M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hineckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45



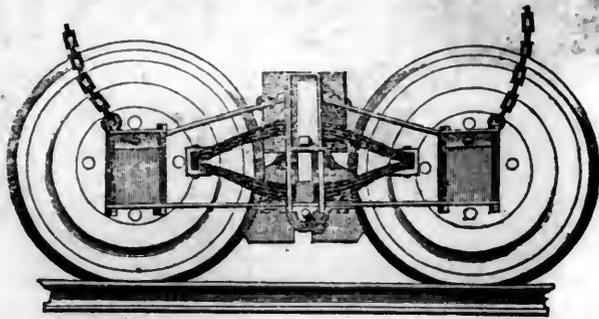
BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Benuy, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

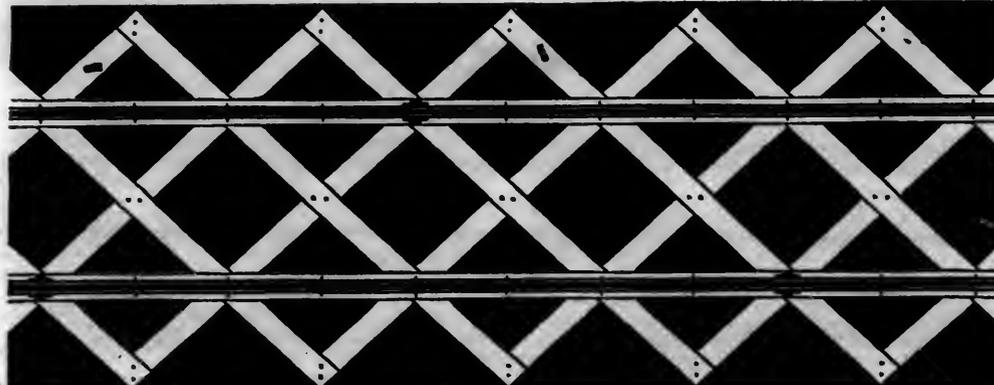
For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, }
Jamaica November 12, 1845. }

[Signed,] JOHN LEACH,

1719 Sup't Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

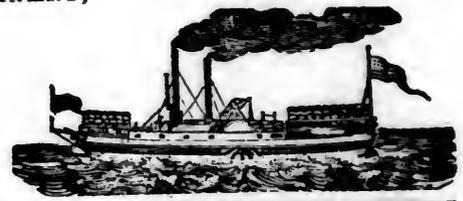
RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum...	5 00

- ENGINEERS and MACHINISTS.**
- THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)
 - J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
 - TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
 - ROGERS, KETCHUM AND GROSVENOR, Paterson, N. J. (See Adv.)
 - S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
 - NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
 - KITE'S Patent Safety Beam. (See Adv.)
 - FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
 - NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
 - ROSS WINANS, Baltimore, Md.
 - CYRUS ALGER & Co., South Boston Iron Company.
 - SETH ADAMS, Engineer, South Boston.
 - STILLMAN, ALLEN & Co., N. Y.
 - JAS. P. ALLAIRE, N. Y.
 - PHENIX FOUNDRY, N. Y.
 - ANDREW MENEELY, West Troy.
 - JOHN F. STARR, Philadelphia, Pa.
 - MERRICK & TOWNE, do.
 - HINCKLEY & DRURY, Boston.
 - C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.
SECOND QUARTO SERIES, VOL. II., No. 38.] SATURDAY, SEPTEMBER 19, 1846. [WHOLE No. 535, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3½ p.m.

All baggage at the risk of the owners thereof.

31 1y W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD AND STAGES connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars.

32 1y J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.
Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m.
Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m.

Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m.

Portland for Boston at 7½ a.m., and 3 p.m.
Great Falls for Boston at 6½ and 9 a.m., and 4½ p.m.

Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m.

Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, *Super't.*

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3 30, 4 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams Bridge trains will be regulated according to the state of the weather.

18

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A. M. and 4 P. M.
" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P. M.
" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, *Sup't.*

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 1f

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced, 1846. Spring Arrangement. 1846

Commencing April 1st. Passenger trains leave daily, Sundays excepted—

Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6½ " and 2½ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES,
Superintendent and Engineer.

Western Railroad Office,
Springfield, April 1, 1846. }

14 1y

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail—which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

TROY AND SARATOGA RAILROAD.
THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug. 3, 1846.

1y 32

THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00
" " Sandusky to Buffalo, Cabin..... 6 00
" " " " Steerage.... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.,] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, Sup't, etc.
M. & S. C. R. R. Co.

Sandusky, Ohio.

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,** Agents.

Corner of Cedar and Greenwich Sts. 48 1y

NEW RAILROAD ROUTE FROM Buffalo to Cincinnati.

Passengers destined for Columbus and Cincinnati,

O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance.....230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy Iron,] to Mansfield, distance..... 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

TIME.

From Buffalo to Sandusky..... 21 hours.
Leave Sandusky 5 a.m. to Columbus.... 14 "
From Columbus to Cincinnati..... 15 "

Or say, 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.

From Buffalo to Sandusky, Cabin.....\$6 00
" " " " Steerage..... 3 00
" Sandusky to Columbus..... 4 50
" " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Sup't, etc.
M. & S. C. R. R. Co.

Sandusky City, Ohio.

BALTIMORE AND OHIO RAILROAD.

MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7 1/2 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

80 RAILROAD IRON.

Tons 2 1/2 x 1/2 Flat Bar Railroad Iron.
50 " 1 1/2 x 1/2 " " "
8 " 2 1/2 x 1/2 " " "
15 " 1 x 1/2 " " "
with Spikes and Plates, for sale by
A. & G. RALSTON & CO.,
4 South Front st., Philadelphia:

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and

Afternoon Trains between Baltimore and York.—The Passenger

trains run daily, except Sunday, as follows:
Leaves Baltimore at.....9 a.m. and 3 1/2 p.m.
Arrives at.....9 a.m. and 6 1/2 p.m.
Leaves York at.....5 a.m. and 3 p.m.
Arrives at.....12 1/2 p.m. and 8 p.m.
Leaves York for Columbia at...1 1/2 p.m. and 8 a.m.
Leaves Columbia for York at...8 a.m. and 2 p.m.

FARE.

From York.....\$1 50
" Wrightsville..... 2 60
" Columbia..... 2 12 1/2

Way points in proportion.
PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg..... \$9
Or via Lancaster by railroad..... 10

Through tickets to Harrisburg or Gettysburg... 3
In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5 1/2 p.m.

Returning, leaves Owing's Mills at.....7 a.m.
D. C. H. BORDLEY, Sup't.

31 1y Ticket Office, 63 North st.

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

1y25 JOHN KING, Jr, Agent.

CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and

Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred.

On measurement goods..... 13 cts. per cubic ft.
On brls. wet (except molasses and oil).....\$1 50 per barrel.

On brls. dry (except lime)... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.

On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.
On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission.
THOMAS PURSE,
40 Gen'l. Sup't. Transportation.

MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

CENTRAL AND MACON AND WESTERN Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad 190
 Macon to Atlanta—Macon and Western 101
 Atlanta to Oothcaloga—Western and Atlantic.. 80
 Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20	pr. 100lbs. 35
Crockery, per cubic foot.....	0 15	" " 35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.
 Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846.

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.
 AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot.....	16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs.....	.95 "
" Sugar, coffee, iron, hardware, etc.....	.65 "
" Flour, bacon, mill machinery, grindstones, etc.....	.33½ "
" Molasses, per hogshead \$9.50; salt per bus.20 "	
" Ploughs and cornshellers, each.....	.75 "
Passengers \$10.50; children under 12 years of age half price.	

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON, Ch. Eng. and Gen. Agent. Augusta, Oct. 21 1845

BOILER IRON.—55 TONS ASSORTED Boiler Iron, Nos. 3, 4 and 5, and of widths of 26, 32 and 36 inches, random lengths, in store, and for sale by A. & G. RALSTON & CO., 1m30 4 South Front st., Philadelphia.

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT, Chief Engineer. Atlanta, Georgia, April 16th, 1846.

LITTLE MIAMI RAILROAD.—1846.— Summer Arrangement.

Two passenger trains daily.

On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1½ p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m.

On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m.

Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.

Tickets may be procured at the depot on East Front street.

The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount.

W. H. CLEMENT, Superintendent.

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston..... \$21 00
 " " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to STOCTON & FALLS, Agents.

MARAMEC IRON WORKS FOR SALE.

By Authority of a power of Attorney from Messrs. Massey and James, I will sell at Public Auction, at the Court House in the city of St. Louis, on MONDAY, the 2nd day of November next, the above named valuable IRON WORKS—together with 8,000 ACRES OF LAND, more or less, on which there are several valuable and productive Farms open and in cultivation.

The Maramec Iron Works are situated at the Maramec Big Spring, in Crawford Co., Mo., and consist of 1 BLAST FURNACE; 1 AIR FURNACE; 1 REFINING FORGE, with large Hammer for making Blooms and Anchovies;

2 CHEFFERY FORGES for Drawing Bar Iron; 1 ROLLING MILL for Rolling Blooms into Bars and Plates;

1 SAW AND 1 GRIST MILL,

All within 300 Yards of the head of the spring. There are 2 large frame Coal Houses, and all other Buildings necessary, such as Shops and Houses for the workmen.

This Spring is one of the largest in Missouri, discharging at the lowest time 7,000 cubic feet of water per minute. The Ore Bank from which the Ore has been heretofore taken is about 600 yards from the furnace; it is the Specular Iron Ore, the best for making Bar Iron, and the quantity inexhaustible.—It is an Iron Mountain, 400 feet above the level of the Maramec River; the ore is entirely uncovered, and there is an easy descent and a good road from it to the furnace.

The lands have been carefully selected by one of the owners with a view to the interest and convenience of the Works, and are situated principally on the Maramec River and its tributaries, embracing the best bottom lands and water powers. The following detached tracts, comprized in the above quantity, were selected for the advantages they possess;

183½ ACRES in T. 40 N. of R. 8 W. in Sec. 3, near Wherry's Mill, in Osage Co.; entered to secure a very valuable Mill power on the Branca Spring and a good landing on the Gasconade River.

80 ACRES on Benton's Creek, 12 miles from the Works; entered to secure an extensive and valuable Ore Bank 2½ miles from the Maramec, at a point where there is ample water power.

320 ACRES in T. 38 N. of R. 4 W. in Sec. 22 and 28, affording an extensive and valuable water power on the Maramec river.

160 ACRES in T. 37 N. of R. 3 W. in Sec. 4, embraces two inexhaustible and valuable Ore Banks and is 1½ miles from Water power sufficient for a furnace and Grist Mill, and is distant 6 miles from the above site on the Maramec.

80 ACRES in T. 37 N. of R. 8 W. in Sec. 33, including an extensive bank of excellent Ore, and distant 1½ miles from water power on the waters of the Gasconade River, in Pulaski Co., sufficient for Furnace and Mills. All those Banks are of the same kind as the one at the Works, and deemed inexhaustible.

1 LOT, containing nearly one Acre, on the South Bank of the Missouri River, 4 Miles above the town of Hermann, purchased for a warehouse and landing, and is one of the best landings on the River.

The lands above described are well timbered, and have been selected with a view to have an ample supply of wood and coal, for fences, building and other purposes. There are on the land valuable quarries of Limestone well adapted for Fluxes for the Ore, and also good quarries of Rock suitable for building. There are also on the land a great number of the finest kind of Springs. A large portion of the lands are bottoms well adapted to the production of Corn and other crops. The Works are situated in a very pleasant and healthful part of the country. The Maramec ore is believed to be admirably adapted to the manufacture of steel.

A further description of the property at this time is considered unnecessary, as those wishing to purchase will no doubt view the property, which will be shown by the Agent, residing at the works.

The terms of payment required will be one-third of the purchase money in hand and the balance in three equal annual payments, secured by mortgage on all the property.

A more particular description of the property will be given, and further conditions of the sale made known, on the day of sale.

JNO. F. ARMSTRONG, Agent. St. Louis, June 6, 1846.

The Louisville, (Ky.) Journal, Cincinnati Gazette, Tribune (Portsmouth, O.), Nashville Whig, Pittsburg Gazette, National Intelligencer, United States Gazette, (Phila.) Railroad Journal (N. Y.), and Boston Atlas, will publish the above once a week until the 20th day of October next, and send bills to this office for settlement, and mark price on first paper. 18c25

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.



RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited. S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open. JOHN BATAILLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat. RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards. (Signed), WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent, 138 1/2 Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C. 16 1/2

CUSHMAN'S COMPOUND IRON RAILS etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer, Albany, N. Y.

Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

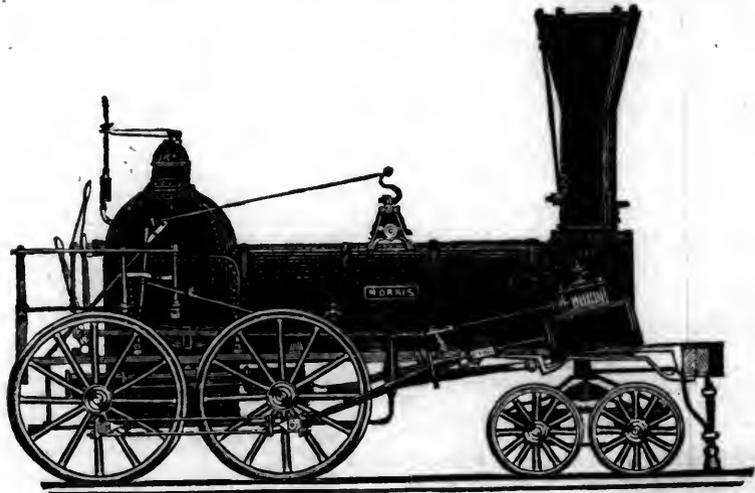
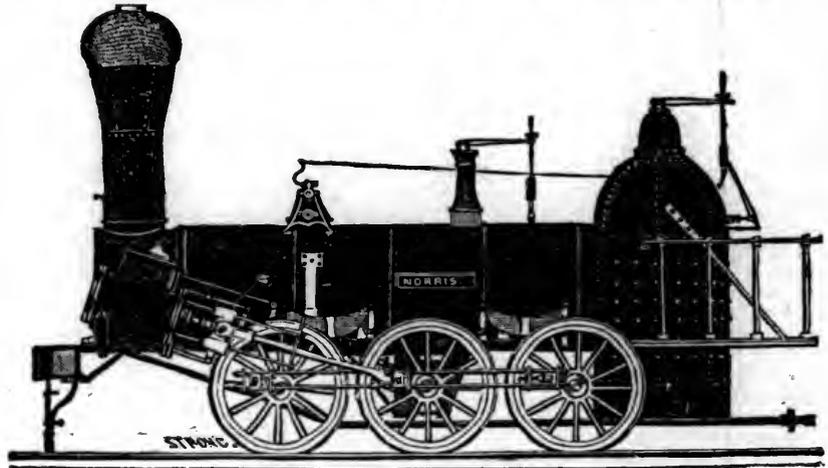
RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON Mar. 20th 4 South Front St., Philadelphia.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY, President of the Newcastle Manuf. Co.

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of	Cylinder,	× 20 inches	Stroke.
" 2,	14	"	"	× 24	"
" 3,	14 1/2	"	"	× 20	"
" 4,	12 1/2	"	"	× 20	"
" 5,	11 1/2	"	"	× 20	"
" 6,	10 1/2	"	"	× 18	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

Charleston and Wilmington Railroad.

In pursuance of the call of the mayor, a large meeting of the citizens of Charleston, of the Neck and the adjacent parishes was convened this day in the city hall, "to confer on the measures necessary to complete the connection by railway, between Charleston and Wilmington, N. C."

His honor the mayor was called to the chair, and William Blanding, Esq., appointed secretary.

The chair laid before the meeting the following address to the citizens of Charleston, from the committee appointed by the citizens of Georgetown, convened on the 6th of July last, in relation to this project: which was read and ordered to be printed:

Fellow Citizens of Charleston: The undersigned were appointed by a district meeting, held in Georgetown, on the 6th of July last, to address you on the subject of the construction of a railroad from your city to the North Carolina line, by the way of Georgetown.

Some years ago, at the instance of citizens of Georgetown, a charter was granted by the general assembly "to authorize the formation of the Charleston, Georgetown and All Saints railroad company," but the amount of subscriptions was not sufficient to secure the charter, and it lapsed.

The object of those whom we on this occasion represent is, to revive the charter just mentioned, and to solicit your co-operation in keeping it alive, and in constructing the proposed road.

We are satisfied that the proposed railroad would be highly advantageous to the interests of the district in which we reside; but are not less firmly persuaded that your city has the largest interest in securing the object designed.

As you have but few manufacturers among you, your city may be regarded as solely and essentially a place of commerce. And, from the depth of water at your bar, and from other causes you command, and must continue to command, the foreign commerce of South Carolina and of portions of North Carolina and of Georgia. How much more of that commerce you shall draw to yourselves, and how much of that of other sections, within a reasonable range, you shall constitute your city the chief emporium, must depend entirely upon your own exertions. Your commercial importance, you owe mainly, if not solely, to your depth of water, when we look only to what nature has done for you. Your water communications with the interior are of trifling moment. You must make your communications, or you are lost. Had you rested satisfied with your merely natural advantages, instead of participating in the animating contest for commercial superiority, sad, indeed, would have been your present condition. We rejoice that you did participate in that contest; and your present railroad, with its extensions, is honorable to your enterprize and commercial sagacity.

You have lost, in a great measure, your West India trade, and your direct trade with Europe. You have borne your full share of

the ills which have flowed in no stinted tide from the anti-commercial policy, which for the last 30 years, has been the bane and disgrace of legislation at Washington. But if you are alive to your own interests, and ready to make the proper efforts, you may recover that commercial importance, the decay of which has come partly from the operation of natural causes, and is partly to be imputed to the folly of federal legislation.

You have done a great deal already by extending your business connections even to the verge of the valley of the Mississippi, but you have not yet done enough to preserve your relative commercial importance in our confederacy of states. If Baltimore, New York or Boston, had rested in a state of supine inactivity in respect to their communications with the interior, is it to be for a moment supposed that they would at this day have attained their present high condition of prosperity? Surely not. The truth is, that those who have watched over the commercial interests of those cities, have seen the necessity of efforts, in order to secure the benefits that natural position may first have given to each particular locality. And those efforts have not been wanting. Witness the herculean task that Baltimore has assigned herself in extending her business connection with the west. The great canal and railroads all pointing towards New York. Those of Massachusetts, and the attempt of Boston to participate in the advantages, if not appropriate to herself the entire benefit of the great westerly highway of New York.

One great difficulty you have to contend with, is a want of variety in the objects of commerce. This has been a stumbling block in your way; and it is to be removed only by extending and multiplying your communications with the country, of which nature points you out as the commercial centre.—There is another consideration, too, which at this moment should have great weight in determining your future course of action in relation to the interests of your commerce. Among the very few acts of the federal government in reference to our commerce, which have not had a tendency to depress and to destroy it, is an act of the present session of congress, whereby the warehousing system is re-established. The advantages of this act will manifestly be lost to you, or greatly impaired, if you do not extend and multiply your commercial relations with the rest of the country. There can be no other means of availing yourselves fully of the benefits of its provisions.

The auguries of the day are in our favor. Great Britain, standing as she does, at the head of the commercial world, has set the example of free trade, and has thereby vindicated her claim as leader in the van of human civilization. That our government will have the wisdom to follow the glorious example thus set, we have no very sanguine expectation. But those who wait calmly for the great day, when the shackles shall be stricken from our commerce, and expect with folded arms that the direct trade by the southern passage shall be again poured into their

laps, resemble in their wisdom the clown who was waiting until the stream should flow by. Should the great day of commercial freedom ever dawn upon us, we trust that your city—our city, dear to our love for what she has been and is, and to our hopes for what she is to be—will receive a large share of its blessings; but we are persuaded that free trade alone cannot restore to her her former relative importance in the world of commerce.

We have thought it not impertinent to the objects of our appointment, to urge upon your consideration these few topics on the subject of your business connections generally. We now address ourselves more particularly to those which pertain to the special matter in hand. It has been found after many years' experience in the railroads of our southern country, that produce ministers mainly to their support. It has been further proved that produce gives rise to the transmission of merchandize, yielding a more valuable freight than the produce which purchases the merchandize sent back in exchange. And that railroads draw by an irresistible attraction to themselves, everything within an extended range.

The railroad we propose to you to aid us in constructing, will bring you into almost immediate contact with some of the finest and most productive districts of our state, and will give you completely the command of the trade of eastern North Carolina, it will expedite the transmission of your mail, and the transportation of travellers seeking your city or places further south. If it is constructed from any point within the parishes of Kingston or All Saints, co-terminus with North Carolina, there can be no doubt that our sister state will connect her railroad with it, and that therefore it will be but the completion of a system of railroads already in operation. If, through our culpable supineness, this link in the great chain of seaboard communication is left unforged, there can be little doubt that the North Carolina improvements will seek a connection higher up with the lines of railroad towards the southwest. That this course would operate disastrously upon our interests and those of your city, you must feel very well assured. You would suffer in your commerce, you would suffer in the ruin of your road below Branchville, you would suffer in lack of mail expedition, and in all of the numberless ramifications of your varied pursuits.

We conjure you, therefore, by all of the considerations that can have weight with a community like yours, to aid us with your voices for improvement, to aid us with your zeal, to aid us with your capital in accomplishing this work.

The tract of country through which we propose constructing this road, offers advantages unsurpassed on our continent for cheapness of construction. It is almost a dead level, abounding for the most part with timber for construction and repairs, and with fuel. And there is no lack of laborers on the line of the route, whose services could be secured at a very reasonable rate of wages.

In conclusion, we pray that you will at least favor our project so far as to take into serious consideration the few topics we have thus brought before you, out of the many that might be urged, and to unite your counsels with ours, for our common benefit.

For the committee,

JOHN IZARD MIDDLETON, *Chairman.*
Georgetown, August 10, 1846.

Col. Gadsden then offered the following resolutions, which he urged in a few pertinent remarks:

Resolved, That a committee of five be appointed to collect information, and to report at the adjourned meeting in October next on the expediency and practicability of a railway from Charleston to Wilmington, with an approximate estimate of the probable cost of the same, and that the said committee publish their report in the city papers as soon as it is prepared.

Resolved, That a committee of correspondence, to consist of ten individuals, be nominated, to confer with the authorities of Wilmington and the citizens of the counties of Dupin, Sampson, Wayne, Edgecombe, Nash, Halifax, Brunswick, Bladen and Columbus, North Carolina; and with the authorities of the districts and parishes in South Carolina; inviting them to send delegates to the adjourned meeting in October next—and to come prepared with an exhibit of the extent to which the inhabitants of those cities and sections of country are disposed and prepared to co-operate in the construction of a railway to connect the Wilmington and Roanoke with the South Carolina railroad at Charleston.

Resolved, That the same committee be requested to direct circulars to the president and directors of such railroads, as may be interested in the removal of the existing impediment to a continuous railway from the eastern extremity to the most southern section of the Union; and to invite them to name representatives to the meeting in October, and to co-operate by subscription to the aforesaid enterprise of common benefit to all.

Resolved, That a committee of five from each ward of the city of Charleston, ten from the neck, and three from each of the parishes of Christ Church, of St. John's, and of St. James', Santee, and the adjacent parishes be named, to appeal to the citizens within their respective precincts for such aid by subscription of stock or otherwise as will contribute to the work contemplated; and that the said committee be requested to report to the adjourned meeting in October next on the expediency and practicability of the city and commissioners of cross roads, in their corporate capacities, uniting in whole or in part in the construction of that portion of projected railroad as may run through the limits of the state of South Carolina.

Resolved, That a committee of twenty individuals from the city and neck be appointed to make appropriate arrangements for receiving and entertaining (as may comport with the ancient hospitality of Charleston) the delegates which may assemble at the meeting proposed on the 20th of October next,

Resolved, That this meeting stand adjourned to Tuesday, the 20th day of October next.

The resolutions were seconded by Wm. H. Trescot, Esq., and advocated by him and T. O. Ellicott, Esq., in a forcible manner.

Several modifications and amendments were proposed by Hon. Ker Boyce, Dr. Thomas G. Prioleau and Edward McCrady, Esq., which was severally concurred in.

The resolutions being put separately, were then adopted without a dissenting voice.

The appointment of the several committees created by the resolutions, was referred to the chair, and will be announced through the public prints.

The meeting then adjourned.

JOHN SCHNIERLE, *Mayor, Chairman.*
WM. BLANDING, *Secretary.*

Good News from Montreal.

Our copious extracts from the proceedings of the railroad meeting at Montreal on Saturday last, contain the interesting information that the company in Canada will go on *immediately*, with their part of the work. The great meeting in the *Camp de Mars*, and the special efforts that followed the resolutions of that assembly, were successful not only in adding largely to the subscriptions, but also in widening and deepening the feeling of interest in the work. The shareholders in resolving to go on, as far as their means will permit, appear to have been encouraged by the increased general favor, to believe that capital would be furnished for such a work, as fast as it should really be needed. In addition to this, they have facts on which to rest the conclusion, that the first sections of the road, will of themselves yield a remunerating return.—*Portland Advertiser.*

General Meeting of the Proprietors of the St. Lawrence and Atlantic Railway.—A general meeting of the proprietors, pursuant to public notice, was held in its rooms, in Little St. James' street, on Saturday afternoon. The meeting was numerous and highly respectably attended, and the proceedings were marked by unanimity.

The Hon. Geo. Moffatt was called to the chair, and briefly explained the cause and object of the meeting. It was called, in pursuance of notice signed by proprietors of one hundred and fifty shares, as defined by law, and its object was to decide whether the project should go on or be legally wound up. At the meeting in the *Camp de Mars*, it was agreed that means should be taken to inspire the town generally with a stronger interest in the fate of that undertaking than had yet been manifested. He need not remind them of the gratifying character of the assembly to which he referred. In addition to that great demonstration of public feeling, a more solid interest had been manifested by a subscription of upwards of 400 shares, as would appear from the report about to be read to them.—Every one seemed now sensible of the importance of the undertaking—important as enabling us to retain and improve our present position—important as giving employment, commerce and trade, and being the means of raising the public revenue—and important, as he had no doubt it would be,

to the shareholders as a profitable investment. As this was a special, not a general meeting, he apprehended that they must confine themselves solely to the matter for which they were called. Its decision would bind all the shareholders present or absent. He, himself, could not doubt what the decision would be—it would be that, though their means were not yet adequate to make the whole line, they must make a beginning, and afterwards find means to carry it on to the boundary.

The secretary then submitted the report of the directors, of which we extract all the material parts.

The board of directors of the St. Lawrence and Atlantic railroad company, beg leave to

REPORT,

That since the meeting of proprietors held on the 30th ultimo; 1,410 shares have been subscribed of the company's stock, conditionally on the work being immediately commenced. The directors have gratefully to acknowledge the strenuous assistance rendered to them by the committee appointed in the last meeting to secure additional subscriptions—and they are happy in stating their belief that the information thus conveyed to the public has produced a thorough conviction of the vital importance of a railroad, and of its decided claims to be regarded as a profitable investment for capital, independent of all other motives for its formation.

The present position of the company's subscription list is—3,964 shares held in Canada, 1,000 subscribed on account of future contracts for work on the road, about 650 subscribed in England, by the scripholders there, and 1,983 held by scripholders in Gt. Britain: giving a total of shares, 7,597.

Of this number, the directors regard as available for the immediate prosecution of the work—3,964 shares held in Canada, 650 shares subscribed in England, 750 shares of those subscribed on account of future contracts: making a total of 5,364 shares, or £268,200.

At the last meeting of the proprietors, the directors stated, that on the result of the appeal to the public, then suggested, being ascertained, they would be prepared to recommend either the immediate winding up of the undertaking, or its energetic prosecution.—And it is now their duty, in laying the foregoing statements of affairs before the proprietors, to give it as their decided opinion that it is expedient, at once, to enter upon the construction of a portion of the railroad, leaving it, however, to the proprietors to instruct them definitely thereon.

On this point the directors would remark that, independent of the English scripholders, they have ample means to construct from 50 to 60 miles of the railroad; that this portion of the road would, in their opinion, be productive in itself, and would enable the directors to obtain sufficient means to complete the work to Sherbrook, a point about 30 miles from the boundary line, and which, if once attained, the directors feel sufficient confidence in the now awakened feeling in Montreal and the adjoining districts, to believe that the additional amount required to com-

plete this great work will be eventually subscribed.

The directors beg leave to conclude their present report by reporting their recommendation, that, under the now favorable state of public opinion towards this great work, the proprietors should resolve to instruct them to proceed with the construction of the railroad, so far as their present means can be made available for the purpose.

All which is respectfully submitted,
G. MOFFATT, *President.*

Montreal, August 22, 1846.

Benjamin Hart, Esq., moved that the report be adopted; seconded by Major General Evans, and carried unanimously.

Samuel Gerrard, Esq., moved that "the proprietors learn, with much satisfaction, the more favorable position in which the affairs of the corporation now stand, and that, believing the interests of the proprietors will be best promoted by an immediate commencement of the railroad, the board of directors be, and they are hereby, authorized and instructed to put such portion of the work under contract as they may consider most expedient, completing the railroad to such point as the means at their disposal will permit."

G. Elder, Esq., seconded the motion. He thought the time for acting had come, and that for speaking had past, and that he trusted there would be no hesitation. If they confined themselves to intending to begin, they would never begin; let them start at once. Even without the English shareholders, they had now 5,500 shares taken; nearly half of the whole. As for the evils that would befall the city if the road was not made, that ground had been already sufficiently gone over. Let us all make up our minds to the work, and devote all our energies to it.

The motion was put, and carried unanimously.

After some remarks from the Hon. R. U. Harwood and other gentlemen, expressive of confidence in the undertaking, the meeting broke up.

American and European Railways.

The *Paris Constitutionnel* contains an interesting article upon the subject of railroads in America and Europe, which gives some statistics and particulars of importance to all who feel an interest in railroad matters. We publish the article below, and commend it to the especial attention of our readers:

At the close of the year 1845 there were 16,400 kiloms., (or nearly 9,900 miles) of railway open to passengers in Europe and the United States of America. The cost of their construction amounted to the sum of 3,937,000,000f., or £157,480,000 sterling. The expense of a kilo. (rather more than half a mile English) of railway may be consequently estimated at an average of 244,754f.; and if we calculate the amount of population in the two quarters of the globe just named at 234,000,000, we shall find that a capital of 19f. 55c. for each individual has been already expended towards railway construction. The capital however, laid out in constructing this distance of railway varies per each individual, according to the advancement which any particular country may have made in adopting

this mode of conveyance. In Belgium it may be stated at about 30f. 10c. each individual; in England, 74f. (£2 19s. 2d. sterling); in Holland, 10f. 85c.; in Germany 8f.; in the United States 49f. 57c.; in France 9f. 70c.; in Germany, Italy, Cuba, and Russia in Europe, where railways have as yet made no considerable advance, at an average of 3f. 76c. If we wish to arrive at the comparative cost of railway construction in different countries, estimating such cost per kilo., we shall find it to be in Belgium 261,000f.; in Great Britain 550,000f.; in Holland 240,000f.; in Germany 160,000f.; in the United States 113,000f.; in France 335,000f.; in Denmark 118,000f.; in Italy 200,000f.; in Cuba 190,000f.; and in Russia 280,000f. The following is a table showing the total expense of railway construction in the countries just named up to the close of the year 1845:

	Kilometres.	Francs.
Belgium.....	559	145,984,014
England.....	3,638	2,000,000,000
Holland.....	154	32,340,000
Germany.....	3,140	502,400,000
United States.....	7,500	846,075,000
France.....	986	330,000,000
Denmark.....	106	12,508,000
Italy.....	228	45,782,000
Cuba.....	37	7,030,000
Russia.....	52	14,560,000
Total.....	16,400	3,936,989,414

The improvements which have gradually taken place in the speed of locomotives since their first application to road travelling, have been very remarkable. In 1825 the first locomotives in England, with 40 tons power, travelled at the rate of only 10 kiloms. per hour (6 English miles.) So great was the improvement in a few years, that in 1829 the Rocket travelled at the speed of 25 kiloms. per hour, (15 English miles;) in 1834 the speed of the Firefly was 34 kiloms. (20 English miles;) in 1839 the North Star moved with a celerity of 62 kiloms. per hour, (37 English miles;) and at the present moment locomotives have arrived at a speed of 70 kiloms. (42 English miles.) During the same period, (since 1825,) the quantity of fuel required for the propulsion of locomotives was diminished 5-6ths, that is, 6 tons of coal were consumed formerly for one at the present moment. The mean speed upon several of the principal English lines is as follows: Upon the North Midland and Eastern Counties, 58 kiloms. per hour, (33 English miles;) upon the Great Western 53 kiloms. (31 English miles;) upon the London and Birmingham line, 43 kiloms. (25 English miles;) upon the Manchester and Leeds, 30 kiloms. (24½ English miles;) and upon that of the Birmingham and Gloucester, 38 kiloms. (24 English miles.) In taking a glance over the general European continent, we find that the development of the railway system in Italy has been exceedingly tardy; but a better state of things is about to intervene. If the states of the church and several of the second-rate principalities are excepted, all the remaining states of the Italian peninsula are now lending a hand to the works. The first lines undertaken on the other side of the Alps, and which are now open for traffic, are the Milan line and that of Naples. Various important projects have been recently set on foot, and,

as already observed, the work of improvement is proceeding with great activity. Three grand government lines are now being deliberated upon—the Genoese line, the Turin line, and the Lago Maggiore line. These will connect the metropolis of the Italian states with the sea, with Switzerland, and northern Italy generally. For communication with Lombardy it will be necessary to extend the Milan line above alluded to, as far as Tesin. It is also proposed to connect Savoy with Piedmont by tunnelling the base of the Alps immediately contiguous to the defile of Mont Cenis. A line from Turin to Chambéry is now under discussion, and, if carried into effect, will be one of the most astonishing works ever completed by the hand of man. Besides the government lines just alluded to, there are others of second-rate importance, which are immediately to be commenced. Petitions have been addressed to government, praying for the establishment of lines between Turin and Pignerol, between Turin and Sauaglio, and from Sasal to Valance.

A line from Turin to Milan, pursuing its course on the left bank of the Po, will be shortly proceeded with. In Lombardy the affairs of the line between Milan and Venice are going on rapidly. This line will have a sort of zigzag course, and will renew the ancient connection which subsisted between these districts of Italy. The second-rate lines of the Lombardo Venetian kingdom are those which proceed from Milan to Como, and the towns of Bergamo, Mantua, and Cremona.—Upon the completion of the various lines at present in progress in the interior, a communication or conjunction will be established between the Lombardo Venetian lines on the one hand, and those which will eventually be constructed in the provinces situate on the left bank of the Po; and on the other hand, with the German frontier, of which Trieste is the extreme point. The line from Trieste to Vienna will place Germany in direct communication with Italy; and it will be the interest of Austria to promote the carrying of this project into effect. Upon the right bank of the Po, a company at present solicits authority to construct at its own cost, a line from Ancona to Bologna, with the intention of continuing it as far as Modena and Parma. Unless opposed by the holy see, this project will be immediately commenced. In the event of its being carried into effect, the valley of the Po will be traversed by two great lines, of which one will terminate at Venice, the other at Ancona. In Tuscany the line from Leghorn to Florence is being rapidly proceeded with. It is already open from Leghorn as far as Pontadera. Two companies have obtained leave to commence lines from Lucca to Pisa, and from Sienna to Florence. The latter line is known under the designation of the "Tuscan Central." In the kingdom of Naples the lines from the capital to Castellamare and Capua are now open for traffic. The Capuan line will yet be extended to the frontiers of the states of the church and will ultimately become a portion of the line destined beyond a doubt, at no distant day to connect Rome and Naples.

Little Miami Road.

The receipts upon this road exhibit a very steady and prosperous increase of business—and the opening of the road to Springfield proves very advantageous to the line. We learn from the Cincinnati papers that the number of passengers upon this route since the opening of the Springfield extension, has been seventy-five per cent. additional already. The Cincinnati Gazette says:

"At present the freight train runs through but three times a week; but as produce is rapidly accumulating at all points on the road, a daily train of freight cars will be started on the 1st of September, to run through to Springfield; and as soon as a new locomotive can be finished, an extra train will be put on, to run as far as Todd's Fork, to accommodate the way business exclusively.—Three locomotives are building, two in this city by Mr. Harkness, and one at Patterson, N. J. Two passenger cars have also just been built at the east, and are daily expected; they combine all the improvements introduced on the eastern railroads.

"To show how this road is attracting business, in bringing down live stock, it may be mentioned that hogs are almost daily driven from Dayton to Xenia; at the latter place they are put on the freight cars at 5 a.m., and reach this city in season to be driven to the slaughter yards at Brighton the same evening—a distance of nearly seventy miles.

"The Mad river railroad is now open to Kingston, and by the 1st of November will be extended to Bellefontaine, thus reducing the distance to be travelled by stages from this city to lake Erie, to about thirty miles."

Miscellaneous Items.

At the annual meeting of the stockholders of the Hartford and New Haven railroad, the following gentlemen were chosen directors for the year ensuing, viz: Charles F. Pond, David Watkinson, Hartford; J. Boorman, E. Peck, C. Vanderbilt, New York; Ezra C. Reed, New Haven; J. S. Brooks, Meriden; F. R. Griffin, Guilford; C. W. Chapin, Springfield. At a subsequent meeting of the directors, Charles F. Pond was re-elected president; Jas. H. Wells, treasurer; and Horatio Fitch, secretary.

The Air Line Railroad.—We understand from good authority that on the first day of opening the subscription books to the stock of the New York and Boston railroad, the people of Middletown took shares to the amount of *three hundred and fifty thousand dollars!* and that they will go up to half a million. This is doing a brave business for a little city like Middletown—and shows that they are determined in the matter. Indeed there is little doubt of the early completion of this work, which must prove a valuable investment. The great amount of travel on the New Haven and Hartford road, shows what this projected road is to become, when travellers can go from New York to Boston, at a rate of 50 miles the hour—the direct route.—*New Haven Reg.*

Railroads in Carolina and Georgia.—The Macon Messenger gives the following statement of the railroads now in operation in these two states, viz:

Central railroad, from Savannah to Macon, 190 miles.

Macon and Western, from Macon to Atlanta, 101 miles.

State, or Atlantic and Western, 80 miles.
Georgia, from Augusta to Atlanta, 171 miles.
Athens branch, 40 miles.

Augusta to Charleston, 136 miles.
Branch road to Columbia, 58 miles.
Making a grand chain of communication of 776 miles.

Avalon Railroad Iron.—The Covington manufacturing co., at their Avalon works near this city, are now delivering, under their contract, the iron for the

Baltimore and Ohio railroad. The iron is made exclusively of the best quality of Baltimore charcoal pig iron. The fixtures by which it is manufactured are of the most approved description, and embrace several original improvements, by means of which nearly every bar is made perfect. These rails are of the U or bridge pattern, and their proportions are such as to combine great utility, with extreme beauty and symmetry. Altogether it is considered a most successful effort; and for the great exertions by which this result has been produced in a comparatively short period of time, the contracting company are entitled to much credit.—*Balt. Pat.*

Railroad Accident.—We understand that on Wednesday last, as an up freight train on the Central railroad was passing over Williamson's bridge, about sixty miles this side of Macon, the bridge gave way and precipitated several of the cars some ten to fifteen feet into the creek or ravine below. The train, our informant states, was very heavily laden with materials for the Macon and Western road. The front engine, and perhaps one or two cars had passed safely over, when the work gave way. We are glad to add, that no one was injured, and that the damage from breakage will not be as great as might have been anticipated. Our informant seems to think that the immense weight of the train was the sole cause of the accident—upon this however, we cannot speak advisedly, as we have no positive information further than that two locomotives were employed in its transportation. The passengers from the west were transferred to a freight car, which reached the city a few minutes before 3 o'clock yesterday morning.—*Savannah Repub.*

Another.—On Saturday, Aug. 22d, says the N. Y. Courier, the train on the Georgia railroad were thrown off the track about two miles above Montgomery, and precipitated down an embankment of some 15 feet deep. There were 10 or 15 passengers in the cars, not one of whom, strange to say, was seriously injured.

A Remarkable Mineral Spring.—It may not perhaps be generally known, even to our own citizens, that there is in the town of Riga, one mile east of Churchville, on the farm of Linus Pierson, a mineral spring, the gases from which are sufficiently combustible to burn as clear and brightly as a lamp, at all times of the day and night, and which is never exhausted. The spring is located near the bathing house on the farm, and a tube has been constructed leading from the spring to the rooms, by means of which the house is made sufficiently light without the use of lamps.

Some time ago the state geological surveyors paid this spring a visit and analyzed the gas, which was found to be composed of sulphureted and carbonated hydrogen. The water is strongly impregnated with iron.—*Rochester Daily Adv.*

Uses of the Telegraph.—The journeying correspondent of the Newark Daily Advertiser has the following statement upon the convenient uses of the magnetic telegraph:

An incident in our journey a few days ago serves to show the usefulness of the telegraph. A lady left a valuable article of dress in one of the cars for the west on leaving the railway at Utica for a trip to Trenton Falls.—

The cars were scarcely out of sight when it was missed. The fact was instantly communicated by the wires to the next depot, where the garment was taken from the car, and on our return from Trenton, the following day, it was found at the office in Utica.

The editor of the Buffalo Commercial Advertiser has seen a beautifully finished car from the manufactory of Messrs. J. Goold & Co., of Albany, designed for the Mansfield and Sandusky railroad, and which will be shipped on board the schooner *Merchant*, by Messrs. D. N. Barney & Co., with as little delay as possible. The seats, of which there are 26, are of mahogany, exquisitely finished with tempting looking cushions, and on each side of the car are conveniences for suspending hats, bonnets, umbrellas, etc.; a very great desideratum indeed to the travelling community.

Atlantic and Ohio Telegraph.—The directors have made choice of JOHN B. TREVOR, Esq., as treasurer of this company. The Philadelphia Sentinel learns from the president, Hugh Downing, Esq., that the line will be pushed forward with all possible speed to the Ohio river. Efforts are making to reach Cincinnati before January.

(Official) Reading Railroad.

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending—

	Sept. 7, 1844.	Sept. 7, 1845.	Sept. 6, 1846.
	\$17,118 39	\$28,327 42	\$46,549 13
Coal trans.—tons,	12,638	21,692	28,178

The amount of coal brought to market by this route, during the week ending the 10th instant, and since the first of January, has been as follows:

This week, 28,339—previously, 788,487—total, 816,327.

The Lehigh Coal Trade.—The following is a statement of the amount of coal sent to market by the Lehigh canal during the week ending the 8th inst., and since the opening of the navigation:

This week, 18,247—previously, 331,148—total, 349,396.

Erie Railroad.—The earnings of the eastern division of the Erie Railroad for the month of August, 1846, were as follows:

From freight.....\$10,545 53
Passengers and mail..... 6,141 23

Total..... 16,686 76
Same time last year..... 16,650 86

Increase..... \$35 90

Sale of the Railroad.—The Portsmouth and Roanoke railroad was put up at auction yesterday and bid off by the agent of the board of public works, in behalf of the state, for \$60,000. There were only two bids besides those of the state; one by the town of Portsmouth and one by a gentleman from the north desirous of purchasing for the iron rails.

Checking the Motion of Railway Cars.

I have a suggestion to make in reference to checking the motion of cars upon railways, which may be useful to railroad companies. It is this: provide each wheel with a box, or other convenient vessel, containing ten pounds of oil, in a semi-fluid state placed in such a position that the oil could be discharged upon each and all of the wheels at the same instant—the result would be that the wheels would revolve without moving the cars. The experiment is well worth trying, and I make this suggestion believing that the public may be benefited thereby.

E. MERIAM.

Brooklyn Heights, Sept. 15, 1846.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.

Saturday, September 19, 1846.

NEW YORK AND ERIE RAILROAD
Company Notice. The Stockholders of the New York and Erie Railroad Company are hereby notified, that the annual election for Directors of the company will be held at the office, No. 45 Wall st., in the city of New York, on Tuesday, the 15th day of October next, from 10 o'clock, A.M., to 3 o'clock, P.M.

The Transfer Books will be closed from the 22d of September until the day after the election.

By order of the Board of Directors,
NATHANIEL MARSH, Secretary.
New York, September 12, 1846. 4t38

An instrument was shown to us last Thursday, called a "Horizontal, Inclined Plane and Plumb Level," the invention of Mr. A. Gerard, of Mobile, Ala., for which he has obtained a patent. It appears to be a very useful instrument for architects, engineers, stone masons, and mechanics generally. It is composed of a rule or rod with a radius (furnished with two spirit levels) attached thereto by means of a hinge, and moving on a graduated quadrant.

When closed, the instrument forms a level, when opened at right angles it serves for plumbing—and any inclined plane or level may be formed by placing the radius or arm at the required angle. A chart for ascertaining angles and distances without calculation, accompanies it.

Hunt's Merchants Magazine for September, contains several articles upon the subject of railroads, which are worthy of the attention of the readers of that excellent periodical. One of these, that on the administration of railroads of Massachusetts, with reference to the rates of freight and fare, by E. H. Derby, Esq., deserves a few remarks at our hands.

The whole history of the low fare policy on the eastern roads is well developed and had it not been presented to our readers in all its detail we should copy a portion of Mr. Derby's paper, as being one of the best abstracts we have seen.

With Mr. Derby's implied comparison between himself as founder of the low fare policy, and the author of the custom house and postoffice reforms in Europe, we find fault, both as to the taste of the thing and as to the matter of fact that Mr. Derby is the author of the low fare system. That gentleman undoubtedly labored earnestly in the cause, but did not others do the same? It so happened that the issue between the two parties was joined in the case of the Western road, but the main substance of the arguments of the low fare party on this issue were no novelty—and the facts presented by them were collec-

ted by those who are not admitted to a seat in Mr. Derby's temple of fame.

Erie Railroad.

We learn from the N. Y. Express, that "the directors of this company are going on with it in the right way to accomplish the great object of the undertaking. The work on the road to the valley of the Delaware river is already contracted for, and a portion of it will be completed early this fall. Proposals for grading 133 miles more are advertised for which will carry the road to Binghamton—two hundred and twenty-five miles from New York. From Binghamton to lake Erie the work is more than half done. The citizens of New York may congratulate themselves that this important work, now freed from the embarrassments with which it has been surrounded for so many years, will be steadily prosecuted to its completion. In less than three years we hope to ride over it to lake Erie"—and we hope be of the party.

Central Michigan Road.

This road is offered for sale, in accordance with a resolution of the last legislature of Michigan. An invitation is especially directed to capitalists in the east to embrace the opportunity offered, and the time of sale is limited to the 28th of September. A correspondent of the Albany Argus, who has recently passed over the road, says that in eight months it has netted more than a hundred per cent. from last year, and that its condition will compare well with the railroad from Albany to Buffalo.

Wm. Gooding, engineer of the Illinois and Michigan canal, advertizes for 1,000 laborers, and 100 stone cutters, to whom good wages and constant employment will be given.

A letter from Sault St. Marie, published in the Montreal Herald states that the northern shore [British side] of lake Superior is as rich, if not richer, than the southern, in copper and silver ores. Four companies have been on the ground this season exploring and making their locations.

A late London paper says that the amount empowered to be raised by the railway acts, which received the royal assent to the 3d Aug. for new lines extensions, and enlargement of stations, etc., is estimated at one hundred and fifty millions sterling!

**Low Fares upon Railroads,
And the Camden and Amboy Railroad.**

Since the publication of our last number, we have devoted some time to the further examination of a pamphlet (which has been some time in hand) put forth by the "directors of the Camden and Amboy railroad company, to the people of New Jersey," etc., and, agreeably with our promise, we proceed to offer our opinion upon the subjects therein referred to.

After a careful perusal of the pamphlet in question, we have no hesitation in saying, that this publication is altogether *one-sided* in the opinions and arguments advanced, while the whole spirit of the "address" is simply a *sort of history* of the "Camden and Amboy railroad," and "Delaware and Raritan canal companies"—from 1830 to 1845-6—backed by some fallacious doctrine touching the subject of the opposition of those interested in these public highways, regarding the principle of low fares as applying especially to these routes.

The pamphlet alluded to commences by informing the public that "the subject of a canal, to unite the waters of the Delaware and Raritan rivers, had occupied the attention of the people of New Jersey for half a century"—and that, after legislating upon the

subject for some twenty-six years, a charter was granted in 1830 to the present "Delaware and Raritan canal company," who have accomplished the project. At "the same session of the legislature, a charter was also granted to a company, to make a railroad from Camden to Amboy"—and in the course of the next year (1831) "the two companies were united, by an act of the legislature, and were made one joint company."

The pamphlet then goes on to state at length the numerous difficulties which attended the establishment of this route—the embarrassments attaching to filling up the subscriptions for stock, and the varied ups and downs which followed upon getting them into operation—and the principal aim and energies of the managers of this "joint company" appear to have been, to establish the route upon what they are pleased to term the *protective principle*; which should give the exclusive right of way through New Jersey, and should secure to them, for a limited number of years, the monopoly of the travel across that state. After much of this "legislation" referred to, an act was obtained, and became a law, by a vote of 31 to 11 in the assembly, and 9 to 4 in the council, containing a provision (to use the words of the pamphlet) of the most *effective* protection against both canal and railroad competition." By the 17th section of this act, it was provided that "it should not be lawful for any person or persons, body politic or corporate whatsoever, to construct any canal or railway within ten miles of any point of the said canal or feeder, without the consent of the said company, and that it shall be the duty of the chancellor of the state, upon an application made therefor, by bill, in due form of law, by the said company, to issue his injunction to stay, and prevent the construction and erection of any such canal and railway." These were among the first acts passed by the state of New Jersey, in reference to canals or railways, in which the principle of *protection*, or as it is now termed, *monopoly*, was incorporated.

This "legislation" is declared by the directors, in the address before us, to have been "a wise policy," and they contend that without these salutary provisions "there would not have been, at this day, any costly canal or railway" in New Jersey! "This state determined," continues the address, "to have her public works made at private expense—securing at the same time, without any risk on her part, the largest contingent interest." New Jersey has thus realized "the revenue equal to the interest upon one million of dollars," from this joint company—and finally, through the exertions of private interest, the state secured "a magnificent canal, and a railroad across the state, without incurring the risk of a dollar in their construction, providing at an early day for their resumption by the state, if it should deem it advisable to do so, (which of course would depend upon their productiveness,) and meanwhile deriving from a transit duty on passengers and merchandize, passing over and through these works, a revenue far exceeding the ordinary expenses of the government of this state."

The address then goes on to "recapitulate" all the embarrassments—prospective losses!—"sacrifices," etc., etc., to which the getters-up of this route were subjected—and finally charges the "monopoly" of the matter upon the state of New Jersey in the following terms.

"In order to ascertain who are the monopolists, it will be only necessary to inquire who are the greatest gainers by the monopoly. And here we find no difficulty in coming to an immediate conclusion. The state of New Jersey, without ever having paid one dollar, has derived from her lessees and partners

in this monopoly, two thousand shares of stock, worth as before stated, nearly two hundred and fifty thousand dollars—has received in transit duties and dividends, up to the 1st day of January last, no less a sum into her treasury than five hundred and thirty-one thousand two hundred and thirteen dollars and four cents; and during the last year, fifty-nine thousand four hundred and ninety-seven dollars. Its receipts last year were equal to ONE-FIFTH of the net revenue of the works—the dividends paid during the year 1845 to the stockholders, twenty-eight thousand shares at nine dollars per share, amounted to two hundred and fifty-two thousand dollars, while the state received fifty-nine thousand four hundred and ninety-seven dollars, or nearly twenty per cent. of the whole amount."

In conclusion, it is stated that, "with honorable and patriotic purposes and motives," the originators and projectors of this route "embarked their fortunes, some of them their all, in the hazardous and arduous enterprise of constructing these great works which will descend to posterity as noble and imperishable monuments of the genius and wisdom of the age. They hoped, when their toils and hazards were ended, not merely to reap the ordinary and usual pecuniary reward of successful enterprise, but to receive the approbation of their fellow citizens."

In a memorial to the legislature, (at a subsequent period, and before the route had begun to pay well,) in which they propose to relinquish the affair to the state, they hold the following language. From this memorial we also make the last extract above. They say, notwithstanding all their efforts, and in spite of all their hopes, "they have been disappointed."

"The watchful, perhaps salutary spirit of the age which looked silently upon their long struggle for success, has discovered at the moment they had reached the goal, that in the grants, under which they had prosecuted and completed their labors, there were principles lurking, hostile to popular liberty, and the people's rights. They are branded as monopolists, followed by slander, and reproached with selfish and ambitious purposes. They have borne this injustice in silence, but they desire to be relieved from it; and they come to lay down at the feet of the legislature the grants they have received, with the results of their labors, asking only, what in justice to themselves they are bound to ask, the common recompense of honest industry and enterprise."

This proposition was not accepted by the state, and the company has since pursued the even tenor of its way.

The Camden and Amboy railroad and the Delaware and Raritan canal company were incorporated upon the same day, viz: the 4th of February, 1830. The laws and enactments referring to these incorporations, provide (among other less important matters) that "the treasurer of the company, upon oath, shall make quarterly returns of the number of passengers and the number of tons of goods, wares and merchandize transported upon the roads, to the treasurer of the state, and thereupon to pay the treasurer of the state, at the rate of ten cents for each and every passenger, and the sum of fifteen cents for each and every ton of merchandize so transported thereon. This imposes a rateable transit duty and was not payable till the completion of the road, and the company had nine years in which to complete the road."

"The nineteenth section of the act protects the company against the construction of any other canal within five miles of any point of the canal of the company."

"By the twenty-sixth section, the treasurer of the company is required, after the completion of the canal and feeder, to make quarterly returns of the number of passengers and tons of merchandize transported thereon across the state, to the treasurer of the state, and thereupon to pay to the treasurer of

the state, the sum of eight cents for each passenger, and each ton of merchandize so transported thereon, excepting the articles of coal, lumber, lime, wood, ashes, and similar low priced articles, for which two cents per ton shall be paid."

On the third of February, 1831, the legislature "passed a supplement to the canal charter, and by it extended the time mentioned in the 25th section of their charter, from thirty to fifty years, and prohibited the canal company, or any other person, from constructing any other railroad across the state, between the Delaware and Raritan rivers, within five miles of the canal, until after the time limited for the completion of the canal, which was eight years from the 4th of February, 1830. The extension of the time from thirty to fifty years was granted upon the express condition, that the canal should be constructed from the Delaware to the Raritan, seventy-five feet wide on the water line, and the water therein should be seven feet deep throughout, with locks to be at least one hundred feet in length, and twenty-feet in width in the clear. The canal has been finished, and is in operation."

We have thus given, at considerable length, all the main features which make up this address of the Camden and Amboy railroad company, to the people, from which it will be seen, (in the opinion of the committee in behalf of those interested,) that in the originating, progress and completion of this road and canal, an immense amount of money has been expended, a very natural consequence, we think, resulting from the construction of so important a work! That a vast deal of trouble attended the prosecution and consummation of the undertaking; that, commencing, as it did, in the early days of railroads and other great internal improvements, there was not that confidence in it, prospectively, which would have been desirable; that the managers have contrived, from time to time, to obtain such privileges in their charter, as gives them, for years to come, under existing circumstances, a monopolizing power, the results of which can scarcely be imagined, much less definitely calculated upon; that the monopolizing provisions in said charter are oppressive and excessively burthensome to the travelling community; that the said company are now reaping a golden harvest, notwithstanding all the troubles they have experienced; that they have, decidedly, the best end of the bargain; that they have, by no means, satisfied the public in regard to the main issue of the question between them and the travelling community; and, finally, that in spite of all, in this "address," of argument and sophistry—it does not reach the subject in which the people of New Jersey, as well as all others who travel over the route, are directly concerned, to wit: their exorbitant charge of fare established for passengers between New York and Philadelphia.

We have in this article, extended our remarks to a considerable length, in a preliminary manner, and shall, in another number, endeavor to show the reasons we have for believing this "address" deficient in all we have stated, and we shall also give our reasons why the fare upon this road can and ought to be at once reduced for "through passengers."

Concord Railroad.

We learn from the Boston Times that the special meeting of the Concord railroad corporation, holden in this town on Wednesday last, says the *Nashua Telegraph*, was very fully attended. The corporation voted about two to one not to construct the Souhegan railroad to Amherst. The motion to indefinitely postpone the whole subject prevailed—yeas 2219,

nays 4286. There was a long and warm discussion among the different interests connected with the Concord road, upon the proposition to subscribe for stock in the Portsmouth and Concord railroad. No decision was come to, and the meeting was adjourned to the first Tuesday in October.

Important Suggestion.

In a late number of the *Boston Transcript* the following suggestions are made in reference to accidents upon railroads, which should be noted, and considered by those having in charge the duties to which these recommendations refer. They are of serious import, and we trust they may be heeded.

"The late serious accident upon the Erie railroad, says the *Transcript*, demonstrates the necessity of having no four wheel cars in the train. Had the unfortunate car been an eight wheel car, the coming off of one wheel (which proved so disastrous,) would have been of no sort of consequence.

"Would it not be best for all the railroads all over the country, to make it an invariable rule to have no four wheel cars in the train? An eight wheel car goes much easier on the track, and makes a great saving in the repairs of the road. While on this subject, we beg leave to suggest the great importance of having invariably the baggage car between the tender and forward passenger car. Then in case of accident to the locomotive, or of its going off the track, the tender and the baggage car may be smashed, and yet all the passengers be entirely safe. The baggage car serves if thus placed, as a bulwark against the blow, whereas, if placed in the rear of the train, it operates as a trip hammer to smash the passengers, in case the train is suddenly arrested by an accident.

Locks on Railroads.

"They are beginning to use successfully dry locks on railroads in France, for the purpose of rising from one level to another.—They are said to be cheaper, safer and more easily kept in repair than inclined planes, and their introduction will save much expense in excavations and embankments for railroads. They are serviceable on roads engaged in transporting heavy freight trains."

The *Philadelphia Ledger* copies the above, and adds that the "principle is not new." Some years ago, "a gentleman exhibited in this city an invention for the purpose of overcoming mountains, in the matter of transportation on railroads. A part of his invention was the system of lockage referred to above, by means of which the cars were made to ascend or descend from one level to another with great ease."

Cape Cod Branch Railroad.

We find in the Boston papers an account of the meeting at Wareham, of the subscribers to the stock of this road, which took place last week for organization, and to consult upon the propriety of urging this work forward.

"The meeting, says the *Courier*, was fully attended, the act of incorporation was accepted, and the following gentlemen were chosen directors: Joshua B. Tobey, of Wareham, Thomas J. Coggs, of Taunton, Richard Borden, of Fall River, Clark Hoxie, Howard Perry, of Sandwich, Nahum Stetson, of Bridgewater, Philander Washburn, of Middleboro', Pardon G. Seabury, of New Bed-

ford, Southworth Shaw, Jr., of Boston. Mr. Rice, of the Tremont iron works company, stated that about one-half of the members of that company had subscribed an obligation to take as individuals, \$25,000 in the stock of the Cape Cod branch railroad, and with one exception, he thought all would. It was supposed at the meeting that all the stock would be taken, and the road be constructed forthwith."

Pennsylvania Railroad.

The commissioners of this road convened on Tuesday, Sept. 1, and although many of the friends of the road are just now from home, yet several hundred shares were subscribed for. It is expected, says the American Sentinel, that this undertaking will be subscribed for *liberally*. The commissioners adjourned to meet again in one week.

"We earnestly hope, adds the Sentinel, that this project will now seriously arrest the attention of our citizens. Two and a half millions are required to obtain the letters patent, of which nearly half is already subscribed; and when the company is organized, it is known that many are ready and willing to make contracts for work and materials, and to receive payment in the stock of the company. Subscriptions of this kind cannot be received by the commissioners. It will be a reflection on the enterprise and liberality of our citizens, if such a sum cannot be raised when the importance of the object is considered."

A Noble Act.

The Macon Messenger, of the 27th ult., gives the annexed account of a praiseworthy act, performed by a distinguished citizen of Georgia.

"We are informed," says the Macon Messenger, "that Judge Tarver, who lives in the lower part of Jefferson county, near the Central railroad, during the past spring, found that many of his poor neighbors were in a starving condition, in consequence of the short crops last year, and without the means of purchasing subsistence. He accordingly procured 1150 bushels of corn and 10 hogsheads of bacon from Savannah, which he distributed among them at moderate prices on a credit, to be paid for whenever they might be able. Such acts of generosity are worthy to be recorded in letters of gold, and we trust that the feelings of Judge Tarver have compensated him for this act.

"We might add, that this is one of the benefits derived from railroads. The Central road being able to lay down the provisions, at a very low rate, near the Judge's residence, when without it he could have obtained them only at a very great cost and much trouble."

The Copper Business.

We have viewed with interest the operations which are transpiring in the copper business—and from late accounts received from the lake country, and the copper regions generally, we are induced to make a few remarks relative to this very important branch of trade, which has recently engaged the attention of some of our largest and shrewdest capitalists. That there is a vast deal of valuable ore in our western and northwestern states, which in time, can and will be turned to good account, there is no question; that there is also a feeling and disposition in certain quarters to turn the matter to *speculative*

account, is also as true; and though there is and has been; for some months past, a disposition to traffic widely in the stocks of certain companies, which are not *all* they are said to be—we are nevertheless convinced that there is much *good* stock, and many *valuable* mines in our country which will prove highly profitable in due time to the stockholders and operators. We have gathered from a variety of sources the information which we annex below, and which will be found acceptable, we doubt not, to our readers generally, as showing, to a certain degree, the extent and advantages of some of the companies alluded to.

"Recent arrivals from the mineral regions, says a Detroit paper, brings us additional information of the mining prospects. The mines that are being worked continue rich, and large quantities of ore are constantly being shipped by several companies. The Boston and Lake Superior company has recently come upon a singular deposit in one of its shafts. It consists of small boulders of native copper, worn and polished in the shape of pebble stones on the sea shore. Eighteen hundred pounds of these small boulders have been taken out, and one large mass weighing 1,756 pounds. These came down on the Detroit last Monday. The Eagle Harbor and Pittsburg company are also shipping a large quantity of ores which are daily arriving here for the east.

"The Northwestern company of this city has discovered several exceedingly promising veins. Specimens taken from one vein sunk only four feet deep, are of the richest character, consisting of masses of native copper interspersed with native silver, and trap or vein rock well charged with native copper; these specimens are at Messrs. Coe & Coit's; this vein on its surface is four feet wide.

"Other locations are equally promising, but we have not heard the particulars. The most judicious of those who have just returned, seem very confident that the lake Superior region has mineral wealth beyond the fancy of the most sanguine men."

The Lake Superior News contains the following items:

"The Lake Superior copper company, up to the 1st of July last, had raised 1,028,000 pounds in rock containing native copper.

"The Pittsburg and Boston Copper Harbor mining company, to 1st of July, raised from lease No. 4 at this place, 78,000 pounds of black oxide, and 2,614,000 pounds from lease No. 5, (Cliff mine) of rock containing native copper.

"The Eagle Harbor mining company, the 16th of May last, had raised 168,000 of rock containing native copper.

"The Copper Falls company, to 1st July had raised 106,000 of rock containing native copper."

Large masses of nearly pure copper, not brought to the surface at the time, are not included in these statements.

The value of these ores we have not the information to enable us to state, but some of them we know were very rich.

A correspondent of the New York Evening Post, in an interesting letter, dated from Sault St. Marie, writes as follows:

"I have had a conversation with an intelligent geologist, who has just returned from an examination of the copper mines of lake Superior. In regard to the mines, he told me that the external tokens, the surface indications, as he called them, were more favorable than those of any copper mines in the world. They are still, however, mere surface indications, the veins had not been worked to that depth which was necessary to determine their value with any certainty. The mixture of silver with the copper he regarded as not giving any additional value to the mines, inasmuch as it is only occasional and rare. Sometimes, he told me, a mass of metal would be discovered of the size of a man's fist, or smaller, composed of copper and silver, both metals being closely united, and yet both perfectly pure and unalloyed with each other. The masses of virgin copper found in beds of gravel, are, however, the most remarkable feature of these mines. One of them which has been discovered this summer, but which has not been raised, is estimated to weigh twenty tons. I saw in the propeller Independence, by which this party from the copper mines was brought down to the Sault, one of these masses; weighing seventeen hundred and fifty pounds, with the appearance of having once been fluid with heat. It was so pure that it might have been cut in pieces by cold steel and stamped at once into coin."

The mining operations, at Portage lake, are progressing rapidly and successfully, and we learn from western papers that the prospect is very cheering in that vicinity. The ores are represented as being exceedingly rich, and are readily taken out in large quantities.

The Baltimore Clipper, in an article upon copper smelting, remarks that the Baltimore and Cuba mining and smelting company's copper factory, situated on the south side of the harbor of Baltimore, is now in successful operation. They have already turned out a large amount of very superior copper, which they offer for sale. This new enterprise promises to be a source of both wealth and employment to many of the citizens of Baltimore.

These statements and statistics go to show that the copper business must eventually become very important, and in a few years, if the anticipations of many operators are realized, large fortunes will be made by those interested in the copper lands and mines of this country.

The Great Pacific Railroad.

We now offer a few remarks upon the practicability of this project. In 1803, Mr. Jefferson then president, sent Captains Lewis and Clarke, with a party of soldiers, to explore the country from the Mississippi river, along the Missouri to the Pacific ocean.—Even then, Mr. Jefferson, with that foresight which enabled him to look far over the heads of his cotemporaries, to the immense importance of Louisiana to the Union, perceived, across this continent, up the Missouri and down the Columbia, the shortest avenue to the trade of China and India, that source of wealth which had successfully raised empires and for which the Caucasian race had been contending for more than three, perhaps for ten thousand years. Railroads were then

unknown. And had they never been invented, the avenue foreseen by Mr. Jefferson, and for whose exploration he sent the expedition commanded by Lewis and Clarke, would have been destined hereafter to this trade. But if the navigation of these rivers is to be superseded by railroads, and a more direct and permanently open route is thus to be obtained, the superiority of Mr. Jefferson over his opposing cotemporaries in statesman like foresight, is not the less conspicuous; and the explorations of Lewis and Clarke have been the basis of all subsequent examinations of the country between the Mississippi and the Pacific.

The route proposed by Mr. Whitney for his railroad, proceeds from lake Michigan, across the Mississippi above the mouth of the Wisconsin, thence across the Missouri above the mouth of the Great Platte, between the Council Bluffs and the Great Bend, a little below lat. 43, and thence to the Great South Pass, about lat. 42, 30, and thence along the valley of Lewis river, which is the southern main branch of the Columbia, to the head of ship navigation upon the latter, or to the bay of St. Francisco, as may hereafter be decided. Taking the Great South Pass as a point of departure eastward and westward, our first object is to ascertain the respective distances and elevations. According to Col. Fremont quoted in the report of Senator Breese, the elevation of the highest point in this Pass, above the gulf of Mexico, is 7,490 feet. Col. Fremont who explored the valley of the Great Platte, from its mouth to this Pass, in 1842, describes it as an open Prairie region, with an ascent almost or quite imperceptible by the traveller. He was accompanied by a Mr. Carson, who had resided in that region for 17 years, who had frequently crossed the Pass, and was thoroughly acquainted with the route. Yet with all his experience, he was obliged to watch very closely, to ascertain when he had reached the culminating point of the Pass through the Rocky mountains. The distance of the Great Pass to the mouth of the Kansas, is 963 miles, and from the mouth of the Platte 882, the latter being about 300 miles higher on the Missouri than the former; and as the mouth of the Kansas is 700 feet above the gulf of Mexico, and that of the Platte a trifle more, the average ascent from either point to the Pass, is only about 7 feet to the mile. And as the distance from lake Michigan to the Pass is 1,400 miles, and that between the lake and the mouth of the Kansas or Platte a level country, the average ascent from the lake to the Pass does not exceed $4\frac{1}{2}$ feet to the mile. According to Col. Fremont, the mouth of the Kansas is 700 feet above the gulf; the crossing of the Republican Fork 516 miles farther, is 2,300 feet, giving an ascent of $4\frac{1}{2}$ feet to the mile; the ascent of the next 128 miles is 1,000 feet, or about 8 to the mile; that of the next 107 miles, to St. Vrain's Fort, is 1,000 feet, or 9 to the mile; that of the next 80 is 1,300 feet or 16 to the mile; that of the next 18 miles is 800 feet, or about 42 to the mile; that of the next 87 miles is 200 feet, or $2\frac{1}{4}$ to the mile.

The distance from the Great Pass to the mouth of the Columbia, by the common travelling route is 1,400 miles, and to the head of its ship navigation about 1,230; and as the elevation of the Pass is 7,490 feet, the descent from this point to ship navigation gives an average of about 6 feet to the mile. From the Pass to a distance of 311 miles, the descent is 1,490 feet, or less than 5 to the mile. For 234 miles more, the route is level.—For 640 miles more, the surface is irregular and the next 178 miles end at an elevation of 3,000 feet; the descent from 6,000 to 3,000 feet, over a distance of 718 miles, giving an average of less than 3 feet, though that of the last 178 miles is 17 feet to the mile. From this point to the foot of the Blue mountains, 282 miles, the elevations and depressions give an average of $10\frac{1}{2}$ feet to the mile; and the remaining distance to fort Vancouver, the head of ship navigation 303 miles gives an average of $3\frac{1}{2}$ feet. All these elevations were taken by Col. Fremont, over the route usually travelled, though the committee suggest that future explorations will discover routes of less distances and ascents.

These facts show that in a distance of 2,630 miles, from lake Michigan to fort Vancouver, the elevation of the Great South Pass, 7,490 feet, and of the intermediate points, present no obstacles to a railroad.—*Phil. Ledger.*

St. Lawrence and Atlantic Railroad.

The Sherbrooke, [S. C.] Gazette of the 27th ult., has the following remarks in reference to the prospects of the St. Lawrence and Atlantic road.

"The news of the determination of the stockholders in the St. Lawrence and Atlantic railroad to go on with the work, was received in this town with the most lively feelings of satisfaction. It was announced early on Monday morning, that the event would be celebrated at noon by the firing of cannon, etc. Accordingly at 12 o'clock the stores and shops in town were closed, and some hundreds of our citizens assembled on Flag Staff hill to join in the demonstration. At the time appointed several blasts were fired at the site of the new grist mill, all the bells in town commenced ringing, when 21 rounds were fired from a cannon on a brow of the hill, over which the British flag was streaming in the wind, accompanied by the cheers of the multitude, and answered by a cannon managed by the boys on the north side of the Magog.

After the firing ceased, Col. Moore being called upon, observed that he had never met the people of Sherbrooke on a more pleasing occasion than the present. We might from this period date the prosperity not only of Sherbrooke, but of the eastern townships.—We have been laboring for six or eight years to obtain a railroad, but never until now, could we look upon its construction with any degree of certainty. But the time had now happily arrived, when the work was about to be commenced—and he would propose three cheers for the success of the St. Lawrence and Atlantic railroad. The sentiment was heartily responded to. He then proposed three cheers for A. T. Galt, Esq., to whose unwearied exertions we had been mainly in-

debted for the success of the undertaking.—This sentiment was also responded to with hearty good will. Three cheers was also given to the directors; and three cheers more for the queen, when the company separated, well pleased with the demonstration, and we doubt not the good news will be hailed throughout the townships with similar feelings."

Power of Enduring Heat.

We find the article which follows below, in one of our exchanges, credited to the "Philosophy of Magic." The experiments were very severe—but the oppressive weather we have had for the last ten days, has certainly given us "a taste" of what the parties must have realized!

"The female servant of a baker in Rochefoucault, clothed in flannel, was in the habit of entering her master's oven and remaining long enough to remove all the loaves; and Dr. Brewster informs us that the late Sir Francis Chantry's workmen entered the oven employed for drying the moulds, an iron apartment 14 feet long, 12 feet high, and 12 feet broad, the temperature of which with closed doors, was 350 degrees, and the iron floor red hot. They were guarded against the heat of the floor by wooden clogs, which were of course, charred on the surface. On one occasion; he adds, Mr. Chantry, accompanied by 5 or 6 of his friends, entered the furnace, and after remaining two minutes, they brought out a thermometer which stood at 320 degrees. Some of the party experienced sharp pains in the tips of their ears and in the septum of the nose, while others felt a pain in their eyes. These experiments prove the extraordinary heat which the living body can bear with impunity, and favor the possibility of persons passing uninjured through the flame, provided the body can be guarded from being scorched, by a non-conducting covering of an incombustible nature."

The Lake Country.

"In a few years the trade and commerce of the lake country will nearly equal the commerce of the Atlantic. At the present moment it exhibits evidence of gigantic increase. It is known that the first steamboat which reached Mackinaw was in 1819, and in 1826 steamboats navigated lake Michigan. In 1833 there were on the lakes, 11 steamers, which cost \$360,000, and which conveyed to and from the lake ports 61,485 passengers.—In 1834 there were 18 steamboats in the trade which cost \$600,000. In 1845 the following vessels navigated the lakes, above the falls of Niagara; steamboats 52, 27,500 tons; propellers 8, 2,500 tons; brigs 50, 11,000 tons; schooners 270, 42,000 tons. Total 280, 76,000 tons. The cost of the construction of these vessels was \$4,600,000.

"In the same year there were on lake Ontario 7 steamboats, 8 large propellers, and 100 brigs and schooners. The tonnage is estimated at 8,000. The navigation of the lakes is critical and requires great improvement in light houses, beacons, buoys, harbors, etc. During the last five years more than 400 lives have been lost, and last fall, during the boisterous weather, 60 lives were lost, 36 vessels driven ashore, 20 became total wrecks, 4 foundered, and the loss of property was es-

timated at \$200,000. In 1825, not less than 1,500,000 bbls. of flour passed over the lakes and 250,000 passengers. At the present time the commerce of the lakes may be fairly estimated at \$100,000,000 per annum. This is in the evidence of what that commerce will be hereafter, and how necessary it is for the government to foster and protect that trade in the improvement of the harbors and bays."

OFFICE NEW YORK AND ERIE RAILROAD CO.,
45 Wall Street, New York, Aug. 28, 1846.

NOTICE IS HEREBY GIVEN, THAT PROPOSALS will be received until the 13th day of October next, for the Grading, Masonry and Bridging required to complete that portion of the New York and Erie Railroad between a point three miles east of Port Jervis in Orange county, and the village of Binghamton in Broome county, a distance of about 133 miles.

Maps and profiles, estimates and specifications, will be found after the 10th of September in the office of the company, at New York city, where every necessary information will be given. The engineers on the line of the road will also furnish all requisite facilities to contractors desirous of examining the route.

The line will be divided into sections of convenient length for construction, and proposals in writing will be received at the New York office for the whole or any part of the work. By order of the President and Directors.

6:36 T. S. BROWN, Chief Engineer.

ST. LAWRENCE AND ATLANTIC RAILROAD.—Notice to Contractors.—Proposals will be received at the office of this St. Lawrence and Atlantic Railroad Company, No. 18 Little James Street, in the City of Montreal, until the 24th of September next, for the Grading, Masonry and Bridging, of a division of the Road, extending from the St. Lawrence River to the Village of St. Hyacinthe, a distance of about 30 miles.

Plans, Profiles and Specifications will be exhibited, and the requisite information given at the Engineer's Rooms in the Company's Offices, at Montreal, on or after the 15th of said month.

Persons offering to contract for the work, or any part of it, will be required to accompany their proposals with satisfactory references.

By order of the Board,

THOMAS STEERS, Secretary.

Office of the St. Lawrence and Atlantic R. R. Co.,
3:36 Montreal, 25th August, 1846.

NEW YORK AND ERIE RAILROAD CO. The stockholders of the New York and Erie Railroad Company are hereby notified that an installment of Five Dollars per share on all shares on which the payments already made do not exceed 20 dollars, is required to be paid, (agreeable to the terms of subscription) at the office of the company, No. 45 Wall street, on or before the 1st day of October next. By order of the Board of Directors.

NATHANIEL MARSH, Sec'y.
New York, August 31st, 1846. 4:36

THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER, 17 Burling Slip.
1y10 New York.

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/4 x 1/4 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/4 x 1/4 " Flange Iron Rails. 75 " 1 x 1/4 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 1t

TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 1tf

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.
Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
a45 Paterson, N. J., or 60 Wall street, N. York.

Valuable Works on Engineering for Sale.

The following works, belonging to the late Wm. R. Casey, have been deposited at this office for sale. It will be seen that they comprise most of the standard books. The reports and non-enumerated pamphlets are however among the best part of the collection, as many of them are not to be found or purchased at any price. So desirable an opportunity seldom offers for securing an excellent set of professional works.

LIST OF ENGINEERING BOOKS BELONGING TO W. R. CASEY, deceased.

- 1.—The Civil Engineer and Architect's Journal, quarto, vols. 1, 2, 4, 5 and 6, and nos. 79 to 81, and 84 to 95—remaining numbers expected from Montreal, Canada.
- 2.—Railroad Journal, quarto, vols. 1, 2, 3; octavo, vols. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 and 17; octavo vols. 18, and loose nos. to date; being nearly a complete set.
- 3.—Reports and Documents, 6 or 7 octavo vols.
- 4.—Tredgold's Carpentry, quarto, with plates.
- 5.—Barlow on Strength and Stress of Timber, octavo, with plates.
- 6.—Turnbull on Iron, octavo.
- 7.—Nicholson's Masonry and Stone Cutting, octavo, with plates.
- 8.—Tredgold's Tracts on Hydraulics, octavo, with plates.
- 9.—Gregory's Mathematics for Practical Men, octavo, with plates.
- 10.—Wood on Railroads, octavo.
- 11.—Pambour on Locomotives, octavo, with plates, (Philadelphia edition.)
- 12.—Lecount on Railroads, octavo, with plates.
- 13.—Smeaton's Tracts, 1796, octavo, with plates.
- 14.—Seward's New London Bridge, octavo, with plates.
- 15.—Storow's Treatise on Water Works, duodecimo.
- 16.—Report on Atmospheric Railway, etc., quarto, with plates.
- 17.—Gallier's Price Book and Estimator, octavo.
- 18.—Public Works of Great Britain, folio, \$25.
- 19.—Weale's Bridges, new and valuable, \$23.

The above books will be sold by the single volume, if desired, and forwarded by express, or otherwise, as directed by the purchaser.

Please address E. HEDGE, Railroad Journal Office,
36tf 23 Chambers street, New York.

PATENT INDESTRUCTIBLE WATER Pipes. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

J. BALL & CO. 23tf

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to James P. Allaire, Peter Cooper, Murdock, Leavirt & Co. } New York.

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J. Patton, Jr. } Philadelphia, Pa.
Colwell & Co. }

J. M. L. & W. H. Scovill, Waterbury, Con.
N. E. Screw Co. } Providence, R. I.
Eagle Screw Co. }

William Parker, Supt. Bost. and Worc. R. R.
New Jersey Malleable Iron Co., Newark, N. J.
Gardiner, Harrison & Co. Newark, N. J.
25,000 to 30,000 made weekly. 35 1y

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,
45 North Water St., Philadelphia,
or by their Agent, ROBT. NICHOLS,
23tf 79 Water St., New York.

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

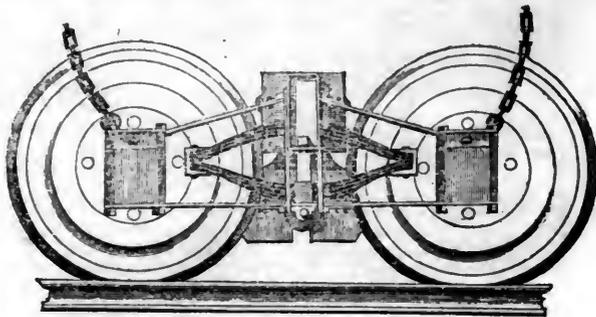
We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT,
Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
1y25 Philadelphia, Pa.

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,
1y Albany Iron and Nail Works,

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Supt Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

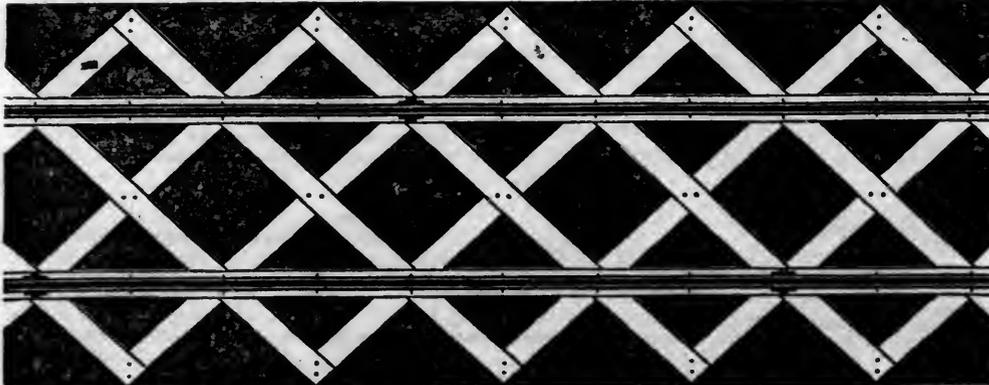
Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Supt Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for *Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount with said being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum...	5 00

- ENGINEERS and MACHINISTS.**
- THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)
 - J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
 - TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
 - ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
 - S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
 - NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
 - KITE'S Patent Safety Beam. (See Adv.)
 - FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
 - NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
 - ROSS WINANS, Baltimore, Md.
 - CYRUS ALGER & Co., South Boston Iron Company.
 - SETH ADAMS, Engineer, South Boston.
 - STILLMAN, ALLEN & Co., N. Y.
 - JAS. P. ALLAIRE, N. Y.
 - PHENIX FOUNDRY, N. Y.
 - ANDREW MENEELY, West Troy.
 - JOHN F. STARR, Philadelphia, Pa.
 - MERRICK & TOWNE, do.
 - HINCKLEY & DRURY, Boston.
 - C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

. Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

- R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

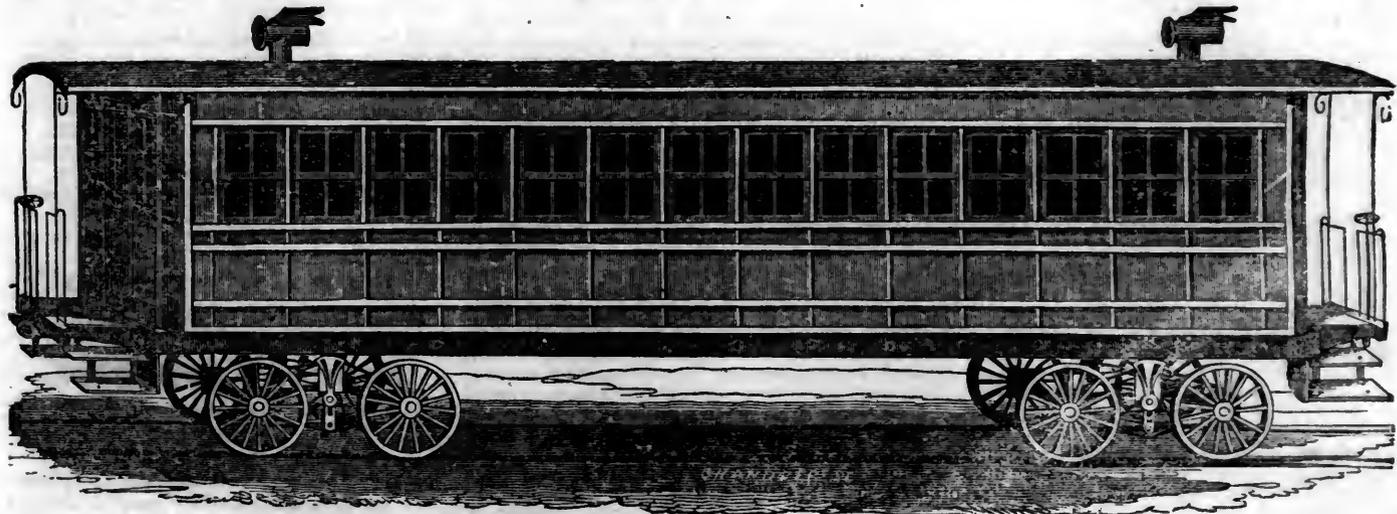
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

. The letters in the figures refer to the article given in the Journal of June, 1844. ja45



BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' CAR WORKS.



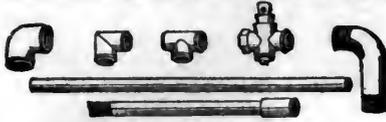
DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

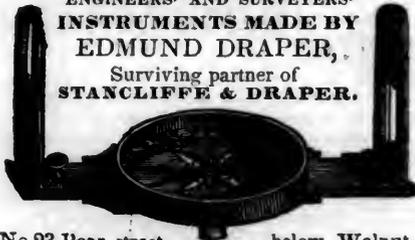
WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by **MORRIS, TASKER & MORRIS.** Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of **STANCLIFFE & DRAPER.**



No 23 Pear street, below Walnut, 1y10 near Third, Philadelphia.

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 feet two stories high, with a shed part 45x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—a lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS, 48 State st.,** or to **CURTIS, LEAVENS & CO., 106 State st., Boston,** or to **A. & G. RALSTON & Co., Philadelphia.** ja45

THE SUBSCRIBERS, AGENTS FOR the sale of Codorus, Glendon, Spring Mill and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L. KIMBER, & CO., 59 North Wharves, Philadelphia, Pa.

Jan. 14, 1846.

[1y4]

Philadelphia, Pa.

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.— for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP, 75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	Tons.	
11	4 1/2	13 5	10	24	50	15-16	20	
13	3 1/2	8 3	8 1/2	16	27	11-16	13 1/2	
14	3 1/2	6 11	7 1/2	12	17	9-16	10 1/2	
15	2 1/2	5 2	6 1/2	9	13 1/2	1-2	7 1/2	
16	2 1/2	4 3	6	8	10 1/2	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee **G. A. NICOLLS,** Reading, Pa. ja45

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper barrels, by **JOHN W. LAWRENCE,** 143 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective iron and Brass Castings of all descriptions.†



BALLARD'S NEWLY IMPROVED Patent Jack Screw.

The advantages of this Jack Screw for Stonequarries, Railroads, Steam Boiler Builders, and other purposes, are superior to any other machine.

The improvement consists in being able to use either end of the Screw, as occasion requires.

It is capable of raising the heaviest Locomotive with ease, being portable, strong and powerful, and not likely to get out of order.

Many Railroad Companies and Boiler makers have them in use, by whom they are highly recommended.

JACK SCREWS of various kinds, sizes, power and price, constantly on hand at the manufactory, **No. 7 Eldridge St.,** near Division. 4t35

We the undersigned have used Ballard's Jack Screw on our Railroad and for other purposes, and we consider them superior to any other machine that we have had.

GEO. B. FISK, Pres't. Long Island Railroad Co.
TIMOTHY L. SMITH, Agent New Jersey Railroad Co.
H. R. DUNHAM & CO., Locomotive and Steam Engine Builders.
GEO. VAIL & CO., Speedwell Iron Works, Morristown, N. J.

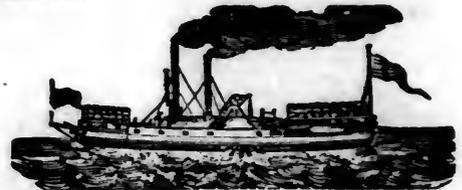
LAP—WELDED WROUGHT IRON TUBES FOR TUBULAR BOILERS, FROM 1 1/4 TO 6 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET. These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee. 28 Platt street, New York.

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 39.]

SATURDAY, SEPTEMBER 26, 1846.

[WHOLE No. 536, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD.

Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7-20 a.m. and 3½ p.m.

All baggage at the risk of the owners thereof. 31 ly W. RAYMOND LEE, Supt.

BRANCH RAILROAD and STAGES CONNECTING WITH THE BOSTON AND PROVIDENCE RAILROAD.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD.

Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. J W. STOWELL, Supt.

BOSTON AND MAINE RAILROAD.

Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted), as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.

Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m.

Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m.

Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1y31 CHAS. MINOT, Supt.

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4, 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams Bridge trains will be regulated according to the state of the weather. 1y18

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st

run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A. M. and 4 P. M.
" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED to \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P. M.
" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Supt.

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 1/2

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846.. Spring Arrangement.. 1846

Commencing April 1st.

Passenger trains leave daily, Sundays excepted—

Boston 7½ p. m. and 4 p. m. for Albany.

Albany 6½ " and 2½ " for Boston.

Springfield 7 " and 1 " for Albany.

Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES, Superintendent and Engineer.
Western Railroad Office, }
Springfield, April 1, 1846. } 14 1/2

CENTRAL AND MACON AND WESTERN RAILROADS, GA.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad	190	Miles.
Macon to Atlanta—Macon and Western	101	
Atlanta to Oothcaloga—Western and Atlantic	80	

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....\$0 50

Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	To Atlanta	To Oothcaloga
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20		0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20	pr. 100 lbs.	35
Crockery, per cubic foot.....	0 15	" "	35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00		12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25		1 50
Ploughs, (small,) and Wheelbarrows.....	0 80		1 05
Salt, per Liverpool Sack.....	0 70		0 95

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846.

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.
AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and the Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot.....	16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs.....	95 "
" Sugar, coffee, iron, hardware, etc.....	65 "
" Flour, bacon, mill machinery, grindstones, etc.....	33 1/2 "
" Molasses, per hogshead \$9.50; salt per bus.....	20 "
" Ploughs and cornshellers, each.....	75 "

Passengers \$10.50; children under 12 years of age half price.

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON, Ch. Eng. and Gen. Agent. Augusta, Oct. 21 1845 *44 1/2

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON Mar. 20th 4 South Front St., Philadelphia.

THE WESTERN AND ATLANTIC RAILROAD.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT, Chief Engineer. Atlanta, Georgia, April 16th, 1846. 1y1

LITTLE MIAMI RAILROAD.—1846.—Summer Arrangement.

Two passenger trains daily. On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1 1/2 p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m.

On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m. Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.

Tickets may be procured at the depot on East Front street. The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount. W. H. CLEMENT, Superintendent. 19

GREAT SOUTHERN MAIL LINE VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4 1/2 P.M., Philadelphia at 10 P.M., and Baltimore at 6 A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00
" " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to 1y14 STOCTON & FALLS, Agents.

MARAMEC IRON WORKS FOR SALE.

By Authority of a power of Attorney from Messrs. Massey and James, I will sell at Public Auction, at the Court House in the city of St. Louis, on MONDAY, the 2nd day of November next, the above named valuable IRON WORKS—together with 8,000 ACRES OF LAND, more or less, on which there are several valuable and productive Farms open and in cultivation.

The Maramec Iron Works are situated at the Maramec Big Spring, in Crawford Co., Mo., and consist of 1 BLAST FURNACE; 1 AIR FURNACE; 1 REFINING FORGE, with large Hammer for making Blooms and Anchovies; 2 CHEFFERY FORGES for Drawing Bar Iron; 1 ROLLING MILL for Rolling Blooms into Bars and Plates; 1 SAW AND 1 GRIST MILL, All within 300 Yards of the head of the spring. There are 2 large frame Coal Houses, and all other Buildings necessary, such as Shops and Houses for the workmen.

This Spring is one of the largest in Missouri, discharging at the lowest time 7,000 cubic feet of water per minute. The Ore Bank from which the Ore has been heretofore taken is about 600 yards from the furnace; it is the *Specular Iron Ore*, the best for making Bar Iron, and the quantity inexhaustible.—It is an Iron Mountain, 400 feet above the level of the Maramec River; the ore is entirely uncovered, and there is an easy descent and a good road from it to the furnace.

The lands have been carefully selected by one of the owners with a view to the interest and convenience of the Works, and are situated principally on the Maramec River and its tributaries, embracing the best bottom lands and water powers. The following detached tracts, comprized in the above quantity, were selected for the advantages they possess;

183 1/2 ACRES in T. 40 N. of R. 8 W. in Sec. 3, near Wherry's Mill, in Osage Co.; entered to secure a very valuable Mill power on the Branca Spring and a good landing on the Gasconade River.

80 ACRES on Benton's Creek, 12 miles from the Works; entered to secure an extensive and valuable Ore Bank 2 1/2 miles from the Maramec, at a point where there is ample water power.

320 ACRES in T. 38 N. of R. 4 W. in Sec. 22 and 28, affording an extensive and valuable water power on the Maramec river.

160 ACRES in T. 37 N. of R. 3 W. in Sec. 4, embraces two inexhaustible and valuable Ore Banks and is 1 1/2 miles from Water power sufficient for a furnace and Grist Mill, and is distant 6 miles from the above site on the Maramec.

80 ACRES in T. 37 N. of R. 8 W. in Sec. 33, including an extensive bank of excellent Ore, and distant 1 1/2 miles from water power on the waters of the Gasconade River, in Pulaski Co., sufficient for Furnace and Mills. All those Banks are of the same kind as the one at the Works, and deemed inexhaustible.

1 LOT, containing nearly one Acre, on the South Bank of the Missouri River, 4 Miles above the town of Hermann, purchased for a warehouse and landing, and is one of the best landings on the River.

The lands above described are well timbered, and have been selected with a view to have an ample supply of wood and coal, for fences, building and other purposes. There are on the land valuable quarries of Limestone well adapted for Fluxes for the Ore, and also good quarries of Rock suitable for building. There are also on the land a great number the finest kind of Springs. A large portion of the lands are bottoms well adapted to the production of Corn and other crops. The Works are situated in a very pleasant and healthful part of the country. The Maramec ore is believed to be admirably adapted to the manufacture of steel.

A further description of the property at this time is considered unnecessary, as those wishing to purchase will no doubt view the property, which will be shown by the Agent, residing at the works.

The terms of payment required will be one-third of the purchase money in hand and the balance in three equal annual payments, secured by mortgage on all the property.

A more particular description of the property will be given, and further conditions of the sale made known, on the day of sale.

JNO. F. ARMSTRONG, Agent. St. Louis, June 6, 1846.

The Louisville, (Ky.) Journal, Cincinnati Gazette, Tribune (Portsmouth, O.) Nashville Whig, Pittsburg Gazette, National Intelligencer, United States Gazette, (Phila.) Railroad Journal (N. Y.) and Boston Atlas, will publish the above once a week until the 20th day of October next, and send bills to this office for settlement, and mark price on first paper. 1825

TWO RAILROAD COMPANIES AND MANUFACTURERS OF RAILROAD MACHINERY. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE, 1245 N. E. cor. 12th and Market sts., Philad., Pa.



RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATTAILLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed,)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138 1/2 Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

16 11

CUSHMAN'S COMPOUND IRON RAILS etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

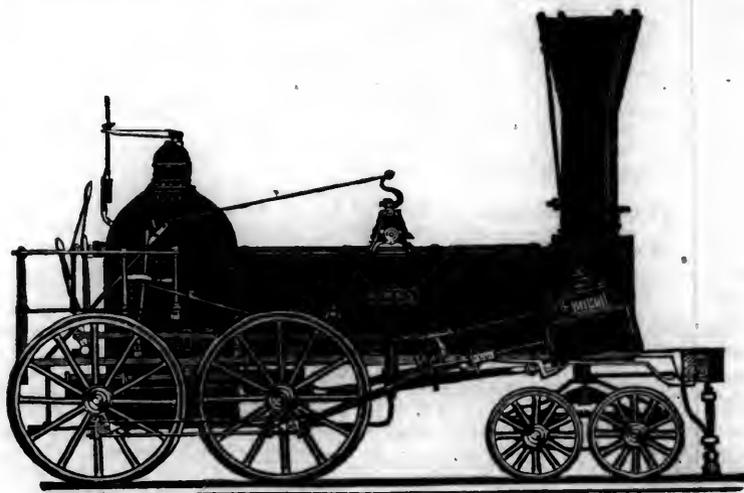
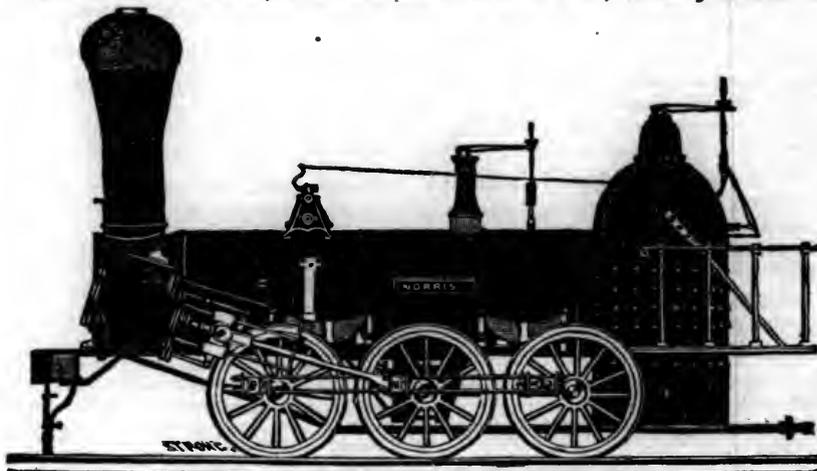
W. Mc. C. CUSHMAN, Civil Engineer,
Albany, N. Y.

Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Allaire, } New York.
 - Peter Cooper, }
 - Murdock, Leavitt & Co. }
 - J. Triplett & Son, Richmond, Va. }
 - J. R. Anderson, Tiedegar Iron Works, Richmond, Va. }
 - J. Patton, Jr. } Philadelphia, Pa.
 - Colwell & Co. }
 - J. M. L. & W. H. Scovill, Waterbury, Conn. }
 - N. E. Screw Co. } Providence, R. I.
 - Eagle Screw Co. }
 - William Parker, Supt. Bost. and Worc. R. R. }
 - New Jersey Malleable Iron Co., Newark, N. J. }
 - Gardiner, Harrison & Co. Newark, N. J. }
- 25,000 to 30,000 made weekly. 35 1y

NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of	Cylinder,	× 20 inches	Stroke.
" 2,	14	"	"	× 24	" "
" 3,	14 1/2	"	"	× 20	" "
" 4,	12 1/2	"	"	× 20	" "
" 5,	11 1/2	"	"	× 20	" "
" 6,	10 1/2	"	"	× 18	" "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

Railway Ethics:

Being a General Review of the Operations and Effects of Railway Enterprise on the Social System.—By P. Austin Nuttall, L. L. D., etc.

Railways appear destined to wield a mighty influence over all the important interests of society, and to produce, ere long, the most eventful changes in the entire aspect of the social system. Not only private individuals, but even sovereigns, nobles and public bodies, must ultimately bend to their universal sway and submit to their general arrangements. Neither the dicta of the law, nor military power, nor municipal privilege, will be able to resist their onward progress. The proceedings of courts of law and the movements of the army must alike be regulated by the operations of the railway system; and its power will eventually be everywhere acknowledged.

It was not long ago that a queen's counsel at the Chester civil court, applied to the learned judge, Mr. Justice Williams, to adjourn the court to a certain hour the next morning, on the plea that, as the railway trains did not arrive before that time, it would be a great convenience to the special jurors who were summoned for that day, and who, in consequence, were not likely to be in court before the hour named. To this application his lordship was obliged to defer, and for a very special reason, that he had no remedy, either in law or equity—neither the common nor the statute law, according to his lordship's view, presented any analogous case by which the evil could be obviated. In truth his lordship saw no alternative but that of making a virtue of necessity. He very pointedly observed, that the railways "had become the masters of almost all the trade and everything else in the country; and even her majesty had to submit to their arrangements. He supposed, therefore, as he was only one of her majesty's commissioners, no alternative remained for him but *quietly to strike and submit likewise.*"

It may be perfectly true that "the railways have become the masters of almost everything," and that judges of assize, as well as sovereigns "have no alternative but *quietly to strike and submit.*" But while the railway thus imperatively reduces "dominations and powers" to its sovereign will, the vast advantages therewith associated, infinitely more than counterbalance the imaginary inconveniences that may occasionally arise. Unlike the social despotisms of previous ages, it is calculated to confer innumerable benefits on the whole of the human race.

Thus, if railway transit has its advantages arising from the consequences of locomotive monopoly, the benefits, on the contrary, are of so transcendent a character that all rational men willingly submit to the partial evil for the sake of the general good conferred on the great masses of society. For its benefits are every day more and more developing themselves. It imparts a regularity and dispatch in the transaction of business, and in all the ordinary affairs of men, hitherto unknown in the history of any age or country.

Sovereigns or dynasties may be in danger—governments may vacillate—the law may be delayed or set at nought—armies may be retarded in their march—fleets may be delayed and the winds of the ocean may be adverse; but the railway trains can be rendered almost as certain as the diurnal motions of the earth, as undeviating as the annual recurrence of the seasons, and as sure as the everflowing tides of the circumfluent ocean. Hence the immeasurable advantages which may be expected to arise, not only as regards our own domestic intercommunity, but as affecting all the nations of the civilized world.

It has now become the fashion to consult the map of Great Britain or of Europe, not for the sake of ascertaining the direction or distances of roads, or of learning what vehicles run along them, but for the more important purpose of determining the course and situation of the railway lines—what is their length, to what towns they lead, what branches diverge from the main trunk, what are the times of departure and arrival of each train, and what is the expense of each class? A map of England, Scotland or Ireland, without a correct outline of all the railway lines, whether completed or in progress, would be utterly valueless; a mere chart of high roads being no longer of use to the traveller. Nor can this be confined to the British territories alone. We find that every continental map of any estimation is now published with complete representations of all the railway lines; and the old beaten roads, which formerly constituted so prominent a feature in geographical charts, are either altogether omitted, or considered of such secondary importance, as to be almost lost sight of.

France, Belgium, Germany, Holland, Prussia, Austria and Russia have already succeeded in carrying railway transit into active operation. It is now rapidly superseding all the local usages and antiquated modes of travelling; and thus one distant nation communicates with another with more ease and certainty than our ancestors, in "the good old times," could have visited a neighboring county, or travelled through any adjoining district to which they happened to be strangers.

In the course of a few years, France, which is devoting all her energies to railway enterprise, under the especial auspices of the sovereign, will have a complete system of railways radiating from Paris to every important point on the frontiers of the kingdom—to Calats, Boulogne, Dieppe, Havre and Cherbourg; to Brest, Nantes, Bordeaux and Bayonne; to Cette, Montpellier, Marseilles and Toulon; to the Belgian frontier, Switzerland and Piedmont; and, at the same time unite all the great emporia of the silk, cotton, woollen and other manufactures with the seaports and the capital.

Belgium, too, is already intersected with well-planned railways, to which her sovereign has devoted the most unremitting attention. They extend from the sea to the Prussian territories, and from the Dutch to the French frontiers. The German states are also vying with each other in constructing

great and important lines of railway, to which immense capital and labor have been applied.

Already, with the exception of very short intervals, the traveller may pass from Hamburg in the north, to Leipsig, Berlin, Breslau, Prussia and Saxony; and Austria, Bavaria, Wurtemberg and Baden, in the south, are constructing lines of great length and utility.

Thus the period will soon arrive when it will be possible to travel and transmit merchandise uninterruptedly, by railway, from Hamburg to Vienna and Trieste, from Ostend to Switzerland and Italy, and from the Rhine to the Elbe, the Oder and the Danube.

The times of departure and arrival of all the leading trains of France, Belgium and Germany are every day assuming a regularity and certainty of which no example exists in the ancient modes of continental travelling, which used to be proverbial for its dilatoriness and incertitude. The great difficulties which George the Fourth had to encounter during his progress through Germany (when the peasantry were frequently called upon to drag his carriage through the deep mud holes of the road,) are doubtless familiar to the reader, and present a curious contrast between the ancient and modern modes of travelling. Formerly, not even royalty could be exempt from difficulties and delays;—and at the present time not the humblest plebeian is subject to obstruction or annoyance, but at a moderate cost is enabled to travel not only from town to town, but from one country to another, with ease, certainty and dispatch.

When all these advantages are taken into consideration, it will be matter of little surprise, if we should find every class of society and every important interest becoming subservient to railway transit; for it is certain that eventually all the ancient modes of conveyance must be abolished, and as far as locomotive powers extend, the prince and the peer, the citizen and the peasant, will be reduced to the same level. With truth, then, might Judge Williams exclaim, that "the railways had become the masters of almost all the trade, and everything else in the country," and that even majesty itself "had to submit to their arrangements." Thus truly prophetic were the words of Mr. Thomas Gray, (whose early exertions in the cause of railways, above a quarter of a century ago, have been already noticed in these essays,) that "the system would extend over all countries," that "emperors, kings and governments would be its defenders," that "all distances would disappear," and that it would be "the mainspring of the civilization of the world!"

As predicted by Gray, and admitted by Mr. Justice Williams, the railway system is assuming an all-paramount importance in every department of political and social life, to which kings and governments must alike submit. In war, if such a calamity should unhappily supervene, it, with the astonishing powers of the electric telegraph, will form the most powerful instrument in repelling the invader by the rapid concentration of military force. In times of political convulsion

or national anarchy, popular outrage by the same means will be immediately suppressed. In the calm of peace and the reign of the social arts, which the railway system must necessarily tend to consolidate, it will form a more powerful agent in promoting the domestic trade of the country than even the most sanguine imagination could ever have contemplated. Wherever the railways penetrate a purely agricultural district, much as they were deprecated by the landed interest when in their infancy, they effect a complete revolution, not only in the mode of transit, but in the price of articles, and soon establish a certain and regular course of exchange between the agricultural and the mining and manufacturing productions of the respective districts; and this without regard to the distance which separates them—the question never being entertained as to distance, but simply whether there is a continuous railway line.

Formerly, where iron and coal were dear, grain and meat were cheap; or otherwise, where the minerals were cheap, agricultural produce was dear—those inconvenient results arising from the want of markets, or from the absence of means for effecting a ready exchange of the surplus commodities of one district for those of another. When the Bristol and Exeter railway penetrated Devonshire it opened to the farmers all the markets of the town population up to London; and the price of butter, poultry, eggs and vegetables immediately rose in the Exeter market. The farmers and peasantry, in return, could buy coal (as well as many foreign products which they never before enjoyed) at a considerably reduced price; while the demand for wooden faggots, which (in the absence of coal) were previously an article in great demand, almost entirely ceased. In the evidence before the gauge commissioners, it was stated by Capt. Laws, that from 12 to 14 tons of cucumbers arrived at Manchester in one day from the neighborhood of Rugby alone—thus affording a great source of profit to a poor rural district, from the disposal of an article which from its great abundance in that district, would have been comparatively valueless without the means of that cheap and rapid conveyance which railway transit presents. At the present time there are vast quantities, amounting to many tons, of salmon, soles, cod, lobsters and other fish, sent daily by railway from the London markets to the different inland towns and districts, which formerly never had the opportunity of enjoying these luxuries, because the time consumed in their conveyance by coach or wagon would have rendered them useless before they arrived at their destination.

If such be the advantages resulting from the facilities of domestic interchange, how much greater must they be when the railway communication extends to all the neighboring countries of Europe, and affords us the means of exchanging the products of our native industry for those of the most distant soils? The same benefits which are afforded to internal or domestic traffic will necessarily be extended to foreign commerce; and considering the amazing facilities of inter-

course on the continent, which the various lines will afford, can we arrive at any other conclusion than that they are calculated not only to promote the physical comforts and enjoyments of all the great human family, but ultimately to insure the highest state of social felicity to which a people can attain, by constantly supplying the means of rapid intercommunication; and thus, by stimulating the intercourse of nations, to knit together the race of beings who occupy the most distant portions of the globe, by the kindest bonds of reciprocal benevolence?—*Railway Record.*

Foreign Items.

Leslie's Improved Gas Burner.—A patent has been secured by Mr. Leslie, of Conduct street, for an improved gas burner; it consists of a hollow circular ring, with an arm, by which it is screwed to the supply pipe; instead of the combustion of the gas taking place at small orifices around the upper surface of this ring, there arises from it a number of small tubes, curving inwards as they ascend, and the tops approaching very near each other in a circle; the whole forming the figure of a sugar loaf, denuded of its apex, a glass chimney covering the whole in the usual way. By this arrangement every single jet is completely surrounded with atmospheric air, and a free current is secured, between the tubes and through the centre of the flame, for each jet when alight joins the others—forming a circular hollow flame of great brilliancy; the tubes may be of metal, glass or porcelain.

Ventilation in Smithies and Foundries.—**SIR:** Having visited a certain locality, I went to the church yard to see the average ages on the tombstones of the poor, which being here composed of slate, seldom last 50 years, and often only 10 or 20. It is, however, astonishing to notice how small a number of working men reach the average of other, and more healthy districts of the kingdom. I met a man, a smith, and asked him whether there were many old men about? His answer was, "How should-a-be, wi so much hard work, in smoke and bad air?" Passing by the smithy, with 10 or 12 forges and furnaces at work, the smoke issuing from the door and windows, I saw some men trying to catch a breath of air at the former, and others gasping at the latter. Is it not a disgrace to the wealthy proprietors of these large establishments, that some means of ventilation is not adopted, which would secure at least a sufficient current of pure air for breathing, and not leave the men to be thus suffocated by degrees, and brought to a lingering death, in these abodes of disease and gloom?—**A. T. J. MARTIN, Penzance, July 30.**

A Warning.—A heavy warning to engineers not to undertake works which they cannot fairly accomplish, has been administered by the law this week. Mr. Giles, the engineer, has been assessed in a penalty of not less than £4500 for the imperfections of his plans of the Dudley, Madeley and Ironbridge.

Medicinal Use of Oil in Copper Works.—**SIR:** Some years ago, a Mr. Hugh Edwards the manager of some copper smelting works

formerly existing at Hayle Copperhouse, used to distribute to the men on the works a small quantity of oil each, to counteract the effects of the arsenic, or other metallic poisons, evolved during the process of smelting, etc. Probably some of your readers can and will supply some useful information on this head, especially as it is written, "At the hand of every man's brother will I require the life of man."—**A. T. J. MARTIN, Penzance, Aug. 1.**

Orsi's Railway Blocks and Sleepers.—A patent has been secured for a peculiar form of fastening the chairs to the sleepers for railways, by which the inventor, (Mr. Orsi, of Pimlico,) proposes to obtain a fixity of gauge, give a solid and rigid support to the rails, and preserve the metal from the corrosive effects of the atmosphere. To effect these results, the chairs are cast with ears or lugs on the bottom surface, and an iron tension rod passing through them, across the line, they are rivetted thereto at the proper distance of gauge. The chairs and rods thus fixed, are then placed in a trough; and a liquid cement, such as asphalt or other bituminous substance, is poured over, and when cold, forms a complete coating of the bars and ears, preserving them from the atmosphere or wet. He claims, also, for imbedding blocks of wood in the cement, traced by transverse tension rods for ordinary chairs to be fixed by bolts and nuts.

The Stupendous Tunnel Bridge on the Holyhead Railway.—At the usual half-yearly meeting of proprietors, held at the office, on Wednesday last, the following report was read, which is of importance, as giving detailed particulars respecting the intended bridge over the Menai straits:

In the last report on the contract works, I particularly called your attention to the subject of the Britannia bridge, over the Menai straits, and to the experimental investigation which Mr. Fairbairn and Mr. Hodgkinson had undertaken, at my request, with the view of satisfactorily determining every dimension of the tubular part of the bridge.

Since that period, Mr. Hodgkinson has made several experiments, the results of which he has communicated to me verbally, and, though I am not able to submit them to you in a reduced form, I may state that I conceive them highly satisfactory, and confirmatory of those principles which led to the tubular construction of the bridge.

In addition to these experiments, Mr. Fairbairn has, with your sanction, constructed a model tube one-sixth of the actual span, having all the dimensions in due proportion.

In such a model we should, of course, expect to have a very accurate exhibition of the merits or demerits of the tubular system.

It will be in your recollection, that the preliminary experiments led to the conclusion that great care would be required to prevent the upper side of the tube from crushing; that, in short, the main object to be aimed at, was to give the top of the tube the requisite stiffness. In this respect the results obtained from the model tube have been highly satisfactory; and being upon so large a scale, may be deemed perfectly conclusive upon se-

veral very important points. The dimensions of the tube were as follows:

- Length, 75 feet between the supports,
- Depth, 4 feet 6 inches; and
- Width, 2 feet 6 inches,

with the upper side constructed in compartments. Total weight a little above 5 tons.

Thickness of the plates in the top, 1/46 in., (about one-seventh of an inch.)

Thickness of the plates in the bottom, 1/79 in., (about one-sixth of an inch.)

Thickness of the plates at the sides, 1 in., (about one-tenth of an inch.)

When progressively loaded, the mean deflection was about one-tenth of an inch per ton; and with a load of 35 tons suspended in the middle, it gave way on the underside; the upper part not having exhibited the least sign of failure up to the moment of fracture.

Hence, therefore, we have arrived at a most interesting result, viz: that the liability of the plates on the upper side to crush, has been completely removed by the construction in compartments.

The experiments having now furnished us with the necessary means of calculating the relative thicknesses and proportions of the several parts of the tubes, we are now in a condition to contract at once for their construction. For this purpose, I recommend that they should be apportioned among half-a-dozen of the principal iron ship builders, or boiler makers, who shall undertake to deliver the same, completed in lengths, upon the works adjoining the place of erection; when the several portions forming each tube will be connected together, and the tubes fixed in their places.

In the meantime the masonry of the bridge, the erection of workshops, the manufacture of plates, and every other necessary preparation, are in a state of progress.

Railway Calls.—Calls to the extent of £800,000, for carrying on the works of different railways, have been announced as payable between the 1st and 18th of the present month.—*London Mining Journal, Aug. 8.*

Newcastle and Darlington Railway Co. Directors' Report to the Half-yearly Meeting, July 27, 1846. (Length of Road, 23 miles.)

The directors have the satisfaction to present to the proprietors the usual statement of their accounts for the half-year ending the 30th day of June last, showing a balance in favor of the company upon the revenue account of £47,759 3s. 1d.

The directors recommend that a dividend be declared upon the whole of the paid up capital at the rate of 9 per cent. per annum, after the payment of which a surplus of £2,955 3s. 11d. will remain to the credit of the company.

The directors add the usual cash statements and also the following details of the traffic for the last half-year, viz: passengers, 1st class, 51,098; 2d class, 293,070; 3d class, 166,715; government ditto, 20,591; total, 531,474. Coal and coke, 358,184 tons: lime and stone, 8,060; goods, 51,439; total, 417,683. Horses, 687; carriages, 241; dogs,

326; cattle, 10,146; sheep, 8,087; pigs, 2,526.

Capital account from December 31, 1845, to June, 30, 1846.

DEBTOR.	
Amount expended to Dec., 1845.	£1,272,030 18 1
Further charges in the half-year, ending June 30, 1846, viz:	
Parliamentary expenses.....	522 12 2
Engineering and surveying.....	300 0 0
Land and conveyance.....	593 14 6
Works of roads, stations, warehouses, etc.....	12,079 16 6
Sleepers.....	43 2 6
Advertising and printing.....	554 10 0
Miscellaneous disbursements.....	879 1 6
Branding Junction.....	14,430 10 1
Stock—including engines, carriages, wagons, etc.....	13,266 2 5
Balance.....	114,993 16 7
	£1,429,694 4 4

CREDITOR.	
Amount received on account of shares, interest, etc., to December, 1845.....	£890,071 4 4
Ditto of debentures.....	165,000 0 0
Ditto Branding ditto.....	232,475 0 0
Amount received on account of shares during the half-year ending June 30, 1846. £135,398 0 0	
Ditto debentures....	55,350 0 0
Interest.....	250 0 0
	190,998 0 0
Less debentures paid off.....	48,850 0 0
	142,938 0 0
	£1,429,694 4 4

Revenue Account, from December 31, 1845, to June 30, 1846.

DEBTOR.	
Maintenance of way and repairs of property.....	£4,480 1 2
Locomotive power:	
Working and repairing engines..	8,713 17 2
Stationary engines and inclines..	1,245 2 9
Coach and wagon repairs.....	3,015 11 5
Coaching account—including salaries to clerks, wages to porters, guards and police.....	3,056 6 11
Horse hire, fuel, gas and stores..	530 2 1
Shipping expenses.....	1,418 3 9
Way leaves, and damage ground rent.....	2,307 19 7
Rates and taxes.....	1,464 9 6
Government duty.....	1,455 3 4
Miscellaneous expenses.....	85 6 7
Direction.....	500 0 0
Auditors.....	20 0 0
Stationery, advertising and printing.....	265 5 0
Compensation.....	443 9 10
Debenture interest.....	7,504 15 3
Balance.....	47,759 3 1
	£84,273 17 5

CREDITOR.	
Balance of account to December, 1845, [less dividend, income & property tax, £42,153 18 9]....	£8,770 19 4
Amount received for conveyance of passengers, horses, carriages, parcels and mails.....	41,420 6 1
Goods.....	11,971 2 3
Coal.....	18,585 1 9
Cattle.....	1,311 15 9
Rents.....	1,393 8 6
Demurrage.....	821 3 9
	£84,273 17 5

Miscellaneous Items.

York and Cumberland Railroad.—The York and Cumberland railroad company met at Alfred, Me., on the 7th ult., and organized

by the choice of J. T. Paine, of Sandford, as president, and a board of directors, who were authorized to confer with the stockholders of the Boston and Maine railroad, as the road is a continuation of the latter.

Boston and Maine Railroad.—The annual meeting of the stockholders of the Boston and Maine railroad was held on Wednesday, 9th instant, at Haverhill. A very able and satisfactory report—showing somewhat in detail the financial state of the company—was read by the treasurer, and was accepted. The report showed the corporation to be in an exceedingly prosperous condition, with an acquisition of receipts for the last 3 months, of about \$30,000, over the corresponding months of last year.

The following persons were elected directors for the ensuing year: Thos. West, Andrew Pierce, R. W. Bayley, Wm. F. Weld, S. A. Walker, Henry B. Stone and John Flint. The two last named gentlemen were chosen in place of John Howe and Thaddeus Nichols, Esqrs., who declined a re-election.

The Railroads.—The Northern road, as the public are from time to time apprized in the Concord papers, is progressing rapidly, especially on the line hence to Franklin: and there is a fair prospect that the laborers upon it will shortly be transferred to the line of the Boston and Montreal road. Engineers are locating the latter road, and preparations are in progress for bridging the Merrimack just below Federal bridge. The stone locks of the Sewall's falls canal we hear are to be used in the substructure of the railroad bridge: a purpose not even dreamed of when that disastrous enterprise—the Sewall's falls—was in progress, about the year 1835-6.—*Concord N. H., Statesman.*

Ohio Railroads.—Burr Higgins, the enterprising superintendent of the Sandusky and Mansfield railroad, proposes to the citizens of Mt. Vernon to extend the road from Mansfield to that place, 25 miles. The Knox co. people to grade the road the coming winter, and in the spring to furnish the sill for laying down a double track, and the Sandusky people to furnish the iron and the requisite machinery for running on the road.—It is estimated that \$100,000 will if properly expended, finish the road ready for the iron and that Knox county bonds and the labor of the people along the line, are adequate means for completing the work. This done 43 miles in a level country will extend it to Columbus and 43 more will connect it with the Little Miami road at Springfield. The plan seems feasible. We do not know what Cleveland is doing; but if the Cuyahogas remain much longer quiet those shrewd Sanduskys will have got so far ahead as to draw the travel to Columbus and Cincinnati by way of Sandusky.—*Cincinnati Gazette.*

Middlesex Railroad.—We understand, says the Boston Traveller, than an association of gentlemen propose to apply, at the next session of the legislature of Massachusetts, for a charter to construct a railroad from old Concord along the bank of the Concord river to the Lowell railroad in Billerica.

The length of this line is but 10 miles, a perfect level; the water flowing back 16 miles from Concord to Sudbury; and as there are no cuts or embankments of any consequence, it is understood the whole cost of the line with a light T rail, exclusive of cars and engines, will not exceed \$120,000.

This route will serve to connect the three shire towns of Lowell, Concord and Cambridge. It will unite Lowell by the shortest and cheapest route with the Fitchburg railroad, and thus open an easy communication from Lowell, Manchester, Nashua, and Essex to Keene, Brattleboro', Greenfield, and Rutland, Vt. connecting at Concord with the Lancaster and Sterling railroad, and at Billerica with the Lowell and Andover railroad; it will also connect Lowell, Nashua, Manchester and Essex, and the Boston and Maine railroad with Lancaster, West Boylston, Worcester, and the Providence and Worcester railroad.

A single link of 10 miles already graded by nature will thus serve to tie together the great manufacturing districts of Massachusetts, Maine and New Hampshire, and to connect them with the farming districts of Vermont and western Massachusetts.

On the completion of this line, the travel which now divides itself upon many routes will be concentrated in this. Lines of stages now run from Lowell through Waltham to Newton Falls, from Lowell via Acton to Worcester, from Lowell via Littleton to Worcester, also from Lowell by Groton and Fitchburg to Worcester, and from Nashua to Worcester. Several of these carry large numbers of passengers and many going from the valley of the Merrimack now take coach for Keene and Vermont at Nashua.

The whole combined will well support a short and cheap railroad, and not trench on the interests of any other line. We understand that a party of engineers will soon be put on the route.

Peterboro' and Shirley Railroad.—The organization of this corporation was completed at Townsend, on Monday last, when the following gentlemen were chosen directors, viz:—Jacob Forster and Dan'l White, of Charlestown, David Loring, of Concord, Levi Warren and Sam'l Adams, of Townsend, Geo. F. Farley and Dan'l Needham, of Groton, Geo. Elliot, of Mason, Jonas M. Mellville, of Jeffrey, John Preston, of New Ipswich, and H. L. Coggsell, of Peterboro'. A meeting of directors is to be held at Groton on Friday next, at 10 o'clock, when measures will probably be taken for the advancement of the work.—*Bunker Hill Aurora.*

Hudson River Railroad.—At Poughkeepsie on Wednesday last, \$47,500 had been subscribed to the stock of this road. The whole amount subscribed we have not learnt, but we think there can hardly be a doubt as to the whole amount being taken up immediately.

We are surprised that the city of New York, which is so deeply interested in the construction of this road, and will be benefited more than any other, should subscribe so

little towards the amount necessary to insure its success.—*Hudson, N. Y. Gazette.*

Baltimore and Ohio Railroad.—The great railroad convention which is to be held at Weston, in Lewis county, Va., on the 25th inst.—the object of which is to obtain the extension of the Baltimore and Ohio railroad through Virginia to a suitable point on the Ohio river—is regarded with uneasiness at Richmond, a portion of the press of which latter city is out against it. The Baltimore American says: "This movement is exclusively, a spontaneous one on the part of the people of western Virginia, who are now shut up from any available market, but who would secure by the railroad the important advantages of rapid and cheap outlets both to the Atlantic and the Ohio river. The opposition of Richmond is held to be a 'dog in the manger,' policy towards the west, and so far she has succeeded in maintaining it."

(Official) Reading Railroad.

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending—

	Sept. 14, 1844.	Sept. 13, 1845.	Sept. 12, 1846.
Travel.....	\$2,241 24	\$2,319 84	\$2,937 58
Freight on goods.....	764 21	1,096 18	2,656 41
Do. do. coal.....	13,762 32	26,665 63	41,454 42
Miscell's receipts.....	.....	.....	.....
Transp. U.S. mail.....	.....	.....	.....
	\$16,767 77	\$30,081 65	\$47,048 41
Coal trans., tons.....	12,286	22,970	28,945

Coal Trade.

The amount received for tolls on all the New York canals during the second week in September is\$81,866
Same period in 1845..... 75,740

Increase 6,126

The aggregate amount received for tolls from the commencement of navigation to the 14th of September, inclusive, is\$1,589,678
During the same period in 1845..... 1,553,850

Increase 135,828

Mohawk and Hudson Railroad.—Account of earnings of the Mohawk and Hudson railroad from the 22d to the 31st of August:

Transportation of passengers, 1st class.....	\$3,998 17
" " " 2d ".....	124 93
" " freight.....	151 77
Total.....	4,274 87
Same time last year.....	3,737 78
Increase.....	537 09

For the week ending the 7th Sept., they were:

Passengers.....	\$3,065 24
Freight.....	144 53
Total.....	3,229 77
Same time last year.....	2,586 94
Increase.....	642 83

This is 25 per cent. gain, and exceeds the increase of any road in the country which has not been extended during the past year.—*Albany Argus.*

The *Express* states that the receipts of flour and wheat at tide water, from the opening of navigation to and including the first week of September, in 1845 and 1846, have been as follows:

	Flour, bbls.	Wheat, bush.
1846.....	1,590,294	915,283
1845.....	1,108,685	291,038
Increase.....	481,609	624,245

Equal to an excess of 606,456 barrels of flour, so far, during the present year, over the corresponding period last year.

English Iron Trade.

It will be seen by the following extracts from the London Mining Journal, of the 21st and 28th Aug., that prices are well sustained, with an upward tendency, and that heavy orders are expected from this country. The demand will probably be greater than the supply, at least for the present, consequently no reduction in price need be expected.

LONDON, AUGUST 21, 1846.

From a correspondent.

The market for bar and rail iron has been very firm during the week; and large orders taken for both at full prices, with every prospect of a further advance. Scotch pig iron has been rather dull within the last few days, owing to some small parcels being forced on the market, but the makers are firm and refuse to sell under 80s., less 2½ per cent. discount, free on board at Glasgow. Welsh and Staffordshire pigs are in good demand at quotations. Swedish iron and steel are dull of sale. English copper and tin are firm at quotations. In Straits or Banca very little done during the week. English pig lead is without alteration. For American as high as £17 15s. has been paid during the week. In Spanish nothing doing.

To the editor of the Mining Journal.

Glasgow Pig Iron Trade.—Sir: Our pig iron market is just now in rather a healthy state—the stock in the yard, having for some time been, and is still, diminishing, and the foreign demand promising.—The principal markets are sold out, for at least the next two months; and for delivery after that period, are asking 80s. The principal holders are firm at 77s. 6d. to 80s., according to brand for No. 1. We quote the price at which there were transactions done at to-day,—72s. for No. 3; 75s. for 3-5ths No. 1, and 2-5ths No. 3; and 77s. 6d. for No. 1—cash, free on board. DOUGLAS & HILL.

Glasgow, Aug. 19.

LONDON, AUGUST 28, 1846.

	£.	s.	£.	s.	d.
Bar a Wales—ton.....	0	0	8	10	0
" London.....	0	0	9	10	0
Nail rods.....	0	0	10	5	0
Hoop (staf.).....	11	5	11	10	0
Sheet.....	0	0	13	0	0
Bars.....	0	0	11	0	0
Rails, average.....	9	10	9	15	0
Welsh cold blast foundry pig....	4	5	5	0	0
Scotch pig b Clyde.....	3	14	3	16	0
Russian, CCND c.....	0	0	16	0	0
" PSI.....	0	0	16	0	0
" Gourieff.....	14	5	14	10	0
" Archangel.....	0	0	13	10	0
Swedish z, on the spot.....	11	0	11	10	0
" Steel, tagt.....	0	0	15	5	0
kegs e.....	0	0	13	5	0

a, discount 2½ per cent.; b, net cash; c, discount 2½ per cent.; d, ditto; e, in kegs ½ and ¼ inch.

From our correspondent.

IRON.—Demand for Welsh and Staffordshire continues fair, and the prices are steady; a good business has been done this week in Scotch pig at 73s. to 74s. for mixed Nos.; and at 75s. to 76s. for No. 1. In foreign iron nothing doing, but sales of Swedish steel both on the spot and for arrival, have been made at quotations.

Communicated by Messrs. Whitcomb & Barton.

English bar continues very firm at the late advance; large orders are in the market at former prices, which have been declined. In Staffordshire and Welsh pig iron the demand has greatly increased, and higher rates paid. The Scotch pig iron market has been rather dull during the week—holders, however, are not disposed to give way; orders being expected by the next American packet, which will in all probability, greatly affect prices.—sales have been made to-day at 76s. 6d. and 77s. 6d., mixed Nos., bill at three and four months. Foreign iron and steel still dull of sale. In spelter sales are reported this week at £19 5s. and £19 7s. 6d.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.

Saturday, September 26, 1846.

Patent Safety Switch.

It appears by a recent decision of the commissioner of patents, that the invention of that excellent contrivance to prevent accidents on railroads—the safety switch—heretofore known as Nicoll's patent safety switch, has been assigned to Philos B. Tyler, chief coiner at the mint of New Orleans, on the ground of priority. The latter gentleman having placed one on the road commenced at New Orleans to run to Nashville, when engineer of that road in 183—

This Mr. Tyler, it will be remembered, is the inventor of the recent great improvement in a machine to compress cotton by the direct action of steam.

See following advertisement

TYLER'S PATENT SAFETY SWITCH.
 The following decision of the Commissioners of Patents is respectfully submitted to Railroad Engineers, Superintendents, and all others interested in the subject.

(COPY.)

UNITED STATES PATENT OFFICE, }

Washington City, D. C., April 28th, 1846. }

Sir: You are hereby informed that in the case of the interference between your claims and those of Gustavus A. Nicolls, for improvements in safety switches—upon which a hearing was appointed to take place on the 3rd Monday in March, 1846, the question of priority of invention has been decided in your favor. Inclosed is a copy of the decision.—The testimony in the case, is now open to the inspection of those concerned. Yours Respectfully,

EDMUND BURK,
 Commissioner of Patents.

To Philos B. Tyler.

Any further information may be obtained by addressing John Pendleton, Agent for the Proprietor 149 Hudson Street, New York. 1m39

RAILROAD IRON.—THE NEW JERSEY
 Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to

DUDLEY B. FULLER, Agent,
 No. 139 Greenwich, corner of Cedar street.

September 18, 1846. 10t39

NOTICE TO CONTRACTORS.—BOSTON,
 Concord and Montreal Railroad Company.—This company is now ready to contract for the grading and masonry of said road, or any portion thereof, south of Meredith Bridge, with the exception of two miles immediately north of Merrimack River. They are ready, likewise, to contract for sleepers, and lumber for fencing said road from Concord to Meredith Bridge. Any proposals for grading masonry, sleepers, or fencing, may be left with Theodore French, Esq., Treasurer of said company, at his office in Concord, and it will receive due attention.

PETER CLARK, Agent.

Concord, September 2, 1846. 3t39

Railroads in Virginia.

The Virginians we observe are agitating the project of a railroad from Richmond to Danville. We have in consequence been looking at the map of Virginia, and it strikes us that this projected railroad may advantageously have for a considerable distance the same common stem with the Richmond and Ohio railroad. Indeed it may prove that the best route for the latter improvement will be by the Staunton river gap. In this case, three-fourths of the length of a railroad between Richmond and Danville, will be necessarily effected in the construction of the eastern portion of the Richmond and Ohio railroad.

We should think, under these circumstances, that the friends of the Richmond and Danville railroad would do well to unite their forces with those of the Richmond and Ohio railroad, rather than to attempt a separate improvement, which it would be much more difficult to effect. There are few projected roads in this country more deserving of the confidence of capitalists than that from Richmond to the Ohio; and as soon as this work shall be undertaken, it will certainly be followed by the construction of a branch railroad to Danville, or some other point on the Roanoke, and indeed by many branches.

We present these suggestions for what they may be worth, to the consideration of our Richmond friends, believing it of great importance to the success of the railroad system in our country, that as far as possible trunk lines with branches should be adopted, instead of multiplying unnecessarily parallel lines. These considerations appear to us entitled to even more weight than usual in Virginia, where capital is less abundant than in the states north of it, and where it appears to be still more difficult to induce its investment in internal improvements. We hope, however, soon to hear that the people of the "Old Dominion" have commenced the work in good earnest, and that the rich resources of that ancient commonwealth are to be laid open to the light of day—which they can only be, or in no way so well as by a railroad from tide water to the mouth of Guyandotte or its immediate vicinity.

Railroads in Germany.

Letters from Hamburg state that the number of laborers on the railroad from that city to Berlin, which has been about eight thousand, is now increased to ten thousand, and the work is carried on day and night without any interruption. The road is to be entirely finished before the month of December. The most part of the workmen employed there came originally from Silesia, and have been laboring on works of this kind for more than ten years. They are paid at the rate of a thaler current, 90 cents per day, a salary very high for that country. In their own country they could not earn more than four or five grochen per day.

Iron Works.

We see it stated in an exchange paper that the proprietors of all the iron works in and near Baltimore, "have reduced the wages of their workmen twenty-five per cent." The iron works alluded to give employment, we understand, to nearly two thousand persons. The cause of this reduction in the price of labor, is said to exist in the fact that "eastern manufacturers, who have hitherto been extensive buyers in that market of pig iron at \$30 to \$32 per ton, are now offering but \$25 for the same article."

The Baltimore Sun gives this statement, and remarks that "this proceeding on the part of the iron masters is premature, to say the least—and also

says that, "if prices current are good for anything at all, let us see what they have to say. The Baltimore American of Saturday last, enjoying an eminent commercial character, says:

"Iron.—Few transactions have taken place this week. We quote sales Locust Grove pig at \$30 per ton."

"Here is not only a quoted price of \$30, but sales at that rate.

"Lyford of Saturday last, says, and he is regarded as excellent authority:

"Fig, Elk Ridge, No. 1, \$33 a \$35; pig for puddling, \$30 a \$32; Locust Grove \$32 a \$35."

"American pig is quoted in New York, up to last Saturday, at an average decline since the passage of the tariff, of \$1 50 per ton. In Boston, American pig is quoted at \$27 50 a \$29 per ton. The New York Courier and Enquirer of Saturday last, quotes American pig, No. 1, \$35 a \$37; common, do., \$26 a \$30, which is a slight decline on the spring prices. Let us add to these facts the recent accounts from England, which represent that in view of the parliamentary sanction of a much greater amount of railway than was expected, iron is rallying from the late depression, and prices confidently expected to advance. Indeed, Willmer & Smith quote an advance, as follows; pig No. 1, Welch, £4 15 a £5; and the next later quotation, £5 2 a £5 5.

"We do not profess," says the Sun, "to make these quotations as direct evidence against the necessity for a 'reduction of wages,' as the phrase goes; but as indices of the market, they do seem to intimate at least that such 'reduction' is quite premature, and especially so, to such an extent as 25 per cent. Indeed, looking into the future, with the above facts to guide the judgment, it certainly appears that something like 20 per cent. of that 'reduction' must be clear profit to the iron masters. The American notes sales at the quoted price, and thus we are rather puzzled to account for this sudden 'reduction of wages.' If the market was glutted and the demand much inferior to the supply, as may be the case for ought we know, we could realize some propriety in such a proceeding, were it for the sole purpose of keeping the men employed; but the fact that sales are made at fair prices, or at but a slight decline, forbids the supposition that such is the case."

We have already expressed our opinion upon this point, and we repeat that we not only look upon this movement of the iron masters as "premature" and unnecessary; though we admit that it is a natural result, when people act under the influence of fear, and without a full knowledge of the present and prospective condition of the iron trade in Europe. We are fully convinced that in this important branch of business there will be full and steady employment for an increased number of furnaces and rolling mills, both in this country and in England, to supply the immediate and constant demand for iron; and that it is only necessary for the alarmists to be quieted, and the alarmed to have time to recover from the effect attendant upon unnecessary and unwise legislation, and all will come right again, in the common course of business events. The demand for iron must and will increase, and in spite of the fears of capitalists, who are easily affected, and the efforts of politicians, who would make capital out of them, that time and future events will prove that the position we have assumed is the correct one, which calm reasoning and a little foresight might have suggested to the most prejudiced.

Very Good.

The annexed anecdote is an amusing instance of the rapidity with which converts are now-a-days made—to the reality of what some deem visionary schemes. At the late celebration at the opening of the Miami road to Springfield, Ohio, a dinner party was given, an account of which has already appeared in our columns. A gentlemen present gave the following toast, says the Cincinnati Gazette:

"By D. J. A. Warder, of Cincinnati: *The first engineer of the Little Miami railroad*—whose untiring energy enabled him to make the first survey of the Miami railroad, amid the sneers of his fellow citizens.

"Prof. Mitchell, being the person alluded to, mounted the table, and made a very eloquent and amusing speech. He said that after he had equipped himself to commence the survey of the Little Miami railroad, he called at the postoffice to see if there were any letters for him. There he met with Mr. H——, who enquired, 'what he was up to now?' 'Why,' said the professor, 'I am going to survey the route for the Little Miami railroad.' 'Well,' said Mr. ——, bursting into a monstrous horse laugh, 'you are the greatest fool I ever *did* see.' Mr. ——, being present at the table, rose, and with great *sang froid* said—'I'll take that back, professor—I'll take it all back.'"

Coal.

The last number of the Anthracite Gazette, contains the following items in reference to the coal trade.

The shipments this week amount to 27,419-13 tons being a decrease of almost 1,000 tons, and showing a continued decrease shipment from this region, from the highest quantity sent of quite 10,000 tons per week. The total amount shipped to date is 844,246-14.

The amount of red ash is tolerably active, but the white ash trade is completely stagnant.

Magnetic Telegraph.

We find in the Albany Evening Journal, the following statement of the extent of telegraph now in use. There are at present, it will be seen, upwards of 1,200 miles of telegraph lines in operation in this country, as follows:

	Miles.
From New York to New Haven, Hartford, Springfield and Boston.....	265
From New York to Albany, Utica, Auburn, Syracuse, Rochester, Lockport and Buffalo....	507
From New York to Philadelphia, Baltimore and Washington.....	210
From Philadelphia to Harrisburg.....	100
From Boston to Lowell.....	26
From Boston to Portland, (110 miles, half finished).....	55
From Ithaca to Auburn.....	40
From Troy to Saratoga.....	31
Now in operation.....	1,234

Worcester Railroad Depot.

We copy from the Boston Journal, the following description of the Worcester railroad depot.

As our readers are well aware, the land belonging to the Worcester railroad company, located on the South Cove, is quite extensive. The company have erected on their property very large buildings, which are used as store-houses, passenger depots, machine shops, etc. A few days since, through the politeness of a gentleman connected with the Worcester railroad, we were conducted through the various buildings. First and foremost we would mention the new depot, on Albany street, which the Worcester railroad company built for the use of the Old Colony railroad. This building 120 feet in length was erected in the most thorough and substantial manner. It now extends on Albany, from Kneeland, about two-thirds of the way, to Beach street. In the course of a short time the building will be extended to

Beach street, more extensive accommodations being required by the Worcester railroad company. As we stated above, this depot is now used by the Old Colony railroad, but it is the intention of this company to put up a depot for their own use, the present one not being sufficiently large to accommodate them. The way travel on this road is much larger than it was anticipated, at the time of its construction, it would be, and very long trains are required to convey the passengers. It is only a week since we saw the afternoon train leave the depot, the train before it started filling the depot, and the cars extending quite across Kneeland street, and blocking up the passage.

The Old Colony depot will be on Beach and Lehigh streets. The track will not pass over the Worcester railroad, but will turn shortly after crossing the bridge from South Boston, and pass up Lehigh street. Both companies will be much better accommodated by this arrangement.

The Worcester company are now finishing a very large and fine hall, over the Old Colony depot, which it is intended shall be used for a dancing hall. The dimensions we should judge are about 80 or 90 feet in length by 60 in width. It is well lighted and thoroughly ventilated. The gallery for the orchestra is much larger than usual. The finish of the hall is plain but neat—the floor laid in hard pine, is one of the best we ever saw. On each side of the entrance, which is very broad and of easy ascent, are ante-rooms, (two on a side) to be used as dressing rooms, which will be fitted with all modern conveniences—the passage to the music gallery is from the main entrance, and is also provided with a small ante-room. Over the hall in the attic, is a large room, which will serve an excellent purpose as a supper room.—This will be decidedly the best dancing hall in the city.

The old machine shop and engine house are now in the course of alteration to store houses—a new machine shop and engine house having been erected during the past season. Several wooden buildings near the old shop, are now coming down to afford room for railroad tracks, and the wood sheds are to be removed farther south. In the engine house, we saw nine locomotives, at the time of our visit, three more were in the machine shop for repairs—the engine house has standing tracks for thirteen locomotives.

One of the engines under repair was the "Lion," an English locomotive, and one of the first which ran over the road. It was originally a very fine engine, one of the best but is now too small, possessing too little power for the general work of the road, though it answers every purpose for the trains running short distances. It is of very different construction from the engines now manufactured, and is of much lighter work. The wheels in particular, are much lighter, though they are made of wrought iron. It ran the first regular express from Worcester to this city, and did the distance in one hour and seventeen minutes. It has been done in less time since, we believe. Most of the locomotives used on the Worcester railroad, are man-

ufactured by Messrs. Hinckly & Drury, of this city, and they have the reputation of being very excellent engines. Among them are some very large and powerful machines. The engine which drives the machinery in the machine shop was manufactured by Messrs. H. and D., and works very beautifully. Upon one of the engines, workmen are fitting a new spark-catcher, which we hope for the comfort of all railroad travellers will prove entirely successful. A successful spark-catcher is *the great desideratum*. We are informed that it has been in use on the Reading (Pa.) railroad for six months, and that it operates very successfully. The smoke pipe is square, or nearly so, and not round, as is ordinarily the case with locomotives.—The principle of the invention consists in forcing the sparks, smoke and gases, as they issue from the furnace, back into the fire-pan to be burned over again. In the lower part of the pipe, is a common fan to keep up a draft, driven by the exhaust steam, the steam being conducted for this purpose, into a drum or cylinder connected with the smoke pipe.

A portion of this steam is conducted back to the tender to aid in heating the water.—By this operation fuel will be saved, as the water will be partially heated, before it is drawn into the boiler. From the bottom of the smoke pipe, a strong pipe is passed along under the boiler, to the fire-pan. When steam is up and the engine in motion, the fan creates a draft, and forces the sparks, smoke and a portion of the gases, through this pipe to the furnace, where they are again consumed, the operation, of course, going on so long as the engine is in motion. To prevent as far as possible the escape of sparks and smoke, the following arrangement is devised: A cylinder of the height of the smoke pipe is placed within it; the space between the cylinder and the pipe at the top is made perfectly tight. This cylinder (which has a diameter of some 12 or 15 inches, perhaps more) has an outer and inner circumference, of iron work, with interstices some third of an inch long—the space between the two circumferences, about an inch, is filled with coarse gravel, just large enough not to pass through the interstices—the passage for the escape of smoke, etc., is from the inside of the cylinder, which of course is open at the top. All the sparks, smoke, etc., pass into the smoke pipe, and to escape from it must pass through the stratum of gravel, between the two circumferences, and so issue from the cylinder. With the fan in motion to create a draft and drive back whatever issues from the furnace, and with the escape cylinder so well guarded, it would seem almost impossible that any quantity of sparks or smoke should escape, though some of the gases may find their way out. To our limited knowledge of mechanics, the spark catcher *looks* as if it would work.

The railroad company construct their own cars, and have large workshops for the purpose. They have also a large number of smitheries, and a fire proof building for their paints and oils. In the manufacture of their cars they are certain of what enters into their

construction, as they purchase all the materials used by them. (It will be recollected by our readers that we gave a brief description a few days since of some new cars recently placed upon the Worcester railroad.) It is unnecessary for us to say that everything connected with the establishment is in admirable order.

Muscogee Railroad.

From the proceedings below it will be seen that the corporators of the Muscogee railroad are moving forward in this important undertaking.—*Columbus, (Ga.) Enquirer.*

At a meeting of the corporators of the Muscogee railroad, held in said city on this day, present John G. Winter, chairman, John Banks, A. H. Elewellen, John H. Howard, Jas. R. Jones, Wm. A. Redd, Hines Holt, and P. T. Schley, being a majority of the corporators, Col. Banks, from the committee heretofore appointed for that purpose, reported the following resolutions—which, upon the motion of Col. Holt, were unanimously adopted:

Resolved, That the following rules and regulations be adopted for the purpose of carrying out the charter of "the Muscogee railroad company," and of providing the subscriptions to the stock thereof—

1st. The capital stock of "the Muscogee railroad company" shall be seven hundred thousand dollars, until the same is increased by the corporators or the board of directors, hereafter to be elected; to be divided into seven thousand shares, of the value of one hundred dollars each.

2d. That books for subscriptions to the stock of said company shall be opened on Saturday, the 26th day of September next, at the city of Columbus, for two thousand shares amounting to two hundred thousand dollars, under the superintendence of Abner H. Elewellen, John H. Howard, J. I. Moses, Wm. A. Redd and Wiley Williams, or any three of them.

At Talbotton, in Talbot county, for one thousand shares, amounting to one hundred thousand dollars, under the superintendence of Dr. H. P. Smead, Robert Dixon, Barnard Hill, G. W. Towns and Allen Owen, or any three of them.

At Thomaston, in Upsom county, for one thousand shares, amounting to one hundred thousand dollars, under the superintendence of D. B. Grant, Gen. E. Turner, Thomas Goode, O. C. Gibson, and Thos. Elewellen, or any three of them.

At the city of Macon for one thousand shares, amounting to one hundred thousand dollars, under the superintendence of Jerry Cowles, James Nisbet, J. J. Gresham, Thaddeus G. Holt and John Ross, or any three of them.

At the city of Savannah for two thousand shares, amounting to two hundred thousand dollars, under the superintendence of R. R. Cuyler, Everard Hamilton, John W. Anderson, Asa Holt and Edward Padelford, or any three of them.

3d. It shall be the duty of said commissioners to keep said books open for receiving subscriptions to the stock of said company for

the space of ten days, at each of said places, unless the shares should sooner be subscribed for; and they shall require from each subscriber for stock the payment of 2½ per cent. upon the amount of his subscription, at the time of subscribing therefor; upon which payment said commissioners receiving the subscription as aforesaid, shall give to each subscriber a certificate, showing the number of shares for which he has subscribed, and the amount which he has paid thereon.

4th. Immediately after the closing of said books of subscription, it shall be the duty of said commissioners at Talbotton, Thomaston, Macon and Savannah, to make a return thereof, properly certified by them, to the commissioners for opening books in the city of Columbus, together with all sums of money received by them for subscriptions to the stock of said company; which commissioners at Columbus, aforesaid, shall immediately thereafter deposit all monies received by them in bank, to the credit of said company, and make a report to the company of all the stock subscribed for, the stockholders names, and the amount paid by each.

5th. When said report shall have been made by said commissioners, the corporators named in the charter, or a majority of them, will appoint a time and place for the meeting of the subscribers for stock, in the city of Columbus, of which they will give due notice in the public gazettes of said city; at which time and place the stockholders will proceed to the election of seven directors, to complete the organization of said company, according to the terms of the charter.

6th. Upon the failure of the company to organize by the first day of March next, it shall be the duty of the said commissioners at Columbus to return to each subscriber for stock, the amount of money which he may have paid in to any of the aforesaid commissioners at the time of his subscribing for stock in said company.

By order of the board of corporators,
JOHN G. WINTER, Chairman.
WILEY WILLIAMS, Secretary.

The Muscogee Railroad.—We cannot allow, says the Savannah Republican, the proceedings of the corporators of the Muscogee railroad company to go before the public without saying a few words in regard to the importance of the proposed improvement as connected with others in the states of Georgia, Alabama and Mississippi. Our readers have already heard of the great projected line of improvement which is intended to extend west from Montgomery, Alabama, through Jackson and Brandon, Mississippi, to Vicksburg. We have before us a report to the citizens of Vicksburg, which informs us that the road from that place to Jackson, a distance of 46 miles is already complete, and that a charter has been granted by the legislatures of Mississippi and Alabama to certain persons known as the Southern railroad company, for the purpose of constructing the road from Jackson to Montgomery, a distance say of 240 miles. In order to aid in the enterprize, the legislature of Mississippi yielded to the company, as a gift, the two per cent. fund, amount-

ing to \$300,000 most of it now subject to draft on the United States Treasury. The state of Alabama made a similar grant of a similar fund, which is at present loaned, however, to the Montgomery and West Point company. If the road between Barnesville and Columbus is completed, the connection with Montgomery will follow as a matter of course—indeed we are informed that the people of Alabama are resolved to urge its construction and pledge themselves to furnish the necessary means. That being done, we will have the following line of improvements, extending from Savannah west, viz:

	Miles.
From Savannah to Macon	190
" Macon to Barnesville	40
" Barnesville to Columbus	70
" Columbus to Montgomery	90

Total from Savannah to Montgomery

390
Add to this the projected road from Montgomery to Jackson, 240 miles, and the completed road between Jackson and Vicksburg 46 miles, and we will have a continuous line of communication, running west, of 676 miles passing through the very heart of the best cotton region in the world!

Railroads.

The various railroad enterprizes of the country are in progress without any cessation of public interest in them, which is clearly on the increase in every part of the country. There is now in operation in the U. States over eleven thousand miles of railroad. The route from Portland to Montreal is urged on with great vigor by its friends, and operations have been commenced at both extremities of the line. It will most probably be carried on to completion in spite of its great cost, and the lack of capital which it would command were it a Boston or New York enterprize. If the various railroad routes are executed, which are now proposed, and most of them will be, the seaboard of New England will have a much more direct available connection with the interior than has hitherto been the case. Salem, (Mass.) is soon to be connected with the new city of Andover by a railroad, and thence to Manchester, in this state, a road will be built in the course of a few years. Portsmouth, also, cannot fail at no very distant time to have a direct road to this place. This will enlarge the market for domestic produce to the great advantage of our farmers. In other parts of the country great progress is now making in furnishing the inhabitants with railroad facilities. The great New York and Erie railroad, from New York city to lake Erie, is again put in course of construction, being now in operation over 60 miles. It is also contemplated to build a railroad from New York city to Albany, a distance of 150 miles, which it is intended to run over in five hours—the fastest steamboat not being able to go in less than eight. In winter, of course, it will command the whole traffic. The only railroad communication in winter now is by means of the Housatonic railroad—a very roundabout and inconvenient route. It is stated that the Western railroad is likely to be benefitted by the new free trade system of

the English, as much of the produce which was formerly shipped by way of Montreal will now come over the Western road to Boston. This stock is now nearly up to par, and the prospect is that in a short time it will pay a dividend of more than six per cent. A railroad is now constructed some distance above Springfield, Mass., on the Connecticut, and is said to do an immense business. This road will no doubt be extended up the valley of the Connecticut as far as Wells river—at which point the proposed Passumpsic road will touch the river.

Of the southern states, Georgia seems to have taken the lead in railroad matters, there being in that state over 500 miles of railroad in successful operation. In Ohio considerable has been done within the last year, but the western states in general are doing but little, having so injured their credit by their repudiating proceedings that they can do nothing for them as state enterprises, and individual capital is too scanty to make any great advance. Several of the southern and western roads have been so unprofitable and have been so badly managed that they are entirely abandoned.

As we have before remarked, the interest in railroads in this country has by no means reached its maximum—it has arrived to nothing like the pitch it has reached in England. To that point, or somewhere near it, it certainly will arrive, when not only all, or nearly all, the railroad enterprises now projected will be built, but many others, some of them sufficiently absurd, not now dreamed of, will be projected. The railroad interest in England still continues as intense as ever, and occasions great alarm to the financiers of that country, by the vast absorption of the active capital of the country into railroad enterprises which is now going on.—*N. H. Gazette.*

The following resolutions, in relation to the English subscriptions to the stock of the St. Lawrence and Atlantic railroad, are taken from the Montreal Times.

At a special general meeting of the stockholders of the St. Lawrence and Atlantic railroad company, held on Saturday at the company's office, St. James street, to consider the demands made upon the provisional committee in London, by a portion of the English scripholders, for the return of their deposits, and to decide thereon—the Hon. Mr. Moffatt was called to the chair, and Mr. Steers named as secretary.

On motion, Resolved 1, That the proprietors of the capital stock of the St. Lawrence and Atlantic railroad company, having duly considered the disinclination manifested by a portion of the scripholders in Great Britain to continue their connection with the enterprise, in which they are mutually engaged, and their application to the provisional committee in London for the re-payment of their deposits, feel called upon to express their regret, that a great and important colonial work, such as the St. Lawrence and Atlantic railroad, has not been met in the mother country, even by those who had willingly become associated with themselves for its prosecution,

with that encouragement which the large excess in the number of shares applied for then over the whole capital, had given them just reason to expect.

Resolved 2, That the proprietors, desirous of removing all cause of dissatisfaction on the part of the dissentient scripholders in Gt. Britain, and the more forcibly to evince the spirit in which their enterprise has been undertaken and conducted, are disposed to adopt the suggestions of the board of directors, relative to the demand made by such dissentients, and in accordance therewith to authorize, and they do hereby empower the said directors, to take the necessary measures to offer to such of the scripholders in Great Britain (not having signed the subscription of shares books) as may be desirous of receiving the same, the re-payment of their deposits, deducting them from their proportionate share of the expenditure in England and in Canada to this date, with the exception of the cost of survey, now in prosecution, and that arising from land negotiations.

To which Benjamin Hart, Esq., proposed the following amendment:

That, although the large additional support which this railroad has met with in Canada, and the confidence with which it is now regarded by the public at large, leaves no room for doubt that the undertaking could be prosecuted and completed without the assistance of the English shareholders, still, the proprietors would not feel themselves justified on sound principles in acceding to the request of the scripholders in England.

Which was put to the meeting, and negatived; after which the original resolution was adopted unanimously.

Resolved 3, That the board of directors be and they are hereby authorized to take measures to defend any action or actions that have been or may hereafter be brought for the recovery of their deposits, by scripholders who may refuse to accept the compromise, as now proposed by this meeting.

T. STEERS, Secretary.

Railroad to Rome.—The *Macon Messenger* says: "We learn that the contemplated branch from the state road at the Kingston depot near Cassville, to Rome, at the head of navigation on the Coosa river, has been examined within the week past by the president of the Macon and Western road and others disposed to embark in the undertaking, and that they have determined to enter on the work as early as practicable. The Macon and Western, and Georgia railroads, will be largely interested in it, and a company has been formed and organized. The work will be entered on immediately, and completed within twelve months. The road will be but about eighteen miles in length to terminate at our miniature specimen of the 'Eternal city,' which we trust will be much larger hereafter. Here the Coosa is navigable for upwards of 150 miles nearly to Wetumpka, Alabama. The country on the river is rich and productive in cotton, and other produce. The transportation of this, with the goods necessary to supply that portion of Tennessee, will no doubt afford an ample re-

muneration for the expense of constructing the road."

New England Railroads.—The Boston Courier of Tuesday, in its money article, has the following statement respecting the high estimation in which railroad investments are held in that quarter: In these times of doubt and distrust they have become the leading securities. The Courier says:

"A fair demand exists for the solid dividend securities; the railroads taking the lead, as they are considered safer, and less liable to loss, trouble in negotiation, and other contingencies, than any other recorded property. Similar stocks in England take the same rank. They constitute reservoirs for the rich, saving banks for the less fortunate in pecuniary affairs, and can be relied upon for liberal and improving returns at stated periods."

The Courier adds that the following, being the latest quotations, show the enormous advance which has been reached by some of the popular railway stocks in Great Britain:

Great North of England.....	£234 for	£100 paid.
Birmingham and Gloucester..	129 for	100 paid.
Edinburgh and Glasgow.....	75 for	50 paid.
Great Western.....	152 for	85 paid.
Hull and Selby.....	107 for	50 paid.
Manchester and Birmingham.	88 for	40 paid.
Midland Counties.....	146 for	140 paid.
Manchester and Leeds.....	122 for	82 paid.
London and Birmingham....	230 for	100 paid.

Some of these railways were partly built with borrowed capital, at a low rate of interest: consequently all the net surplus is for the benefit of the shareholders. These roads have been very successful, the dividends have been large, and as a natural consequence the prices have advanced, in some instances, to one hundred and thirty per cent.—*Baltimore American.*

Hiwassee Railroad.

The Savannah Republican says, "The probable early completion of the Western and Atlantic railroad, to Cross Plains, seems likely to lead to most important results. We yesterday understood that an arrangement has been effected, by which the branch road from Kingston to Rome will be pressed forward to completion immediately, Capt. Tyler of the Macon and Western company, having agreed to unite with the Georgia railroad company, in furnishing the iron and other necessary equipments. This will open to the whole Coosa valley, and to north Alabama, an outlet to the Atlantic. The Coosa is navigable for 90 miles below Rome for steamboats. On the other hand, the people of east Tennessee are alive to their true interest.—We find in the Knoxville *Register* of the 26th ult., the following:

"*Public Meeting.*—We are requested by a number of our citizens to state that there will be a public meeting at the court house, on Saturday next, at 11 o'clock, a.m., to take into consideration the expediency of adopting measures for re-commencing at as early a day as practicable, the construction of the *Hiwassee railroad.*

It will be recollected that the Hiwassee road leads from Cross Plains to Knoxville, a distance of 90 miles, and that the track for the entire distance has been graded and will

require but little except the superstructure, iron, and equipments. The Knoxville Register, in publishing the above notice, adds:

"We have heretofore taken frequent occasion to urge upon the public the great importance of this work, and have published column after column in relation to it, in the hope that the community would be aroused to a sense of the necessity of the completion of the improvement.

"It is a subject of vast moment to east Tennessee, and we hope our citizens will take a sufficient degree of interest in it to induce them to attend the proposed meeting. Let there be a general attendance of the people—as well those who are, as those who are not, stockholders in the road."

Michigan Central Railroad.—We learn this morning that the whole amount of the stock, (\$20,000) of the Michigan Central railroad has been subscribed. The sale of the road, therefore, in pursuance of an act of the Michigan legislature, will now be perfected. The transfer of the interest of the state, to the corporators, will take place on the 28th inst., on or before which time 25 per cent. of the purchase money must be paid at Detroit. *Albany Journal.*

Michigan Central Railroad.—The Journal of Commerce states that this railroad has at length passed into the hands of Boston capitalists. The state bonds were purchased by the company at 70 per cent. on the original value. Some large subscriptions to the new stock had been made in New York.

The Boston Times learns from Hancock's express, that the new section of railroad from Braintree to Randolph was opened on Wednesday morning. The entire line to Fall river, it is said, will be completed on or before the 1st day of November next.

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture: and for sale by

MORRIS TASKER & MORRIS, Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 11f

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.

Valuable Works on Engineering for Sale.

The following works, belonging to the late Wm. R. Casey, have been deposited at this office for sale. It will be seen that they comprise most of the standard books. The reports and non-enumerated pamphlets are however among the best part of the collection, as many of them are not to be found or purchased at any price. So desirable an opportunity seldom offers for securing an excellent set of professional works.

LIST OF ENGINEERING BOOKS BELONGING TO W. R. CASEY, deceased.

1.—The Civil Engineer and Architect's Journal, quarto, vols. 1, 2, 4, 5 and 6, and nos. 79 to 81, and 84 to 95—remaining numbers expected from Montreal, Canada.

2.—Railroad Journal, quarto, vols. 1, 2, 3; octavo, vols. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 and 17; octavo vols. 18, and loose nos. to date; being nearly a complete set.

3.—Reports and Documents, 6 or 7 octavo vols.

4.—Tredgold's Carpentry, quarto, with plates.

5.—Barlow on Strength and Stress of Timber, octavo, with plates.

6.—Turnbull on Iron, octavo.

7.—Nicholson's Masonry and Stone Cutting, octavo, with plates.

8.—Tredgold's Tracts on Hydraulics, octavo, with plates.

9.—Gregory's Mathematics for Practical Men, octavo, with plates.

10.—Wood on Railroads, octavo.

11.—Pambour on Locomotives, octavo, with plates, (Philadelphia edition.)

12.—Lecount on Railroads, octavo, with plates.

13.—Smeaton's Tracts, 1796, octavo, with plates.

14.—Seward's New London Bridge, octavo, with plates.

15.—Storror's Treatise on Water Works, duodecimo.

16.—Report on Atmospheric Railway, etc., quarto, with plates.

17.—Gallier's Price Book and Estimator, octavo.

18.—Public Works of Great Britain, folio, \$25.

19.—Weale's Bridges, new and valuable, \$23.

☛ The above books will be sold by the single volume, if desired, and forwarded by express, or otherwise, as directed by the purchaser.

Please address E. HEDGE, Railroad Journal Office, 23 Chambers street, New York. 1y

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO, 45 North Water St., Philadelphia, or by their Agent, ROBT. NICHOLS, 79 Water St., New York; 28tl

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT, Factory, 9th street, near Coates, cor. Melon st. Office, No. 3 North 5th street, Philadelphia, Pa. 1y25

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY, a45 President of the Newcastle Manuf. Co.

NEW YORK AND ERIE RAILROAD Company Notice. The Stockholders of the New York and Erie Railroad Company are hereby notified, that the annual election for Directors of the company will be held at the office, No. 45 Wall st., in the city of New York, on Tuesday, the 15th day of October next, from 10 o'clock, A.M., to 3 o'clock, P.M.

The Transfer Books will be closed from the 22d of September until the day after the election.

By order of the Board of Directors, NATHANIEL MARSH, Secretary. New York, September 12, 1846. 4138

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ¼ inch Flat Punched Rails, 20 ft. long. 25 " 2½ x ¼ " Flange Iron Rails.

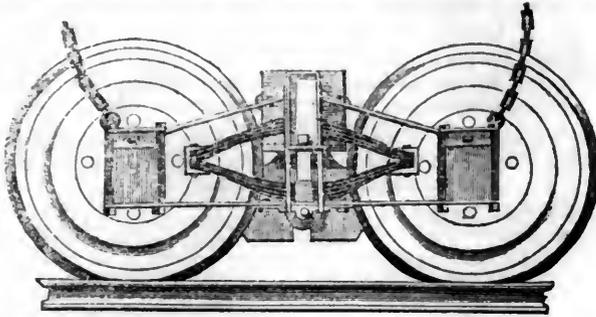
75 " 1 x ¼ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, Albany Iron and Nail Works, 1y

RAY'S EQUALIZING RAILWAY TRUCK--THE SUBSCRIBER having recently formed a business connection in the City of New

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.



Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846. W. H. CALKINS, and Others.
To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] WILLIAM ROE, Supt of Power.
I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845. [Signed,] G. A. NICOLL,
Supt Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,
Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.
This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

[Signed,] JOHN LEACH,
Long Island Railroad Depot, Jamaica November 12, 1845. 1y19 Supt Motive Power.

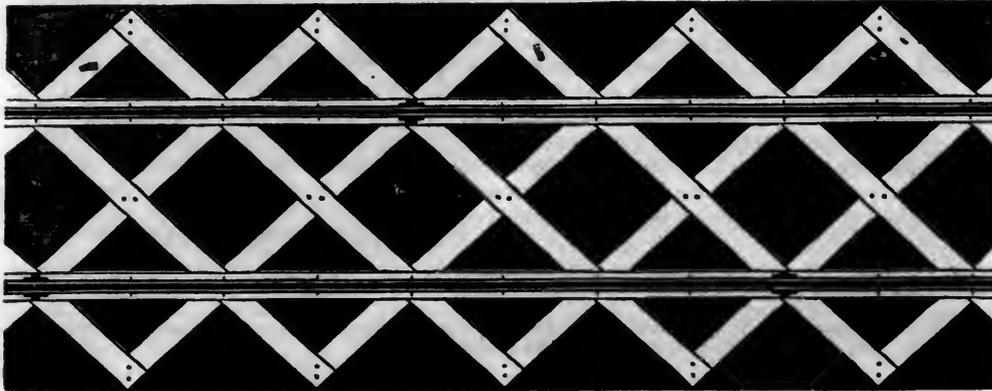
York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for *Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.
Civil Engineer and Patentee.
No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

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- ENGINEERS and MACHINISTS.**
- THOMAS PROSSER, 28 Platt St. N.Y. (See Adv.)
 - J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
 - TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
 - ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
 - S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
 - NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
 - KITE'S Patent Safety Beam. (See Adv.)
 - FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
 - NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
 - ROSS WINANS, Baltimore, Md.
 - CYRUS ALGER & Co., South Boston Iron Company.
 - SETH ADAMS, Engineer, South Boston
 - STILLMAN, ALLEN & Co., N. Y.
 - JAS. P. ALLAIRE, N. Y.
 - PHENIX FOUNDRY, N. Y.
 - ANDREW MENEELY, West Troy.
 - JOHN F. STARR, Philadelphia, Pa.
 - MERRICK & TOWNE, do.
 - HINCKLEY & DRURY, Boston.
 - C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. **JOHN F. WINSLOW, Agent.**

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

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*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

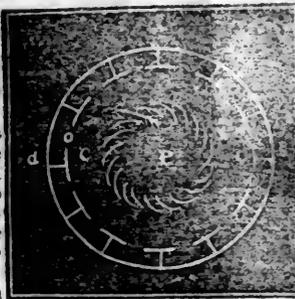
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. **FRENCH & BAIRD.**

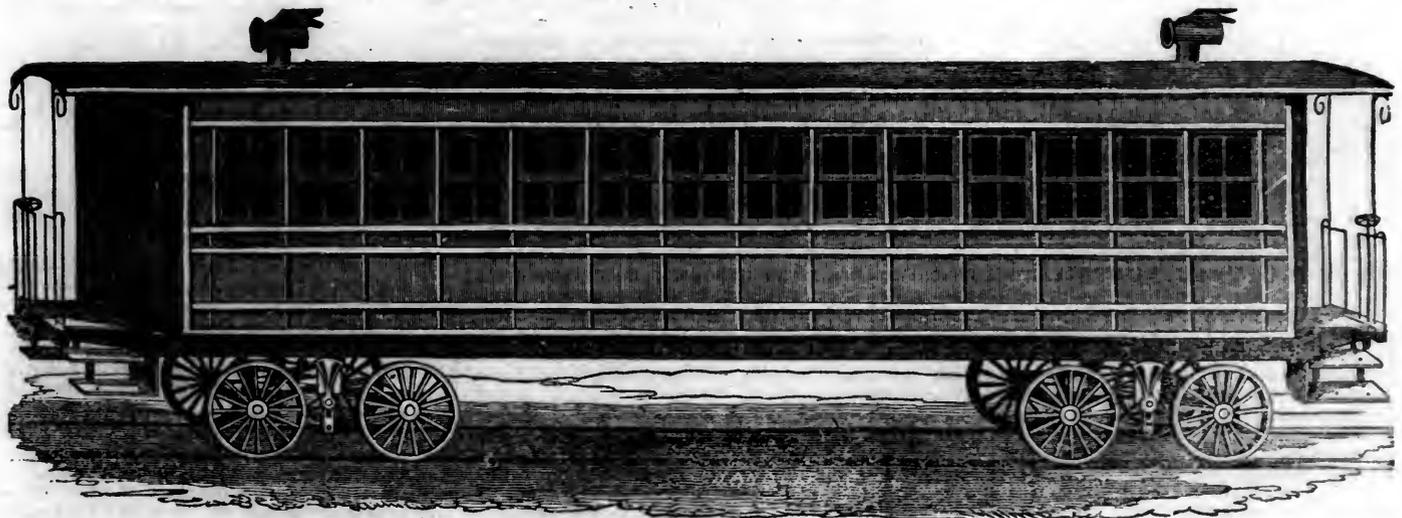
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45



BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

141

PATENT HAMMER ED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, *Agent.*

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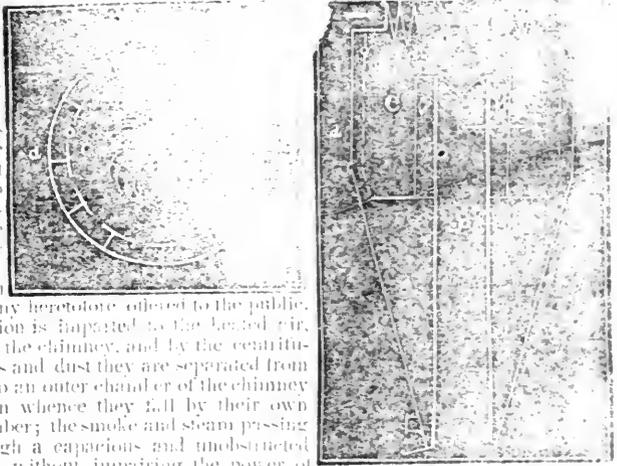
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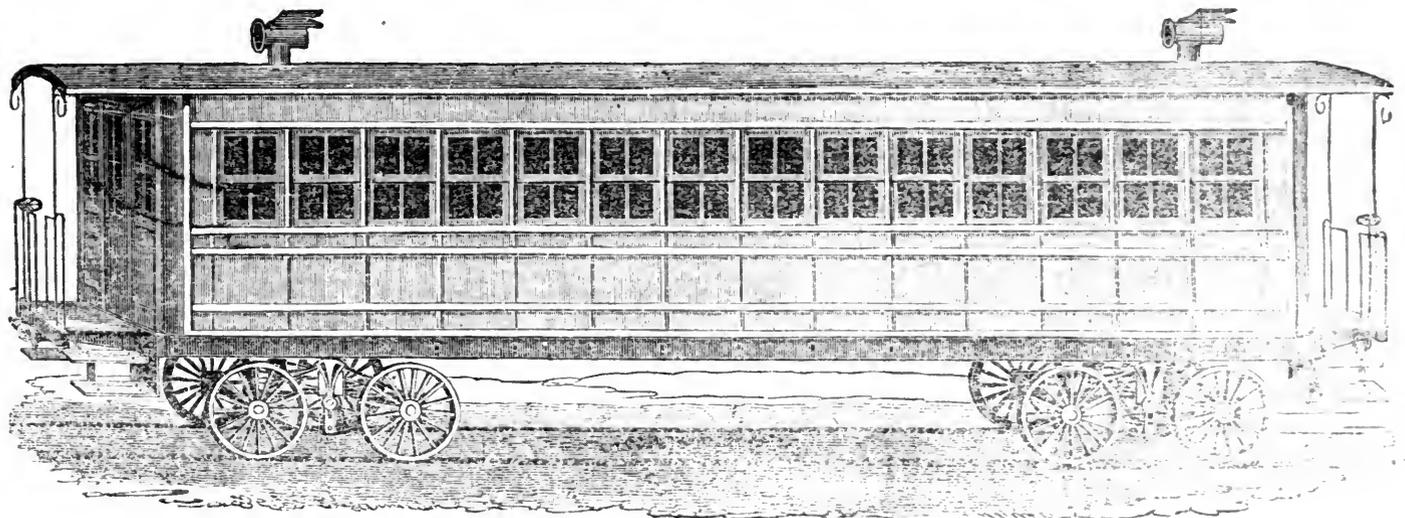
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N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. *** The letters in the figures refer to the article given in the Journal of June, 1844. ja15



BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our Fair Buildings and Theatre Institutions, Colleges, Almshouses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Harbors, Sails, Cotton and Woollen Mills, Manure dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of O. K. MINOR, 25 Chambers St., N. Y.

DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the world. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes. ja15

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.



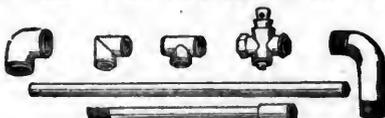
No 23 Pear street, below Walnut, 1y10 near Third, Philadelphia.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by MORRIS, TASKER & MORRIS. Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

LAP - WELDED WROUGHT IRON TUBES

FOR

TUBULAR BOILERS, FROM 1 1/4 TO 6 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25 28 Platt street, New York.

THE SUBSCRIBERS, AGENTS, FOR the sale of

Codorus, Glendon, Spring Mill and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L KIMBER, & CO.,

59 North Wharves,

Jan. 14, 1846. [1y4] Philadelphia, Pa.

PATENT INDESTRUCTIBLE WATER PIPES. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

J. BALL & CO.

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP, 75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

Wire gauge number.	WIRE ROPES.		HEMPEN ROPES.		CHAINS.		STRENGTH. Tons.
	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.	
11	4 1/2	13 5	10	24 -	50	15-16	20
13	3 1/2	8 3	8 1/2	16 -	27	11-16	13 1/2
14	3 1/4	6 11	7 1/2	12 8	17	9-16	10 1/2
15	2 1/2	5 2	6 1/2	9 4	13 1/2	1-2	7 1/2
16	2 1/2	4 3	6	8 8	10 1/2	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee G. A. NICOLLS, Reading, Pa. ja45

OFFICE NEW YORK AND ERIE RAILROAD CO., 45 Wall-Street, New York, Aug. 28, 1846. }

NOTICE IS HEREBY GIVEN, THAT PROPOSALS will be received until the 13th day of October next, for the Grading, Masonry and Bridging required to complete that portion of the New York and Erie Railroad between a point three miles east of Port Jervis in Orange county, and the village of Binghamton in Broome county, a distance of about 133 miles.

Maps and profiles, estimates and specifications, will be found after the 10th of September in the office of the company, at New York city, where every necessary information will be given. The engineers on the line of the road will also furnish all requisite facilities to contractors desirous of examining the route.

The line will be divided into sections of convenient length for construction, and proposals in writing will be received at the New York office for the whole or any part of the work. By order of the President and Directors.

6:36 T. S. BROWN, Chief Engineer.

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.

This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 17

GEORGE VAIL & CO., SPEEDWELL IRON WORKS, MORRISTOWN, MORRIS CO., N. J.—

Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. 1y1

ST. LAWRENCE AND ATLANTIC RAILROAD.—

Notice to Contractors.—Proposals will be received at the office of the St. Lawrence and Atlantic Railroad Company, No. 18 Little James Street, in the City of Montreal, until the 24th of September next, for the Grading, Masonry and Bridging, of a division of the Road, extending from the St. Lawrence River to the Village of St. Hyacinthe, a distance of about 30 miles.

Plans, Profiles and Specifications will be exhibited, and the requisite information given at the Engineer's Rooms in the Company's Offices, at Montreal, on or after the 15th of said month.

Persons offering to contract for the work, or any part of it, will be required to accompany their proposals with satisfactory references.

By order of the Board, THOMAS STEERS, Secretary. Office of the St. Lawrence and Atlantic R. R. Co., 3:36 Montreal, 25th August, 1846. }

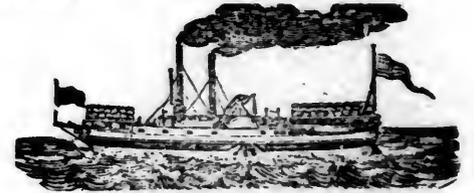
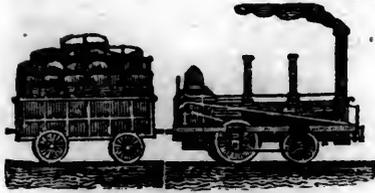
NEW YORK AND ERIE RAILROAD CO.

The stockholders of the New York and Erie Railroad Company are hereby notified that an instalment of Five Dollars per share on all shares on which the payments already made do not exceed 20 dollars, is required to be paid, (agreeable to the terms of subscription) at the office of the company, No. 45 Wall street, on or before the 1st day of October next. By order of the Board of Directors.

NATHANIEL MARSH, Sec'y. New York, August 31st, 1846. 4:36

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.
SECOND QUARTO SERIES, VOL. II., No. 40.] SATURDAY, OCTOBER 3, 1846. [WHOLE No. 537, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.
Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.
Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.
Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3½ p.m. All baggage at the risk of the owners thereof.
31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD AND STAGES Connecting with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connect.on with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco. Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows: Boston for Portland at 7½ a.m. and 2½ p.m. Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m. Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 5 p.m. Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 5 and 8 p.m. Portland for Boston at 7½ a.m., and 3 p.m. Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m. Haverhill for Boston at 6½, 8½, and 11 a.m., and 1 and 6½ p.m. Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m. The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, *Super'l.*

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4, 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams Bridge trains will be regulated according to the state of the weather.

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A. M. and 4 P. M.
" Middletown at 6½ A. M. and 5½ P. M.
FARE REDUCED to \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P. M.
" Middletown at 12 M.
The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, *Sup't.* March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 if

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced. 1846. Spring Arrangement. 1846

Commencing April 1st.

Passenger trains leave daily, Sundays excepted—
Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6½ " and 2½ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.
Boston, Albany and Troy:

Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush. Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES, Superintendent and Engineer.
Western Railroad Office,
Springfield, April 1, 1846. } 14 ly

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail—which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

TROY AND SARATOGA RAILROAD.
THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug. 3, 1846.

THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00
" " Sandusky to Buffalo, Cabin..... 6 00
" " " " Steerage.... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, *Sup't, etc.*
M. & S. C. R. R. Co.

Sandusky, Ohio.

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail. Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sts.

43 1y

NEW RAILROAD ROUTE FROM BUFFALO to Cincinnati.

Passengers destined for Columbus and Cincinnati, O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance.....230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron.] to Mansfield, distance..... 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

TIME.
From Buffalo to Sandusky..... 24 hours.

Leave Sandusky 5 a.m. to Columbus.... 14 "
From Columbus to Cincinnati..... 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.
From Buffalo to Sandusky, Cabin.....\$6 00
" " " " Steerage..... 3 00
" Sandusky to Columbus..... 4 50
" " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 39 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, *Sup't, etc.*
M. & S. C. R. R. Co.

Sandusky City, Ohio.

BALTIMORE AND OHIO RAILROAD.

MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.
Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.
PETER COOPER, 17 Burling Slip. New York.

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:

Leaves Baltimore at.....9 a.m. and 3 1/2 p.m.
Arrives at.....9 a.m. and 6 1/2 p.m.
Leaves York at.....5 a.m. and 3 p.m.
Arrives at.....12 1/2 p.m. and 8 p.m.
Leaves York for Columbia at...1 1/2 p.m. and 8 a.m.
Leaves Columbia for York at...8 a.m. and 2 p.m.

FARE.

Fare to York.....\$1 50
" Wrightsville..... 2 00
" Columbia..... 2 12 1/2

Way points in proportion. PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg..... \$9
Or via Lancaster by railroad..... 10

Through tickets to Harrisburg or Gettysburg... 3
In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5 1/2 p.m.

Returning, leaves Owing's Mills at.....7 a.m.

D. C. H. BORDLEY, *Sup't.*

31 1y Ticket Office, 63 North st.

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

35 1y

SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50
Fare through from Charleston to Huntsville, Decatur and Tusculumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.
1y25 JOHN KING, Jr, *Agent.*

CENTRAL RAILROAD-FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.
On measurement goods..... 13 cts. per cubic ft.
On brls. wet (except molasses and oil).....\$1 50 per barrel.
On brls. dry (except lime)... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.
On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, *Civil Engineer,* Pittsburg, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. 1yl

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 130 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 fe. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 100 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja4

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

NEW YORK AND ERIE RAILROAD Company Notice. The Stockholders of the New York and Erie Railroad Company are hereby notified, that the annual election for Directors of the company will be held at the office, No. 45 Wall st., in the city of New York, on Tuesday, the 15th day of October next, from 10 o'clock, A.M., to 3 o'clock, P.M.

The Transfer Books will be closed from the 22d of September until the day after the election.

By order of the Board of Directors,
NATHANIEL MARSH, Secretary.
New York, September 12, 1846. 438

CUSHMAN'S COMPOUND IRON RAILS etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, Civil Engineer,
Albany, N. Y.

Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire,
Peter Cooper,
Murdock, Leavitt & Co. } New York.

J. Triplett & Son, Richmond, Va.
J. R. Anderson, Tiedegar Iron Works, Richmond, Va.

J. Patton, Jr. } Philadelphia, Pa.

Colwell & Co. } Waterbury, Con.

J. M. L. & W. H. Scovill, Waterbury, Con.

N. E. Screw Co. } Providence, R. I.

Eagle Screw Co. } Providence, R. I.

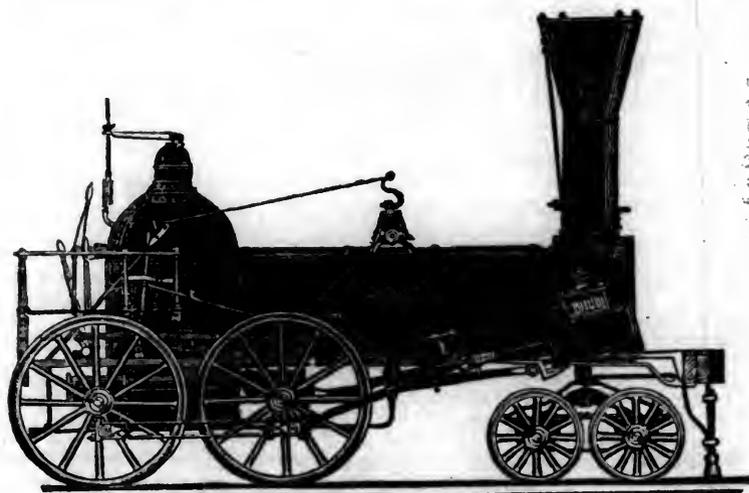
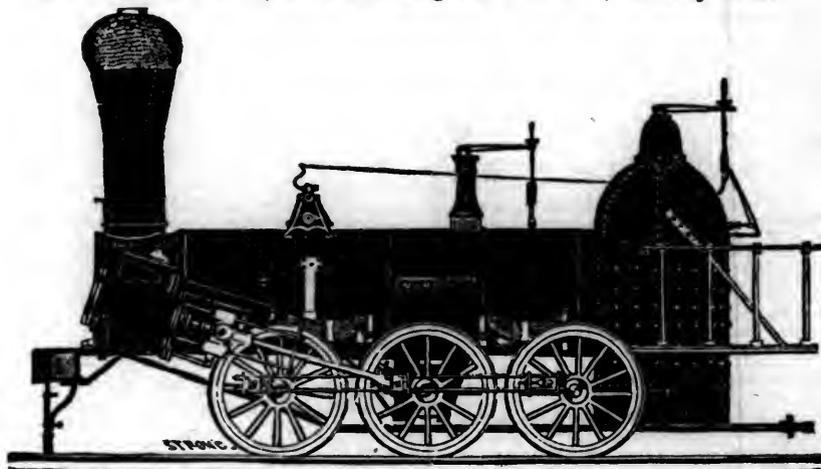
William Parker, Supt. Bost. and Worc. R. R.

New Jersey Malleable Iron Co., Newark, N. J.

Gardiner, Harrison & Co. Newark, N. J.
25,000 to 30,000 made weekly. 35 1y

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following description, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars

NORRIS, BROTHERS.

Cumberland Road.

The Baltimore Patriot of Tuesday gives this explanation in reference to the detentions and irregularities which have latterly occurred upon the Baltimore and Ohio railroad.

The occasional delay in the arrival of the cars at Cumberland is caused, so we learn, by the detention which sometimes necessarily takes place between Baltimore and Harper's Ferry, where, as is known, new rails are being put down. It will sometimes happen, despite every precaution, that the engine is retarded for a short time from this cause. But the work of relaying the road, with a new and massive rail, will be completed in a short time, and then all cause of complaint will cease, or all excuses for delay be taken away.

The travel over the road this summer has been unprecedentedly large, and the amount of freight carried greater than any one could have anticipated. These things may have contributed to the delay complained of, but these will also be remedied in a short time, as the company have now making several locomotives of very great power.

That the stages occasionally fail in their time, is to be ascribed to the exceeding heat of summer, which, so we learn, has been such, on several days, as to render it impossible for horses to come up to the time required. But every effort is made to take the passengers through in the time fixed, and we understand that it is almost always done. Still, if more energy is wanting, the stage proprietors should see that it is given.

That this great central route between the east and the west is the best, is proven by the popularity which it has established for itself, and by the preference which is given to it over all others by travellers. We believe it deserves this popularity; and when the new rails are placed on the road between this city and Harper's Ferry, making the entire line of railroad from Baltimore to Cumberland equal to any in the country, the passage will be made to Cumberland, and thence to Wheeling, in much shorter time than even now. We understand, indeed, that it is intended by the proper authorities, in a short time, to make a thorough examination of the whole route hence to Wheeling, and that whatever is found to be wrong, to contribute to delay, or cause dissatisfaction to the travellers, will be inquired into and remedied as far as it can be.

Georgia Railroad and Banking Company. Annual Report.

The following reports of the president and engineer of the Georgia Railroad and Banking company has been some time in hand, and its appearance in the Journal quite too long delayed.

We have long considered the people of Georgia entitled to high praise for their enterprize and energy in the prosecution of their important works of intercommunication. They have persevered, through great difficulties, until their work is completed; and a connection formed with the state road, which now extends nearly to the Tennessee river.

These two roads, together with the Charleston and Augusta road, form a continuous line of 415 miles, besides branches. When the State road shall be completed to the Tennessee line, and the road from

thence to Nashville, be—as it *must certainly soon be*—constructed, and the contemplated connection with the Montgomery [Ala.] road made, then will this company begin to reap the rich returns for which they have labored, and which they so eminently deserve.

By a reference to the president's report, it will be seen that the net earnings were, during the past year, equal to 6½ per cent., even though a portion of the road was in use only a part of the year.

We also regret that the Rome branch has not progressed as was anticipated, and trust that measures will soon be taken to "revive and complete that enterprize." It is too important a link in the great work of southwestern railroads to remain in an unfinished state.

There is also another branch, the Hivawsee road to Knoxville, long since nearly graded, which must also be again taken hold of and completed. We shall not cease to urge on these works whenever an opportunity presents of referring to them.

PRESIDENT'S REPORT.

To the Stockholders of the Georgia Railroad and Banking Company:

A statement of the cashier, hercunto annexed, will show the financial condition of the company, at the end of the last fiscal year: and the report of the chief engineer, herewith presented, exhibits in a clear and satisfactory manner, the condition and management of the road, up to the same period.

For obvious reasons, the operations of the bank have been very small during the past year. Though the institution possesses great strength from its valuable property in the road, its banking capital is small, and the heavy and uncertain draughts upon it for the construction of the road, have been inconsistent with an extended banking business. Besides furnishing, however, a depository for the safe keeping and management of our finances, it is believed that this branch of the institution has, at least, paid the expenses of its management; and as the road is now finished, and the cost of construction almost entirely liquidated, our banking operations may be considerably extended with safety and profit.

By the statement of the engineer it will be seen that the net profits of the road for the last year are.....	\$179,137 85
For the same time the interest paid was.....	\$56,773 56
Reduced by interest, discount, etc., received.....	36,154 38
Balance of interest.....	20,619 18
Add bank salaries, taxes and incidentals.....	10,155 22
Leaving net.....	\$148,363 45

Or about 6½ per cent on the capital stock after deducting interest and all other expenses properly chargeable against both bank and road. As the crops of both cotton and provisions, in that part of Georgia on which our road has heretofore mainly depended for support, have been uncommonly short—and 42 miles of the road were in use only half the year—this result is very favorable, and could only have been secured by the extension of the road, which was completed in September last.

The bearings of trade and travel in refer-

ence to our improvement, have been fully discussed in previous reports, and are too well understood by the stockholders to require further notice here. Though the company has not the surplus means of its own, to embark further in railroad enterprize, the stockholders feel a deep interest in the progress of such connecting improvements as must increase its business and enlarge the field of its operations. The State road has already progressed to a point near the Oostenaula, and sufficient means have been provided by the state to carry it to Cross Plains without any unnecessary delay. The progress of this road has already been marked by important changes in the business relations of the west, and when it reaches Cross Plains (fifteen miles from the Tennessee line,) a very large amount of trade and travel must leave their accustomed channels and turn to the South Atlantic coast. Should the State road be completed to Chattanooga, and the recently chartered road from that place to Nashville be built, the value of the business can scarcely be estimated, which would seek the shortest outlet through the ports of Georgia and Carolina.

The short but important branch from the State road to Rome, has not progressed as anticipated in a former report. This is the more to be regretted, as an enterprizing individual has, during the past winter, navigated the Coosa river, between Rome and the Ten Islands, with entire success; and the completion of this short road would divert the trade of the entire valley of the Coosa, and a large portion of North Alabama. The directors have understood that efforts are now making to revive the enterprize, with strong hopes of success.

Important to our road as are the connecting improvements already named, those to the southwest of our terminus are perhaps equally so. Deeply impressed with the importance of an early completion of the Montgomery and West Point railroad, the directors recently agreed to guarantee the bonds of that company, for one hundred and twenty-five thousand dollars, to accomplish that desirable object. The board was not unmindful that the credit of the company should be pledged with great caution for any purposes whatever. But deeming the object very important, and the security against loss entirely ample, the guaranty was pledged on certain conditions, which, together with the measure itself, are respectfully submitted to the consideration of the convention.

The directors are now enabled to congratulate the stockholders on the final completion of their enterprize. A connection with the State road, at Atlanta, was made in September last, and a heavy and expensive increase in accommodations and outfit for an enlarged business, has also been made. Our investment will now assume more of a fixed and settled character. As the road and outfit have cost about one million more than the capital stock, a debt for a part of that amount has been necessarily contracted. The finances of the company have, however, been greatly simplified, and its liabilities are under

easy control. A sinking fund from a portion of the net profits should be regularly applied to a reduction of the debt, while the convenience of many of the stockholders will be best consulted by dividends of the remainder. This policy has been already indicated by the payment of \$80,000 of the 8 per cent. debt, during the past year, and a dividend of two dollars per share to the stockholders, in January last. JOHN P. KING, *Pres't.*

Having given the report of the president, we now give that of the engineer, J. EDGAR THOMPSON, Esq., who is probably entitled to at least as much credit for the completion of this important work as any other man. He has been connected with it, we believe, from the first surveys; and has given to it his constant and untiring efforts, until he has the satisfaction of seeing the work, not only in successful operation, but also yielding, even now in its infancy, a fair return upon its cost. He also has the satisfaction of knowing that he has accomplished as much work—as great an extent of road for an equal amount of money as any other engineer. He has acquired a reputation of which he may well feel proud: and we trust that he has been equally successful in his pecuniary affairs.

In closing his report, Mr. Thompson intimates that his connection with the company is about to terminate. There is but one reason that he could assign, satisfactory to us, for such a step—and that is, that he may take charge of, and carry through at an early day, the road from the Tennessee river to Nashville. If he has this in view, we cheerfully give our assent to the measure—and bid him God-speed; as we shall then feel quite sure that that important work will be accomplished, to the great advantage of the Georgia railroads, as well as to that of the people of Nashville and Tennessee.

We give these reports entire, as we have heretofore done, that we may hereafter have them to refer to, by way of showing the increase of business on the line, and the advantages of railroads to an agricultural country. Our pages will show that we have devoted large space to this work, and given high commendation to its management. Yet we have fallen under the severe *reproof* (?) of its presiding officer, for having spoken, as he thinks, too favorably of another—and in some respects a rival-work. As to the justice, propriety and good taste of such a course, on his part, we shall, at an early day, give the readers of the Journal an opportunity to judge.

We shall always speak freely—certainly it is our aim to speak candidly and justly, but without fear or favor—in relation to railroads and their management. We may be misled, but we shall not rest silently under such reproof, even if we are requested to take it quietly and say nothing about it.

ENGINEER'S REPORT.

To the Honorable John P. King, *President of the Georgia Railroad and Banking Company:*

Sir: I have the gratification to report to the board, that the several lines of road which the company have contemplated building, are now in successful operation, embracing together 213 miles of railway, of which there are 171 miles upon the main line between Augusta and Atlanta.

That portion of the road, unfinished at the date of my last annual report, was opened for use early in September, the period pro-

vided for its completion, at the commencement of the extension beyond Madison. The cost of the new road has fallen considerably within the estimate submitted to the stockholders before its extension was undertaken. Up to this period the disbursements have been as follows:

Graduation	\$262,801 82
Culverts	14,930 73
Bridges. Ft. high. Ft. long.	
Alcoy river... 75... 1,400..	\$20,157 82
Cornish creek... 55... 720..	5,818 79
Wood's mill... 65... 423..	4,717 95
Dried Indian... 44... 900..	4,476 05
Turkey creek... 36... 360..	1,686 47
Yellow river... 67... 485..	11,532 02
Sundry small bridges.....	2,241 27
	50,630 37
Mud sills	20,548 81
Cross ties	24,521 59
Stringers	28,102 91
Iron, including duty.....	271,548 43
Iron chairs	11,646 74
Spikes and bolts.....	15,232 59
Laying superstructure.....	32,697 79
	404,298 86
Extension of Augusta warehouse, and building offices.	3,830 65
New foundry and stationary engine house.....	2,010 62
Depots and division houses on road.....	3,270 84
Engineering	23,434 76
Rod, chain and axemen.....	2,092 20
Wells, pumps, tanks, etc.....	2,045 98
Right of way.....	18,810 48
Real estate.....	11,365 81
Miscellaneous items.....	3,128 78
	69,990 12

Amount.....	\$802,651 90
In addition to this sum I have advanced on sundry unsettled accounts.....	7,332 33
Probable cost of unfinished work, consisting of covering and painting bridges, depots, division houses, extension of turnouts, etc.....	10,000 00

Total cost of 68 miles of road, including \$105,000 paid for duty on iron.....\$819,984 23

The plan of superstructure adopted for the extension, is described in my annual report of May, 1844. From our experience thus far, we are satisfied that it is better adapted to southern railroads, that have a considerable transportation, than any other. The iron rail is of the Ω form, weighing 40 lbs. per yard, laid on a continuous bearing of pine timber.

We have also expended during the year, in the purchase of locomotives, etc., and the construction of new cars, necessary for the increased length of the road, the following amounts:

For new locomotives, tenders, etc.....	\$24,366 63
40 new close freight cars.....	\$22,000
10 stock cars.....	4,750
2 large 8-wheel and 1 4-wheel passenger cars.....	5,080
1 long baggage and postoffice car.....	1,100
	\$32,930
Less value of five cars to replace two close and three open cars, worn out, and charged to expense account.....	2,450
	30,480 00
	\$54,816 63

To complete the outfit deemed necessary for the increased business expected next year, we have made arrangements for building

36 close freight cars, which will cost...	\$21,000 00
17 open " " " " " "	9,000 00
2 passenger and 1 baggage car.....	4,000 00
Total.....	\$34,000 00

These added to our present stock, will make our complement—150 close freight and stock cars, 70 open cars, 10 passenger and 4 baggage cars.

Our motive power now consists of 6 second class freight engines with single drivers, 5 freight engines with six wheels all connected, and 4 passenger engines. Three additional locomotives will also be required, one of which has already been ordered.

The warehouse at Augusta has been extended 127 feet, and is now 288½ feet by 40. The offices have been removed from the main building and placed upon its side, giving additional room for storage, which is now deemed sufficient for the wants of the company for many years. A new brick iron foundry, 40 by 80 feet, has also been erected, and material alterations and additions made to the shops. The erection of a larger engine house, and more comfortable quarters for our negroes, will constitute all the buildings that will be needed at Augusta. These together with the removal of the car factory to the back part of the lot, will cost about eight thousand dollars.

From the annexed statement, (which includes the receipts for freight on the W. and A. railroad,) it will be seen, that notwithstanding a short crop of cotton in the region tributary to our road, the operations of the year present results by no means discouraging.

BUSINESS.

Passengers up.....	\$47,129 12
" down.....	44,330 03
Extra trips, extra baggage, etc.....	1,312 78
Negroes in lots.....	870 50
Freight up.....	114,938 09
" down.....	75,302 13
" between way stations.....	4,858 34
United States mails.....	37,671 67
Rents.....	417 65

Amount.....	\$326,831 51
Deduct amount paid to Western and Atlantic railroad for freight due to that road from the commencement of its operations, to 1st April, 1846.....	11,489 92

Leaving the business of the Geo. R. R. \$315,341 59

EXPENSES.

Conducting transportation.....	\$31,353 53
Motive power.....	36,406 46
Maintenance of way.....	53,592 56
Maintenance of cars.....	14,851 19
	136,203 74

Leaving net profits.....\$179,137 85

The customary statements exhibiting the receipts and expenses, in much detail, will be found among the accompanying papers.

The business of the road exceeds that of last year, \$43,592 07, of which \$16,079 27 was received from passengers, \$21,385 60 from freights, and \$6,129 20 from mails, etc.

The whole number of bales of cotton carried over the road during the year, was 56,821, showing a decrease compared with the previous year of 21,127 bales. The down freight has fallen off, however, but \$14,819 56, owing to the transportation of other products than cotton, to a greater extent than usual.

The increased receipts of the road, notwithstanding the reduced rate of our charges, and the deficiency in the crop, exhibit results that must be gratifying to every stockholder, particularly to the advocates of its extension beyond Madison, by which alone its prosperity has been preserved.

With an average crop of cotton, our business would have reached \$350,000—the amount calculated as the probable receipts from the first year's business, after the completion of the whole road—although the most important part of the work was not brought into use until the close of the first six months of the year.

The average number of passengers, carried both ways during the year, per day, was nearly 66; of these, there was an average of 5 per day each way, entered through from Charleston to Montgomery.

The completion of the Western and Atlantic railroad to Oothcaloga, has virtually extended our road 80 miles beyond Atlanta, making the whole length of road from Augusta, 251 miles, (upon which the maximum gradient does not exceed 37 feet per mile,) which is nearly double the length of continuous line in use previous to September last. Under an agreement with the state of Georgia, our freight cars run through without transhipment. This arrangement enables us to carry freight at reduced rates, materially increases the usefulness of the road, and extends the circle of its influence.

At Oothcaloga we fairly enter the grain growing region, and our freight lists—which have heretofore been filled almost entirely with an enumeration of cotton bales—now exhibit the same variety of the products of the soil and mines, usually noticed in the statements of northern works penetrating agricultural and mineral districts. The amount of this description of freight is yet small, but with the extension of the road to the Tennessee river, it will become equal to, if not greater than is now transported upon any railroad connecting the Atlantic and western states.

The easy access to the seaboard from Augusta, either at Charleston or Savannah, must, if seasonable efforts are made on the part of her citizens, make her the great depot of these products, and consequently the point for exchanging them for merchandize for the consumption of the interior. The whole freight on agricultural products, from Chattanooga to Savannah, and to Charleston—if the South Carolina company should reduce its charges—will not exceed a half cent per pound; a rate, which must divert from the Mississippi the transportation of a vast region of country now tributary to New Orleans. It has been our practice heretofore to place the rates of freight on these articles comparatively low, deeming it true policy to encourage this transportation, even at cost charges, relying on receiving a return freight, from the proceeds of their sale, which would afford remunerating rates. I am fully satisfied that this policy should be continued.

The expenses of working the road, include the transportation of about 3,000 tons of iron and other materials for the extension, an average

distance of 150 miles, at an actual cost of about \$5,000. If we deduct this sum from the expense account, (\$136,203 74,) there will remain \$131,203 74 as due to the regular business of the road, which is equal to 41½ per cent. of the receipts.

The expenses per mile, run by the trains, for the past three years, are as follows:

	1844.	1845.	1846.
Conducting transportation.	17½ cts.	16½ cts.	13-9 cts.
Motive power.....	16½ "	14½ "	16-1 "
Maintenance of cars.....	6½ "	8½ "	6-6 "
Maintenance of way.....	25 "	23 "	23-7 "
Totals.....	66 cts.	62½ cts.	60-3 cts.

The number of passengers transported over the road during the year, is equal to 2,183,645 carried one mile, at a cost to the company of 2½ cents each.

The whole tonnage of the road, exclusive of materials for repairs, and including iron and lumber for the extension, is equal to 3,440,000 tons carried one mile, costing an average of 2 cents per ton per mile. The regular business of the road for the year, including the transportation of the Western and Atlantic railroad iron, is equal to 2,990,000 tons; which, if no charge is made for the transportation of materials for the extension and repairs, will give the cost per ton per mile, 2⅓ cents, or a little over one mill per 100 lbs. per mile.

The average cost of maintenance of way per mile of road, is \$274 80, which includes re-laying four miles of the Tilghman track, and provisions furnished negroes laying iron on the extension. The cost next year will be somewhat increased, from the necessity of keeping the road in more perfect adjustment, in consequence of the greater speed of the trains; it will not, however, reach \$300 per mile.

This department has been placed under the immediate direction of James H. Grant, as resident engineer, who was engaged for several years upon the construction of the road. His long experience, professional skill and great integrity of character, render him eminently qualified for the post he fills; and I feel entire confidence, that this branch of the service may be safely entrusted to his charge.

The transportation department has, under all the circumstances, been conducted by Mr. Arms in a manner very satisfactorily. With the exception of an interval of a few weeks, when the sudden increase in the length and business of the road, rendered it necessary to adopt a new system of running the freight trains, and add to the force several untried men, the trips have been performed with more than their usual regularity. The average speed of the passenger trains, was increased four miles per hour, which, for a time, caused some irregularity in their trips, and has rendered it necessary to incur heavier outlays on the repairs of the road.

The lower 75 miles of our road, it will be recollected, is laid with a plate rail ⅞ by 2⅞ inches. Although this has been in constant use for nearly nine years, the iron does not seem to be greatly worn. A few bars have been broken at the spike holes, and others

have failed from originally imperfect welding. Probably half a mile of new rails would replace all the defective bars. But as we shall require fully a mile of iron to increase the length of our turnouts, I would recommend the purchase of a small quantity of Ω rail, and the removal of an equal quantity of plate rail—including the defective bars—to the turnouts.

The increase of our business, and the demand of the public for high speed, for which the plate rail is not well adapted, will, I am convinced, at no remote period, render it necessary to relay this part of the road with a heavier rail throughout. This might be done as far as the material would reach, by the erection of furnaces and a rolling mill, with which to convert the present iron into a heavier rail; but I apprehend that it will be found more economical to sell the present bar and purchase the article desired.

In closing this report—the last annual communication that I shall probably make to the company—I cannot refrain from expressing my sincere acknowledgements to the board and stockholders, for the uniform confidence that they have manifested, throughout our connection, in my professional plans, and the management of the various interests of the company committed to the discretion of this department.

The enterprize that we have been for many years so arduously engaged upon, has been brought into successful operation; and it gives me pleasure to add, that those shareholders who have patiently continued with us to the final consummation of the object for which we have struggled, against adverse circumstances, have not only the gratification of having been instrumental in scattering incalculable benefits through a vast region of country, but they have made an investment in a property which yields a fair return for their capital ventured in its construction.

All of which is respectfully submitted by your obedient servant,

J. EDGAR THOMSON,
Chief Engineer and General Agent.

Miscellaneous Items.

Safety of Railroad Travelling.—It is an impression, says the Boston Traveller, somewhat prevalent in the community, that travelling by railroad is attended with more danger than any other mode of conveyance. We are fully convinced that this impression is erroneous, and that in reality "car riding" is attended with less danger than other modes. In proof of this let us look at facts. We are informed that since the opening of the Eastern railroad about 4,000,000 of passengers have passed over the road, and that of the entire number *not a single passenger has lost life or limb!* Now in what other way could these 4,000,000 have travelled so safely or so comfortably? Let us suppose them placed in stage coaches, and allowing 10 for each coach, they would require 400,000 coaches and 1,600,000 horses. If these coaches should be extended in a line, each occupying two rods, they would form a continuous line 2500 miles long, and if they should move constantly at the rate of 8 miles per hour, it would

require about 312 hours, or 13 days for them to pass any particular place.

Or, we will place them in steamboats, and if we put 200 in each boat, we shall need 20,000 boats, and these, allowing 40 for every mile, would form a continuous line 500 miles in length! Or, if we arrange them in a square, allowing 40 in width and 40 in length to every mile, we shall have more than 12 miles square, or about 150 square miles of steamboats. What a fleet this would make!

We think a glance at these facts and suppositions will convince any one that the modern mode of rail riding is the safest mode of riding, and certainly it is the most comfortable, rapid and cheap mode. It is true that the road on which our calculations are based has been managed with great care and skill, but we do not doubt that all other roads will give results sufficiently favorable to confirm our position.

Essex Railroad.—Considerable progress has been made in grading the past week, notwithstanding the great heat of the weather.—The bridging across Fry's mill pond is nearly completed, and almost the whole line will be graded from North river to Grove street by the middle of next week. The laborers have been at work more than 20 days. The ease and facility as well as cheapness of constructing a road over this route exhibits in bold relief the grand error of the early managers of the Eastern railroad in determining on their location for the route to Boston.—*Danvers Cour.*

The Madison and Indianapolis railroad was not so much injured by the flood as the western papers represented. A letter from the president of the company says, that the damage will be repaired in a week, at an expense of about \$1,200. Some years hence, the culvert must be permanently repaired at a cost of about \$8,000. The injury to the road does not interfere with its constant use. *N. Y. Com. Adv.*

Reduction of Tolls.—The rates of tolls on merchandize and furniture shipped on the Wabash and Erie canal in Indiana, have been reduced to 20 mills per 1,000 pounds for each mile not exceeding 100 miles, and 15 mills per 1,000 pounds for each mile in addition to 100.—*Pathfinder.*

Boston and Montreal Road.—The Concord Courier remarks that the opinion is now given in confidence by the friends of this road, that its affairs have been placed on such a footing that the construction of the road between this place and Meredith Bridge will be entered upon immediately, and that the road will be completed to that point with all due despatch. Operations have already been commenced on the bridge, over which the road crosses the Merrimac in this town.

Ice Business.—Accounts from Boston state that the sales of ice in that city have increased one-third over those of any previous year. The business there is carried on with great system and economy, and the ice sold at low rates. Hence its use is rapidly increasing amongst all classes, who discover new wants

for it every year. It is now a large article of shipment to all parts of the world. In London it has a preference over all others.

Walpole Railroad.—The Dedham, Mass., Democrat says "we understand that the prospect is very encouraging in relation to the road to Walpole. A large proportion of the stock is taken up, and we learn that the owners of the land through which it is to pass, have manifested the utmost liberality in relation to it, as regards damages, etc. A call for a meeting of the company is advertized to be held at Sumner's hotel in South Dedham, on Friday the 2d of October next."

Rome and Memphis Railroad.—On Thursday last, says the Rome Journal of the 16th inst., the adjourned meeting of the stockholders of the Rome and Memphis railroad, assembled at the court house in that place, for further preliminary arrangements in relation to the construction of the road. On that day the entire capital stock of \$150,000 was subscribed, and the sum of \$15,000 (\$5 on each share.) paid in. The stockholders proceeded to the organization of the company, by the election of directors.

The following gentlemen were chosen directors: John P. King, Dan'l Tyler, Altrad Shorter, Wm. R. Smith, J. W. M. Berrien, Dan'l R. Mitchell, John E. Park.

Subsequently the directors assembled for the purpose of electing their officers, when the following gentlemen were chosen: Wm. R. Smith, *president*, John E. Park, *secretary and treasurer.*

The road will extend from Kingston, descending the Etowah river, to the junction of that stream with the Oostenaula, the distance being, from the survey already made, about 17½ miles. It is estimated that the actual cost of the work fully equipped, cannot exceed half of the capital stock subscribed.

Quick Work!—The Baltimore Sun says: "A communication was made from Buffalo to Baltimore last week, and an answer was received at the telegraph office in the former city in about two hours! It will be borne in mind that the wires are not as yet connected between New York and Jersey city, and that the communication and answer had both to be re-written at Jersey city and Philadelphia. Thus this great work is progressing, and will soon girt the Union.

Ocean Steam Navigation.—We learn from the New York Express that the "Ocean Steam Co.," which has the patronage of the United States government to the amount of \$400,000 per annum, are getting on rapidly with the first steamship of their line. She is to be completed and commence running on the 1st of March next. The second steamship will be put under contract some time next month.

We learn from the Boston Times that the Vermont and Massachusetts railroad is being forwarded with much spirit, and the prospects are very promising.

The first section to Gardner is expected to be opened by the first of March next; and to Athol by the first of July. For four or five

months past, the prospects of the road have very much improved, and there is no reason why it will not be carried forward to completion—in fact, from Fitchburg to Miller's river, it is already not only under contract, but a portion of the way is ready for the rails.

The Baltimore Sun gives an account of a hand printing press, lately invented in London, which with ordinary power, viz: one man at the rounce, will work off four times as fast as any other press, the steam press or power excepted, has yet been able to work. A strong hand can work from 1200 to 1500 impressions an hour. The size of the press is about that of the common double pull press.

The directors of the Cape Cod branch railroad at their meeting on the 8th inst., chose a committee to engage an engineer, and have the road located immediately.

New Route between Boston and New York.—The Boston Times says that a large and heavy steamer of 1450 tons burthen, and 315 feet long, is in the course of completion at New York, which is intended as the pioneer of a new line about to be established to run from that city to Fall River, and from thence to this city by railroad. She is building under the direction of Capt. Joseph Comstock, and will cost, when completed, \$160,000. Another of the same size will be shortly contracted for.

In Less than No Time!—The Rochester Advertiser of the 18th inst. says, yesterday at a quarter before three, we received word from Boston, via New York, that there was no steamer in sight at three o'clock.

We learn with pleasure, from the Baltimore Sun that the Hon. Louis McLane resumed, on the 14th, his station as president of the Baltimore and Ohio railroad company.

Willmer and Smith's Times says that "the British iron trade has sensibly improved in consequence of the passage of the new American tariff; a fact that will be gratifying to the American iron trade, as it must tend greatly to relieve any excess of apprehension that may have been thoughtlessly and foolishly engendered."

Buffalo Telegraph.

The Buffalo Commercial remarks in reference to telegraph lately finished from New York to that city, that "the connection of New York city to Buffalo, by telegraph, which, when first talked of, was received with a smile of incredulity, is complete, and communications between the two terminating points are now interchanged with ease and regularity. By an arrangement entered into early last month, the papers in Albany, Troy, Utica, Syracuse, Auburn, Rochester and Buffalo, will be furnished with reports twice a day from New York—one in the afternoon, at half past 2 o'clock New York time, embracing the markets, and a brief summary of news; the other in the evening, beginning at 8 o'clock."

Something Novel.

A late European journal says that the "travellers on the Dutch railroads, being much annoyed by the dust during the hot weather, an expedient has been devised for the purpose of preventing annoyance by attaching a car pierced with holes, behind the tender. The car is filled with ice, which, being melted during the journey, effectually lays the dust!"

This may do, but we should hardly think it practicable. The demand for ice would be great, at all events! Passengers who go over the Long Island road, would be very glad to realize the benefits of this experiment, however—if there be any!

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

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Cars.—Minor Comforts and Conveniences.

As in human life small matters make up, according to which side the balance falls, either happiness or unhappiness—so the mere comfort or discomfort of large numbers may be produced at will by the variation of a few trifling particulars, which may happen to concern them. And when such numbers are thus exposed either to pleasure or pain, under circumstances having a tendency to make all men peculiarly sympathetic, to unite individual grumblers in general indignations—we cannot wonder at the vast mischief produced by neglected trifles.

In this view we think that in accordance with the plan we have marked out, the minor comforts and conveniences of railroad cars are well worth attention.

We have already spoken of the tendency to expend money upon the ornament rather than the comfort of cars as well as of vehicles of all sorts. Some of the finest specimens of car building which we have seen are not open to this objection—and the hope that much good having been done may tend to more, leads us to enumerate several points of convenience not uncommon in some of the best cars, but not all united in any one which we have seen.

The Material for the Cushions, Backs, etc., of the Seats.—This should be strong, not easily discolored, not apt to retain the cinders, and therefore not apt to give them or their dust to the clothes. No substance answers these purposes so well, is so cheap in the end, and so tasteful in its appearance, as the uncolored hair seating, now in use on many roads. Its use favors cleanliness in the cars, for a single wipe with a cloth removes all dirt, and it is the least apt to soil the clothes—in fact there is but one objection to it, viz: that from its slight adhesiveness, where the seat is not broad enough, a passenger reclining too carelessly, may, by a sudden jerk, be thrown upon the floor, or stop before he gets there at the risk of cutting in two his spine. All this may be remedied by the use of *fool boards*—one of the happiest introductions into some of our modern cars. By means of these the seat is better retained in a variety of positions, than could be done without them, on the slippery hair covering—passengers are less apt to put their feet upon the seats when they can stow them more comfortably elsewhere—the comfort derived from the varied posture which they admit—are all strong arguments in favor of one of the least costly and most useful conveniences of the car.

Windows—to combine all the desirable points—should be so placed as not to injure the strength of the car, should furnish light and air at and above

the heads of persons seated; should open and close with the greatest ease, and yet be free from all shake or rattle. Contrivances for these purposes are very numerous, and yet few answer. A spring operating on the sash seems the best means of preventing the unpleasant noise, but the means of opening and shutting the windows are generally such that one-third of those in a car are useless.

Some means should also be supplied for excluding the sun light and admitting the air at the same time, if necessary. Few of those usually adopted are without fault. Contrivances, perhaps of wire gauze screens, may possibly be made which will supersede all others.

State Rooms, as they are now styled, are admirable contrivances, well suited for families with young children, parties of two or more desiring privacy, or for invalids. Several cars in each train should have them, and as they are not constantly occupied by the same persons, many are thus accommodated.

There is another apartment which we need not name, but its uses are so necessary that no car should be without one. The absence of one with an unobtrusive entrance in cars which make a long trip, is nothing but downright cruelty.

Last of all, the fastenings to the doors should be strong, firm and free from useless friction, so as to be easily opened and closed, and all broken or injured fastenings should never remain over one day in use.

We may remark that one of the most comfortable cars we ever entered, was one of the first built by our friend Imlay, for the Philadelphia and Wilmington railroad, some eight or nine years ago; yet in point of durability of structure, ease of motion, and elegance of finish, we can refer with confidence to those made by Davenport & Bridges, of Cambridgeport, Mass.—and Eaton & Gilbert, of Troy, New York.

Railroad Connection between North and South Carolina.

To the Editor of the American Railroad Journal:

In a recent number of your valuable paper, I observe an article headed "Southern Railroad," in which you notice favorably a recommendation for capitalists to invest in a contemplated connection between the northern and southern roads, by way of Raleigh and Fayetteville, N. C., and Camden, S. C.—setting forth that a road can be constructed from Raleigh to Camden for \$1,000,000! The road from Gaston to Raleigh, 80 miles, cost \$1,600,000; by what process, then, can it be expected to construct a continuation of that same road from Raleigh to Camden, about 180 miles, over a similar country, for \$1,000,000? There must be some mistake in the estimate, calculated to mislead the public. My object, however, is not to throw obstacles in the way of a successful prosecution of that scheme, but to call attention to another, it may be a rival, scheme, having the same object in view, i. e., a connection between the northern and southern roads. The scheme I have reference to is the contemplated road from *Wilmington*, N. C., to Camden, or some other point of connection, with the southern roads. The distance is about 140 miles, over a comparatively level country; of the cost of which I will not hazard a conjecture, as there is a corps of competent engineers now engaged in making a survey of that route, who will be prepared to furnish an actual report of the cost of a road some time in October or November next.

A TRAVELLER.

We give place to the remarks of "A Traveller,"—whom we know to be a gentleman of intelligence and standing in the "Old North State"—with plea-

sure, as we shall the report of the engineer, when we receive a copy.

Our object in publishing the proceedings of public meetings, or communications from individuals, in relation to contemplated railroads, and rival routes, is to endeavor to throw light upon the subject—to draw attention to it, and, if possible, to promote the construction of such works as are required to complete the connection of, and to properly carry out the railroad system. We have no private interest to serve, nor griefs to assuage. The best route if possible—but a railroad at all events over some route between the roads of North and South Carolina, should be constructed at the earliest possible period. Wilmington and Charleston have a deep interest in the construction of the lower route; and it behooves them to move early in the matter, or the upper route will be likely to get the start of them. Of the relative merits of the two routes we cannot—for the want of accurate information—speak; but as to the great importance of a railroad to connect the roads of the north with those of the south, we are sure that we are not mistaken in saying that it is one of the most important links yet wanting in the great Atlantic chain.

Low Fares upon Railroads,

And the Camden and Amboy Railroad.

In a previous number we gave some extracts from the "address" of this company, to the people of New Jersey, which exhibited the manner in which this combination originated, what privileges the company enjoyed from their charter, what was the prospect ahead for them, and how they had managed from the commencement of their operations. We concluded our remarks by saying that the managers had adopted a price which has proved a burthensome and exorbitant tax upon through passengers, and we promised to show what our reasons were, why this company could, and ought to reduce the fare from the present high rate, (four dollars,) to and from Philadelphia and New York.

In the first place then, we say that the construction of the road from Jersey city to Bristol, has not cost the proprietors more than other roads upon our eastern borders, nor as much per mile as some other routes which we can refer to.

The distance from New York to Philadelphia is set down at about 90 miles, and the fare at \$4 brings it near four and a half cents per mile, for carriage, in first class cars. At the present high rates of conveyance, as compared with last year, on the Boston routes via Long Island railroad, Stonington, or Norwich routes, a distance of 232 miles, the rate is but one and seven-tenths cents per mile. Upon the Baltimore and Philadelphia routes—distance 93 miles by railroad, the fare—generally declared exorbitant also—is but \$3, or three and two-tenths cents per mile. From Boston to Portland, (Me.,) a distance of 109 miles, the price of fare is \$3 in first class cars—or an average of two and seven-tenths cents per mile. From Boston to Fitchburg, 50 miles, the fare is \$1 25, or two and a half cents per mile. The fare upon the Boston and Concord route, is \$1 75, distance 75 miles, or two and three-tenths cents per mile. The route from Boston to Plymouth is 37 miles, fare \$1, or two and seven-tenths cents per mile. From Albany to Boston 200 miles, the fare is \$5, or two and a half cents per mile. From Albany to Buffalo, distance 326 miles, the fare is \$12, or a fraction over three and six-tenths cents per mile, which is altogether too high. We are under the impression that a through ticket, at ten dollars, has been adopted on this line, but are not quite sure—therefore we give it as above. From Boston to Lowell, 26 miles, the fare is but 65 cents, or two and a half cents per mile—and this last road is

known to be one of the most costly, and yet it is paying as well as any in the country.

We might quote numerous other routes, but the above are the principal ones north of Baltimore, and will serve to show fairly the comparison we desire to make. Upon the routes we have enumerated, (nine in number,) and embracing all the principal connecting links between Portland, Boston, New York, Albany, Buffalo, Philadelphia and Baltimore, the average fare is but a trifle over *two and six-tenths cents per mile*. These roads are generally in good condition, the cars and appointments are, to say the least, equal to those on the roads now under consideration, and there is no falling off, apparent in their prospective prosperity.

Upon some of these roads [and we now refer more particularly to the "Boston and Lowell" road, as well as certain portions of the Eastern and Norwich and Worcester roads,] the price of fare has been considerably reduced from the original rates, within the last year or two. The experiment has proven to work admirably—more passengers are carried over the routes, commutation tickets are eagerly sought for, by the business men who desire a country residence, ten or twenty or fifty miles from the city; towns and villages will spring up along the line, the quantities of merchandize and freight passing to and from all points is greatly increased, and the companies who have adopted the principle of low fares, are succeeding beyond their most sanguine expectations. This has been established by actual trial, and therefore it is *known* to be practicable.

If then, the experiment adopted by a road as extensively constructed as most of the roads in New England must necessarily be, has worked so well, we can see no sort of reason *save that of individual or private interest*, or a determination to wield, *with relentless hand*, the power possessed, which can be urged against our proposition. We cannot however for a moment entertain such an idea of those who manage this company, and will therefore, for the present pass over this point.

The establishment of all great internal improvements are, or most assuredly *should be*, for the *public* good. The public is looked to, and appealed to, for support, and the result has proved that when these improvements have been properly conducted, with a view to the convenience and general accommodation of the wants and wishes of the public, the stockholders have invariably been the gainers. It is *not*, and *never was* intended that legislation should give to the *few stockholders* in any chartered company, rights or privileges which interfere with the comfort, desires, or interests of the people, who through their representatives, confer the privileges, secured by their charters. Nevertheless, in the instance before us, we have an exemplification of the results of the "*wise policy*," so strongly commended by the "address of the Camden and Amboy railroad company," and which secured to that company *for fifty years*, legally, such monopolizing privileges as no company before it ever yet enjoyed in this country—such "*privileges*" as no corporation should ever have been suffered to enjoy! Upon *this* point, however, we shall be more explicit hereafter.

We now come to the matter directly at issue in the premises, and shall close our present article with a few remarks and suggestions for the especial consideration of the "*powers that be*" connected with the railroads between this city and Philadelphia.

We contend then, that whatever of legalized power may be contained in the charter of this company, or whatever *peculiar* "*rights*" may have been delegated to this corporation, through the influences of le-

gislative "*log rolling*,"—for the pamphlet before us declares, in substance, that by the most determined and extraordinary efforts, only, was this charter and its extension obtained—those rights and privileges were given by the people of New Jersey to *use* and not to *abuse*. That there exists a vast deal of mismanagement, and that an overbearing and offensive disposition is constantly being evinced upon this road, towards passengers, by those whose duty it is to make the route a pleasant one, few will dispute! Of this, however, we have nothing more to say, at present. Our object is to show, if possible, that *the fare ought to be reduced*, and to convince the parties interested, that *it can be done* with increased profit to the stockholders, and very greatly, increased benefit and convenience to its supporters, *the public*.

Upon this subject, the St. Louis New Era remarks very truly, that "in Massachusetts, the average price of passage on the railroad cars is two and a quarter cents per mile in the first class of cars, and one and a quarter cents per mile in the second class. The companies have prospered most and secured the largest dividends when the price of passage and freight was kept very low. This has also been found to be the case in Europe. It is also the case with ships and steamboats."

We have shown, in the early part of this article, that the fares, established on *every other road*, north of Baltimore, is very considerably less than upon this, and in most of the instances quoted the price is but about, or a little more than *one-half* that charged upon the route to Philadelphia. Now none will say this road is not *generously* patronized, nor will it be contended, that the accommodations are anything *more* than they *should be*! The expense attendant upon conducting this route, and running the trains, is no greater than proportionate on other *well* managed roads, and we assume that *other* roads yield a handsome profit, *other* roads are well managed, and *other* roads are in every way successful, *with rates of fare 50 per cent. lower than this*. We are not at this moment, prepared to say how much *below* two cents per mile, the carriage for passengers upon these railroads can be made profitable; but we do say—and the statistics will support us in the assertion—that *TWO DOLLARS AND FIFTY CENTS* for an hundred miles upon *any* of our principal eastern routes, is ample fare; and we sincerely believe if the price were at once put down to *two dollars*, from Philadelphia to New York, the stockholders would reap a greater per centage than they *now* realize at four dollars.

All experience bears us out in this position—where the line of road passes through a thickly populated country, and especially with a large city at each terminus—and we point the reader to the roads in New England, especially, for proof of our statement—not one of them but pays a handsome dividend, upon a fare of two and a half cents per mile, and many at a less rate even; and not one of them but is permanently profitable, with a rapidly increasing business. We appeal, therefore, to the better judgment of those directly interested in this matter, and ask their candid and careful attention to the *facts* we have now presented. The country along the entire route from New York to Philadelphia, and particularly for some miles from each terminus, is capable of vast improvement.

Were the price of fare to be placed within the reach of men of moderate means, the amount of travel would be immediately increased; new towns and villages would dot the line of this road, as is the case throughout New England, and the miles of "*desert lands*" which now skirt some portions of

this route on either side, would, in a short period be made to "*blossom like the rose*." In the meantime the business of the route would be enhanced in every way, the travel would increase, and we feel certain in the prediction, that within two years, a much greater per centage upon the stock would be realized by the company. Travellers who now visit either city, but once a year, at \$4, would thus be induced to go twice or thrice, in a twelve-month; strangers would embrace the opportunity, while visiting one city, to enjoy a trip to the other, a luxury which cannot be afforded by every one, at the present rates: the business man would have his "*country house*," and the gentleman of leisure his summer mansion, in the vicinity of the cities. The conveyance of merchandize for the accommodation, convenience, and wants of a new and growing population along the route, would increase the carrying trade, and while the stockholders were reaping a growing advantage, the people who gave them their chartered privileges, and others from other states, would participate in the benefits accruing from, and intended by that gift. We again call the attention of this company to these facts, and trust that they will be received in the same spirit with which these hints are thrown out; believing as we do, that by proper management, and by evincing a disposition *to promote the public accommodation*, and the general good, that the company will secure the good will of the travelling community, and the people at large; and that not only in the end, but immediately they will reap a far richer pecuniary harvest, by the change we propose, than by persisting to maintain their present unreasonable and exorbitant rates.

We shall again and often refer to this subject, until the reasonable demands of the travelling community are attended to.

Atmospheric Railway System in England.

The article which follows, is extracted from the "London Mining Journal," of August 8th. It contains information interesting, at least to those in this country, who have watched the progress of the system, which has been as yet but indifferently understood, or appreciated. The writer remarks very aptly, that "Fulton was the object of raillery, even at the moment his steamboat was in motion"—and the principle of the atmospheric railway system, now but partially developed, will, in our opinion, at a future day, be the source of a higher and greater interest, than can now be conceived. We shall endeavor to keep our readers familiar with the progress of the system—or of its failure, if it *should fail*—of which we have little apprehension.

Progress of the Atmospheric Railway System.—(From the Reporter of the London Morning Herald.)

A few days since, I had an opportunity of testing the speed on the Croydon atmospheric, with light passenger trains, with the velocity reached on the Eastern Counties line with the special train to Yarmouth, the working of which I gave about a fortnight ago.—Until within the last three weeks the Croydon atmospheric has ceased running for some time, in consequence of the melting, during the recent extreme high temperature of the weather, of the composition used to prevent leakage in the longitudinal valve, and in consequence also of some slight imperfection in the longitudinal valve itself. During the cessation of its working, the defect in the valve has been remedied, and a new composition applied. This composition, it is said, will

work at a temperature of upwards of 140°, while the highest temperature of the tube during the late very hot weather was about 132°. It is also stated, that the composition will work perfectly well at 20° below freezing point.

The history of the progress of the atmospheric system, up to the present power of working is extremely interesting. It teaches us, likewise, the wisdom of receiving with much caution the theories of the most scientific men on practical subjects. Fulton was an object of mockery, even at the very moment his steamboat moved. It was not till it had breasted the waters for some distance, that the multitude who had assembled to witness its failure were sensible of their own presumption; and just in the same way that the predicted tractive power of the locomotive was ridiculed, was the asserted capability of traction by the exhaustion of a 15 in. tube emphatically disputed, and treated with contempt by the great promoters of the locomotive system—the very men who had themselves realized to the public rates of speed, which they had been told the locomotive could not possibly be made to attain.

The atmospheric system, undoubtedly, has its advantages; its opponents assert, that it has many disadvantages. I shall not attempt to decide between the contending parties.—My present object is to point out very briefly what it is now doing, and contrast its power with what it was said to be capable of performing. That it has power, the actual working at I am about to give will prove; and that it insures steadier, more luxurious, and safer travelling than the locomotive, all will readily admit. The questions to be decided before it can be declared commercially useful for long lines, are—Can regularity of departure and arrival be secured, and is the system sufficiently economical to warrant the construction of lines on the principle? These are questions into which I shall not here attempt to enter. To deal with the one, requires much more information than I am at present in possession of; and in the other is involved the propriety, as well as the power of maintaining a totally different system of passenger trains, and mode of accommodating the public. This is also too important a matter to be touched upon in a notice, the object of which is merely to elucidate two or three interesting facts connected with the progress of the system. In May, 1845, one of the most eminent railway engineers of the day, and himself, perhaps, the first locomotive manufacturer in the world, stated before a parliamentary committee, that a three mile section of a 15 in. atmospheric tube would not, with a vacuum of 20 in., be equal to more than 17 miles per hour on a level with a 40 tons train. How encouraging to struggling genius that these mistakes of great men, when dealing with its inventions and discoveries, should be made public! On the 16th of May, 1845, Mr. Robert Stephenson, in his evidence before the Northumberland committee, stated that the above was the limit of the tractive capacity of a three mile section of a 15 in. tube, with such a vacuum and such a load.

I give the following extract from a transcript of the short hand writer's notes of Mr. Stephenson's evidence, in proof of what I have stated.

'Cross-examined by Mr. Serjeant Wrangham.

'In point of fact you think the average rate of travelling would be 17 miles an hour?—I do not think with a three mile pipe it would exceed that. I do not indeed.

'Committee.—Referring always to trains of 40 tons weight? Yes.

'Mr. Serjeant Wrangham.—This is taking the case of a train starting after having stopped—starting from a state of rest? No! I am supposing a train put into a tube at the end and in motion; even then, it would not maintain an average velocity over three miles of more than I have stated.

'Do you mean that if a train runs in, at say 17, that it will not do more than maintain the same velocity? No, I do not think it will.

'I understand you, that taking a through train which never stops at all, it would travel at the rate of 17 miles an hour from Berwick to Newcastle? It might possibly exceed that when it came near the engine; but I do not believe the average in the three mile sections would exceed that. All my experiments here lead me to that conclusion.'

Such was the emphatic opinion, I say, of one of the first railway engineers of the day. But what is the actual working of a three mile section of 15 in. tube, with 35 tons equal to, with a vacuum not of 20 in., but considerably less! I will take the usual 9h. 50m. morning train from Croydon, and show what it is equal to. The train consisted of—

Three first class carriages—4 tons 2 cwt., each	12	6
One third class	3	15
A third class piston and heater carriage	12	0—23
Passengers, 97	7	0
Total	35	1

The train left the Croydon platform at 9h. 54m. 40s.

Mile posts.	h. m. s.	Miles in seconds.	Inches.
Started	9 54 40		
Entered tube	9 55 52		19½
¼	56 22		19½
½	57 2	40	
¾	57 32	30	71½
1	56	24	
1½	58 20	24	
1¾	59 3	20	
2	58 20	19	16
2½	59 3	19	15½
2¾	10 0	19	
3	18	18	14
3½	35	17	
3¾	52	17	13½
4	1 10	18	
4½	27	17	
4¾	43	16	12½
5	2 0	17	
5½	20	20	14
Left the tube	38		
Arrived at Forest Hill	2 41	24	

It is here seen, that from platform to platform, a distance of nearly five miles; including getting up and reducing speed when departing from Croydon and arriving at the Forest Hill station, the time occupied was

54m. 44s., which is something like 34½ miles per hour, and that the maximum speed was 56·25 miles per hour.

The next through train, the speed of which I noted, was the 10·50 morning express train, also from Croydon. This train consisted of the same number of carriages, and of about the same weight, that were taken down to Yarmouth by the special train.

Mile posts.	h. m. s.	Miles in seconds.	Inches.
Started	10 53 30		
Entered tube	54 30		19
¼	56		18½
½	55 28	32	17½
¾	51	23	
1	56 11	20	17
1¼	29	18	
1½	46	17	16
1¾	57	2	15
2	18	16	14½
2½	33	15	14
2¾	48	15	12½
3	58	3	15
3½	17	14	10
3¾	32	15	
4	47	15	
4¼	59	1	9
4½	15	14	
4¾	32	17	8½
5	49	17	
Forest Hill	11 0 15	26	

The five miles were, in this journey, gone over in 6m. 45s.—that is, from platform to platform—or at the rate of 43 miles per hour; the maximum speed being 64·28 miles per hour, and the average speed for two miles out of the five about 62 miles per hour.

I will now compare the working of the atmospheric 15 in. tube with that of the 6 ft. driving wheel engines used on the trip to Yarmouth with the 30 tons; and, in doing this, I shall adopt a mode by which the advantage is sure to be something on the side of the locomotive. In the trip to Yarmouth, the shortest distance run without stopping was from Norwich to that place, but as I could not make out the mile posts for the first seven miles after leaving the Shoreditch station. I am compelled to reckon from the mile posts beyond the stations. Of course it will frequently happen that the mile post is but a few yards, or nearly a mile from the station, I have therefore, reckoned from the second mile post past the stations on the locomotive line, while I have reckoned from the first only past the atmospheric station. The speeds will then stand thus:

	Bishop.	Atmospheric.			
	Stortford. Cambridge. Brandon.	1st trip. 2d trip.			
Miles.	sec. per m.	sec. per m. sec. per m. sec. per m. sec. per m.			
1.	98	81	81	87	67
2.	100	78	83	73	59
3.	102	77	82	68	58
	3)300	3)236	3)246	3)227	3)184
	100	79	82	76	61

36 miles per hr. 45 56 do. 43·9 do. 47·36 do. 61 do.

Atmospheric train 61
Locomotive Yarmouth train 43

Excess of speed on atmospheric with similar load 18

It is here seen, that a train of 35 tons—viz: five tons less than the weight which Mr. Stephenson said could be taken at 17 miles per hour only, with 20 in. vacuum, was taken through a three mile section of tube with a

much lower vacuum at 4736 miles per hour or at 30 miles per hour faster than the maximum fixed by that gentleman. The pistons of both these express trains entered the tube within two minutes after the pistons of the down trains had left it. Speed, easy motion and superior safety are secured by the atmospheric system, and, without going into the question of economy, I would ask, if in addition to what has already been done in its infancy, the atmospheric system can secure regularity with almost innumerable daily trains, who will be bold enough to assign a money value to the public benefits that must, in such case, result from such a realization.

Pennsylvania vs. Nova Scotia Coal.

The correspondent of the Journal of Commerce furnishes that paper with the following memoranda of an experiment, which exhibits a careful estimate, and which will be read with interest—proving, if the test was a fair one, that the anthracites of Pennsylvania are not likely to be so much injured, as some have imagined.

“This experiment,” says the journal “was made in 1843, by the great sugar refining company of Boston, for the purpose of directing their own interests. It was made under the superintendence of the president of the company, and the burning of each kind of coal was continued for about a week. The following was the result. The left hand column indicates the quantity of coal used, and the right hand column the quantity of water evaporated—both in pounds.

Lbs. of coal.	Lbs. of water evaporated.
19,022 Lehigh	181,177
17,618 Beaver Meadow	159,936
18,645 Lackawana	167,433
22,903 Sidney and Pictou	102,459

“From which it appears that—

1 lb. Lehigh evaporated	9 52-100 lbs. water.
1 lb. Beaver Meadow	9 08 “ “
1 lb. Lackawana	8 98 “ “
1 lb. Sidney and Pictou	4 47 “ “

“This experiment proves that the anthracites are worth more than double the same weight of Nova Scotia coal for generating steam, and therefore that the difference in price, if any, is no compensation for the difference in value. The great superiority of the anthracites results not entirely, if chiefly, from the superior quantity of heat which they produce; but in part at least, from the superior facility with which the heat of the anthracites is brought into action. The vast quantities of smoke and gas which are emitted from bituminous coal carry off with them a great quantity of heat, and require the fire to be placed at a greater distance from the boiler, by which a larger volume of air is brought between the fire and the boiler; and as air is a non-conductor, this circumstance embarrasses the heat which remains.

“These facts are full of importance. They account in some measure for the superior speed of American steamers over those of other nations. We are told that this thing has had one most remarkable test. A steamboat was built in Canada after the model of our South America. The builders were disappointed to find after all, that she would run but two-thirds as fast as the South America. Nothing would cure the disparity until Lackawana coal

was taken to her help, and this brought up her speed to the desired point of equality with the pattern boat. If the same change should be effected by the introduction of the same fuel to Atlantic navigation, another new era would astonish the world.”

Railroad Iron.

The Yarmouth Register has the following interesting description of the process of manufacturing railroad iron at the Wareham works:

The company is now employed in the manufacture of railroad iron, which is a new business, the first cargo having been shipped from the works on the 12th instant. It is thought that it can be made as cheaply as it can be imported. A gentleman who has recently visited the iron works in England, says there is no establishment in that country at which better railroad iron can be manufactured than at the Tremont works. There are eight furnaces now in operation; and when the works are completed there will be thirteen. The large breast water wheel, attached to the rolling and other machinery, is 25 feet long and 20 feet in diameter.

The first process in the manufacture is called *puddling and blooming*. By these operations the crude pig iron is freed from the oxygen, carbon and other foreign substances, and changed into malleable iron. The pig iron is placed in a *puddling furnace*, where it is raised to a very high temperature. The molten liquid mass is frequently stirred by the workmen with long iron bars inserted into a small opening in the door of the furnace, to facilitate the combination of the carbon and oxygen. After some time the fluidity assumes the consistence of a stiff paste. The doors of the furnace are then opened, and masses of two or three hundred weight are drawn out, and subjected to the action of a heavy tilt hammer, by which a portion of oxide of iron, carbon and other heterogeneous substances not consumed during the fusion, are forced out. The workmen hold and turn the iron under the hammer with long iron bars, which become welded to the half molten mass. This operation is called *blooming*, and the iron, after being subjected to the action of the tilt hammer, blooms.

The second process is *rolling* by which the blooms are converted into bar iron. The blooms are again heated, and passed several times between a pair of heavy cylindrical cast iron rollers, a foot or more in diameter. On the circumference of each of the rollers grooves are cut of the width of the intended bar, and the last of a series of a depth equal to half its thickness. One heat is sufficient to reduce the bloom to a bar. It is first passed through the deepest groove, then passed back over the upper roller, then through the next shallower groove, and so on to the last, which finishes the bar. No force is necessary after the end of the bar is entered; the friction of the rollers draws the bar through.

For railroad iron the bars are rolled down to one inch in thickness; one-third are six inches wide, and two-thirds, three inches. The bars are cut into pieces four feet long by machinery. A six inch bar of cold iron is

clipped off in an instant. These pieces are piled into bundles consisting of three six-inch, and six three-inch pieces, one of the six-inch bars being iron that has been rolled twice. This forms the lower part of the rail, for the iron must be of the best quality, or the flanges which are only one-fourth of an inch, are liable to be cracked in rolling.

These bundles are placed in a furnace, and their temperature raised to a welding heat. They are then taken out and passed several times through a pair of rollers similar to those above described, excepting that the grooves are cut in the form required for the shape of the rail. The whole operation of rolling out a rail is performed in two minutes and ten seconds, a much less time than it would require to give an intelligible description. The rails are cut by circular saws, 18 feet 3 1/2 inches long; but are only 18 feet long when cool. The rails are placed on a surface having three inches curve, and when cool, they are nearly straight. Each rail is carefully examined, and if any flaw or imperfection is found, it is repaired. The last operation is making them perfectly straight by means of a long lever. They are then piled and stuck, like so many boards in a lumber yard.

The rails when piled, are straight, smooth and free from flaws. The iron is of the best quality. We heard those who were judges of the article say, that none better had ever been manufactured. The company are now making twelve tons per day, and when the furnaces are all in operation, twenty tons will be manufactured each day.

Wabash and Erie Canal.

The Toledo Blade gives the following account of the business upon this canal.

The business of this noble channel of commerce is augmenting so fast that fears are entertained of a deficiency of water on Fort Wayne level. Already this deficiency is manifest, while the country has but begun to give forth the means of commerce. This level has not, for a portion of the present season, been kept as full as easy navigation required. The feeder from the St. Joseph, brought in upon it, is relied upon to supply a long line of canal east and west. This is found insufficient even for the present business. An additional supply must be provided forthwith. Our fall business, it is apprehended, will suffer for want of this supply. We would, therefore invite the prompt attention of the proper officers in Indiana and Ohio to this subject. The income from the canal is rapidly augmenting, and both states need all that it can be made to produce.

On the part of Ohio we can anticipate no want of the proper care of this matter from the present board of public works. Whatever provision shall be found necessary, and within their province, to make our public works productive to the state, and most useful to the public, they will be found prompt in making.

It is suggested by the Fort Wayne Times that a sufficient supply may be provided by making a reservoir and feeder on the St. Mary's. This should be examined into without

delay. Such a feeder would add to the business of the canal, while it would supply it with water.

A co-operation of the officers of Ohio and Indiana, in charge of the work, will probably be required for the adoption of the best plan; and no time should be lost in bringing about that co-operation.

A Railroad Dinner.

A traveller in England gives the following sketch of a railroad dinner in that country, to which, by the regulations of the road, exactly thirty minutes are allowed.

"To any one who had seen Englishmen dine only at leisure, it would really seem impossible that they should dine at all in half an hour. But they do it as effectually as could be done in any country. In a large hall we found a *table d'hote*, spread pretty much in American style, and the seats were taken possession of by a very hungry army of occupation in less than one minute. Woe to the waiters! An American army would first have devoured what was before them, but this British one first devoured the waiters.—They were called to pieces, went every way and brought nothing. The diners, seeing there was no more to be made of them, fell upon the viands actually before them in desperation, and fully made up for lost time.—Saddles of mutton and legs of pork disappeared by magic, and a great extent of pastry vanished like dew, before the bell rang."

Interesting Facts.

The Detroit Advertiser in an article upon the nature of the ores in the lake Superior region, remarks that Messrs. Robbins and Hubbard, of that city, have recently assayed a specimen of native copper from lake Superior, and found in 12 ounces of copper, not only 1½ ounces of pure silver, but several grains of gold! Those who are curious can see the several metals, as separated, at Messrs. Robbins and Hubbard's store.

The Lake Superior News extracts the above, and adds as follows:

"We copy the above from the Detroit Advertiser, of the 28th ult., and while some of our friends seem skeptical as to the reported result of the assay, we must be permitted to state that we can see no reason why it should not be true. Aside from the known character and integrity of Messrs. Robbins and Hubbard as assayers, the fact that the mineral of this region presents an entire originality, and is found differing from all other mining sections of the world, is sufficient to lead us to adopt the opinion that gold even may be found mingled with the copper, and that too, without 'exciting our special wonder.' For the purpose of arriving at correct conclusions, mere reasoning by analogy with regard to the mineral developments of the lake Superior country need hardly be attempted, and cannot safely be relied upon. Yet, while ourself would bear this principle in mind, which we have hinted for those who sneer at almost every development made in our mineral region, and who attempt to disprove the facts simply by analogy, we would beg to remind them that the Ural mountains, so famous for rich copper, possess also remarkable deposits of gold. The mine of Beresof,

for instance, about three leagues northeast of Ekaterinbourg, on the Asiatic side, and north even of the 60th degree of latitude, contains five parts of native gold in 100,000—its deposit constituting a large vein, running from north to south, and from which 500 marcs of gold have been taken out in a single year! Again: according to Bergman, the copper of the Andes is chiefly obtained from veins, (in blue argillite, it is true,) but generally accompanied with gold, silver, lead and iron, all of which, with the exception of gold, it will be readily admitted by every one, are found within the region of lake Superior.

We might witness more instances, where gold has been contiguous or accompanied with copper and the baser metals, but we have already said more on the subject than we had intended. When we commenced, we designed simply to state our settled opinion, fortified somewhat by many in the scientific field that gold may and does exist, more or less, among the ores of this region. To use the emphatic language of a learned friend in mineralogy, who has thoroughly studied their character, we are prepared to witness in the district of lake Superior, without the excitement of further wonder, the rarest and most profuse developments of mineral wealth that ever astonished the eyes of man."

Coal.—The Philadelphia Inquirer states that the total amount of coal shipped from the various regions in that state during the present season, up to the latest dates, has been 1,427,467 tons.

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,
45 North Water St., Philadelphia,
or by their Agent, ROBT. NICHOLS,
79 Water St., New York

RAILROAD IRON.—THE NEW JERSEY Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to FULLER & BROWN, Agent, No. 139 Greenwich, corner of Cedar street. September 18, 1846. 10c39

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE, ja45 N. E. cor. 12th and Market sts., Philad., Pa.

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON Mar. 20th 4 South Front St., Philadelphia.

Valuable Works on Engineering for Sale.

The following works, belonging to the late Wm. R. Casey, have been deposited at this office for sale. It will be seen that they comprise most of the standard books. The reports and non-enumerated pamphlets are however among the best part of the collection, as many of them are not to be found or purchased at any price. So desirable an opportunity seldom offers for securing an excellent set of professional works.

LIST OF ENGINEERING BOOKS BELONGING TO W. R. CASEY, DECEASED.

- 1.—The Civil Engineer and Architect's Journal, quarto, vols. 1, 2, 4, 5 and 6, and nos. 79 to 81, and 84 to 95—remaining numbers expected from Montreal, Canada.
- 2.—Railroad Journal, quarto, vols. 1, 2, 3; octavo, vols. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 and 17; octavo vols. 18, and loose nos. to date; being nearly a complete set.
- 3.—Reports and Documents, 6 or 7 octavo vols.
- 4.—Tredgold's Carpentry, quarto, with plates.
- 5.—Barlow on Strength and Stress of Timber, octavo, with plates.
- 6.—Turnbull on Iron, octavo.
- 7.—Nicholson's Masonry and Stone Cutting, octavo, with plates.
- 8.—Tredgold's Tracts on Hydraulics, octavo, with plates.
- 9.—Gregory's Mathematics for Practical Men, octavo, with plates.
- 10.—Wood on Railroads, octavo.
- 11.—Pambour on Locomotives, octavo, with plates, (Philadelphia edition.)
- 12.—Lecount on Railroads, octavo, with plates.
- 13.—Smeaton's Tracts, 1796, octavo, with plates.
- 14.—Seward's New London Bridge, octavo, with plates.
- 15.—Storrow's Treatise on Water Works, duodecimo.
- 16.—Report on Atmospheric Railway, etc., quarto, with plates.
- 17.—Galtier's Price Book and Estimator, octavo.
- 18.—Public Works of Great Britain, folio, \$25.
- 19.—Weale's Bridges, new and valuable, \$23.

The above books will be sold by the single volume, if desired, and forwarded by express, or otherwise, as directed by the purchaser.

Please address E. HEDGE, Railroad Journal Office, 36tf 23 Chambers street, New York.

RAILROAD SCALES.—THE ATTENTION

of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

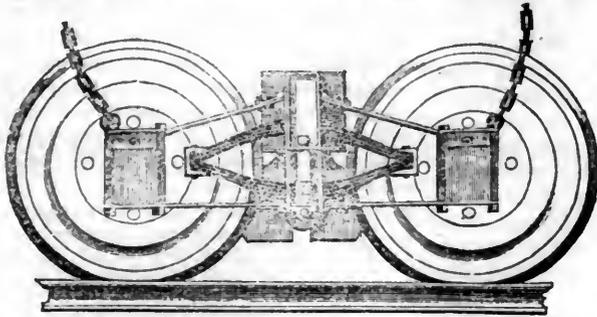
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LAWRENCE'S ROSENDALE HYDRAULIC Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

RAY'S EQUALIZING RAILWAY TRUCK.--THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks for ward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

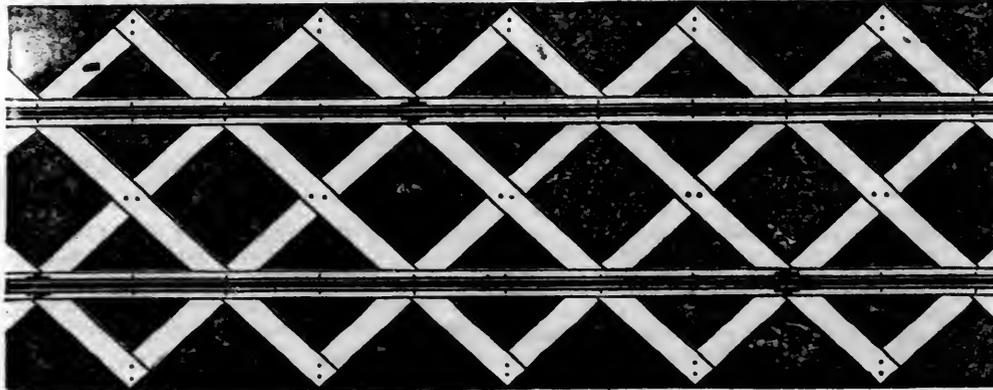
This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, Jamaica November 12, 1845.

[Signed,] JOHN LEACH,

Supt. Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserve timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

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- ROGERS, KETCHUM and GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KIPE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- PHENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.



RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Bataille, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATAILLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.
The undersigned purchased of A. S. Martin, No. 133 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 133 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
133 1/2 Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

16 11

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Supt Hartford and New Haven Railroad; W. R. M'Kee, Supt Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Supt New Jersey Railroad Trans. Co.; J. Elliott, Supt Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Supt Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Supt Macon Railroad, Macon, Ga.; J. H. Cleveland, Supt Southern Railroad, Monroe, Mich.; M. F. Chittenden, Supt M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844.

ja45



PATENT HAMMERED RAILROAD, SHIP AND BOAT SPIKES.

The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

MACHINE WORKS OF ROGERS, KETCHUM & GROSVENOR, PATTERSON, N. J.

The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
a45 Paterson, N. J., or 60 Wall street, N. York.

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

DAVENPORT & BRIDGES CONTINUE

to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

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ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.



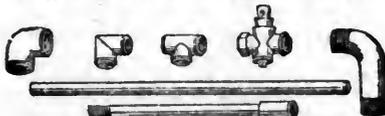
No 23 Pear street, below Walnut, 1y10 near Third, Philadelphia.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by MORRIS, TASKER & MORRIS. Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

LAP-WELDED WROUGHT IRON TUBES

FOR TUBULAR BOILERS, FROM 1 1/4 TO 6 INCHES DIAMETER, and ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee.

1y25 28 Platt street, New York.

THE SUBSCRIBERS, AGENTS FOR the sale of Codorus, Glendon, Spring Mill and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L KIMBER, & CO., 59 North Wharves, Philadelphia, Pa.

Jan. 14, 1846. [1y4]

PATENT INDESTRUCTIBLE WATER PIPES. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 28tf

J. BALL & CO.

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP, 75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	Tons.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4 1/2	13 5	10	24 -	50	15-16	20	
13	3 1/2	8 3	8 1/2	16 -	27	11-16	13 1/2	
14	3 1/4	6 11	7 1/2	12 8	17	9-16	10 1/2	
15	2 3/4	5 2	6 1/2	9 4	13 1/2	1-2	7 1/2	
16	2 1/2	4 3	6	8 8	10 1/2	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

NICOLLS' PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee G. A. NICOLLS, Reading, Pa. ja45

TYLER'S PATENT SAFETY SWITCH. The following decision of the Commissioners of Patents is respectfully submitted to Railroad Engineers, Superintendents; and all others interested in the subject.

(COPY.) UNITED STATES PATENT OFFICE, } Washington City, D. C., April 28th, 1846. }

Sir: You are hereby informed that in the case of the interference between your claims and those of Gustavus A. Nicolls, for improvements in safety switches—upon which a hearing was appointed to take place on the 3rd Monday in March, 1846, the question of priority of invention has been decided in your favor. Inclosed is a copy of the decision.—The testimony in the case, is now open to the inspection of those concerned. Yours Respectfully, EDMUND BURK, Commissioner of Patents.

To Philos B. Tyler. Any further information may be obtained by addressing John Pendleton, Agent for the Proprietor 149 Hudson Street, New York. 1m39

TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture: and for sale by

MORRIS TASKER & MORRIS, Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 1y

OFFICE NEW YORK AND ERIE RAILROAD CO., 45 Wall Street, New York, Aug. 28, 1846.

NOTICE IS HEREBY GIVEN, THAT PROPOSALS will be received until the 13th day of October next, for the Grading, Masonry and Bridging required to complete that portion of the New York and Erie Railroad between a point three miles east of Port Jervis in Orange county, and the village of Binghamton in Broome county, a distance of about 133 miles.

Maps and profiles, estimates and specifications, will be found after the 10th of September in the office of the company, at New York city, where every necessary information will be given. The engineers on the line of the road will also furnish all requisite facilities to contractors desirous of examining the route.

The line will be divided into sections of convenient length for construction, and proposals in writing will be received at the New York office for the whole or any part of the work. By order of the President and Directors. T. S. BROWN, Chief Engineer. 6:36

NOTICE TO CONTRACTORS.—BOSTON, Concord and Montreal Railroad Company.—This company is now ready to contract for the grading and masonry of said road, or any portion thereof, south of Meredith Bridge, with the exception of two miles immediately north of Merrimack River. They are ready, likewise, to contract for sleepers, and lumber for fencing said road from Concord to Meredith Bridge. Any proposals for grading masonry, sleepers, or fencing, may be left with Theodore French, Esq., Treasurer of said company, at his office in Concord, and it will receive due attention. PETER CLARK, Agent. Concord, September 2, 1846. 3:39

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/2 x 1/2 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/2 x 1/2 " Flange Iron Rails. 75 " 1 x 1/2 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 1lf

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/4 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, Albany Iron and Nail Works, 3:

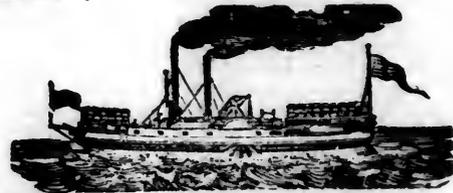
AMERICAN RAILROAD JOURNAL,

AND GENERAL ADVERTISER.

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 41.]

SATURDAY, OCTOBER 10, 1846.

[WHOLE No. 538, VOL. XIX.]

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7-20 a.m. and 3½ p.m.

All baggage at the risk of the owners thereof.

31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD AND STAGES Connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad:

Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 32 ly J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m. Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m. Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m.

Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m.

Portland for Boston at 7½ a.m., and 3 p.m. Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 6½, 8½, and 11 a.m., and 1 and 6½ p.m.

Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that *personal* Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

ly31 CHAS. MINOT, *Super't.*

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3 30, 4 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams Bridge trains will be regulated according to the state of the weather.

ly18

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M. " Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M. " Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, *Sup't.* March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 tf

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846.. Spring Arrangement.. 1846 Commencing April 1st. Passenger trains leave daily, Sundays excepted—

Boston 7½ p. m. and 4 p. m. for Albany. Albany 6½ " and 2½ " for Boston. Springfield 7 " and 1 " for Albany. Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy: Leave Boston at 7½ a. m., arrive at Springfield at 12 m.; dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES, Superintendent and Engineer. Western Railroad Office, Springfield, April 1, 1846. } 14 ly

CENTRAL AND MACON AND WESTERN Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad 190 Miles.
 Macon to Atlanta—Macon and Western 101
 Atlanta to Oothcaloga—Western and Atlantic... 80
 Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20	pr. 100lbs. 35
Crockery, per cubic foot.....	0 15	" " 35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.		

Goods consigned to the subscriber will be forwarded free of Commissions.
 Freight may be paid at Savannah, Atlanta or Oothcaloga.
 F. WINTER, Forwarding Agent, C. R. R.
 Savannah, Aug. 15th, 1846. 1y34

LITTLE MIAMI RAILROAD.—1846.—
 Summer Arrangement.

Two passenger trains daily.
 On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1½ p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m.
 On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m.
 Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.
 Tickets may be procured at the depot on East Front street.
 The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount.
 W. H. CLEMENT,
 19 Superintendent.

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00
 " " " Richmond..... 6 60
 For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to STOCTON & FALLS, Agents. 1y14

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.
 AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.
 This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

RATES OF FREIGHT.		Between Augusta and Oothcaloga, 250 miles.	Between Charleston and Oothcaloga, 386 miles.
1st class.	Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 25
2d class.	Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	0 90	1 40
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 55	0 80
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 37½	0 62½
	Cotton, per 100 lbs.....	0 45	0 65
	Molasses, per hogshead.....	8 50	
	" " barrel....	2 00	
	Salt per bushel.....	0 17	
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows...	0 75	

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.
 Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.
 J. EDGAR THOMSON,
 Ch. Eng. and Gen. Agent.
 Augusta, Sept. 2d, 1846. *44 1y

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.
 This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
 Chief Engineer.
 Atlanta, Georgia, April 16th, 1846. 1y1

MARAMEC IRON WORKS FOR SALE.
 By Authority of a power of Attorney from Messrs. Massey and James, I will sell at Public Auction, at the Court House in the city of St. Louis, on MONDAY, the 2nd day of November next, the above named valuable IRON WORKS—together with 8,000 ACRES OF LAND, more or less, on which there are several valuable and productive Farms open and in cultivation.

The Maramec Iron Works are situated at the Maramec Big Spring, in Crawford Co., Mo., and consist of 1 BLAST FURNACE; 1 AIR FURNACE; 1 REFINING FORGE, with large Hammer for making Blooms and Anchovies; 2 CHEFFERY FORGES for Drawing Bar Iron; 1 ROLLING MILL for Rolling Blooms into Bars and Plates; 1 SAW AND 1 GRIST MILL,

All within 300 Yards of the head of the spring. There are 2 large frame Coal Houses, and all other Buildings necessary, such as Shops and Houses for the workmen.

This Spring is one of the largest in Missouri, discharging at the lowest time 7,000 cubic feet of water per minute. The Ore Bank from which the Ore has been heretofore taken is about 600 yards from the furnace; it is the *Specular Iron Ore*, the best for making Bar Iron, and the quantity inexhaustible.—It is an Iron Mountain, 400 feet above the level of the Maramec River; the ore is entirely uncovered, and there is an easy descent and a good road from it to the furnace.

The lands have been carefully selected by one of the owners with a view to the interest and convenience of the Works, and are situated principally on the Maramec River and its tributaries, embracing the best bottom lands and water powers. The following detached tracts, comprized in the above quantity, were selected for the advantages they possess

183½ ACRES in T. 40 N. of R. 8 W. in Sec. 3, near Wherry's Mill, in Osage Co.; entered to secure a very valuable Mill power on the Branca Spring and a good landing on the Gasconade River.

80 ACRES on Benton's Creek, 12 miles from the Works; entered to secure an extensive and valuable Ore Bank 2½ miles from the Maramec, at a point where there is ample water power.

320 ACRES in T. 38 N. of R. 4 W. in Sec. 22 and 28, affording an extensive and valuable water power on the Maramec river.

160 ACRES in T. 37 N. of R. 3 W. in Sec. 4, embraces two inexhaustible and valuable Ore Banks and is 1½ miles from Water power sufficient for a furnace and Grist Mill, and is distant 6 miles from the above site on the Maramec.

80 ACRES in T. 37 N. of R. 8 W. in Sec. 33, including an extensive bank of excellent Ore, and distant 1½ miles from water power on the waters of the Gasconade River, in Pulaski Co., sufficient for Furnace and Mills. All those Banks are of the same kind as the one at the Works, and deemed inexhaustible.

1 LOT, containing nearly one Acre, on the South Bank of the Missouri River, 4 Miles above the town of Hermann, purchased for a warehouse and landing, and is one of the best landings on the River.

The lands above described are well timbered, and have been selected with a view to have an ample supply of wood and coal, for fences, building and other purposes. There are on the land valuable quarries of Limestone well adapted for Fluxes for the Ore, and also good quarries of Rock suitable for building. There are also on the land a great number the finest kind of Springs. A large portion of the lands are bottoms well adapted to the production of Corn and other crops. The Works are situated in a very pleasant and healthful part of the country. The Maramec ore is believed to be admirably adapted to the manufacture of steel.

A further description of the property at this time is considered unnecessary, as those wishing to purchase will no doubt view the property, which will be shown by the Agent, residing at the works.

The terms of payment required will be one-third of the purchase money in hand and the balance in three equal annual payments, secured by mortgage on all the property.

A more particular description of the property will be given, and further conditions of the sale made known, on the day of sale.

JNO. F. ARMSTRONG, Agent.
 St. Louis, June 6, 1846.

The Louisville, (Ky.,) Journal, Cincinnati Gazette, Tribune (Portsmouth, O.,) Nashville Whig, Pittsburg Gazette, National Intelligencer, United States Gazette, (Phila.) Railroad Journal (N. Y.,) and Boston Atlas, will publish the above once a week until the 20th day of October next, and send bills to this office for settlement, and mark price on first paper. 18c25

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. 1y1

CUSHMAN'S COMPOUND IRON RAILS etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of *letters patent* to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of *improving* their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.
W. Mc. C. CUSHMAN, *Civil Engineer*, Albany, N. Y.

Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to
James P. Allaire, }
Peter Cooper, } New York.
Murdock, Leavitt & Co. }
J. Triplett & Son, Richmond, Va.
J. R. Anderson, Tredegar Iron Works, Richmond, Va.
J. Patton, Jr. } Philadelphia, Pa.
Colwell & Co. }
J. M. L. & W. H. Scovill, Waterbury, Con.
N. E. Screw Co. } Providence, R. I.
Eagle Screw Co. }
William Parker, Supt. Bost. and Worc. R. R.
New Jersey Malleable Iron Co., Newark, N. J.
Gardner, Harrison & Co. Newark, N. J.
25,000 to 30,000 made weekly. 35 1y

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 63,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 fe, with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja4

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

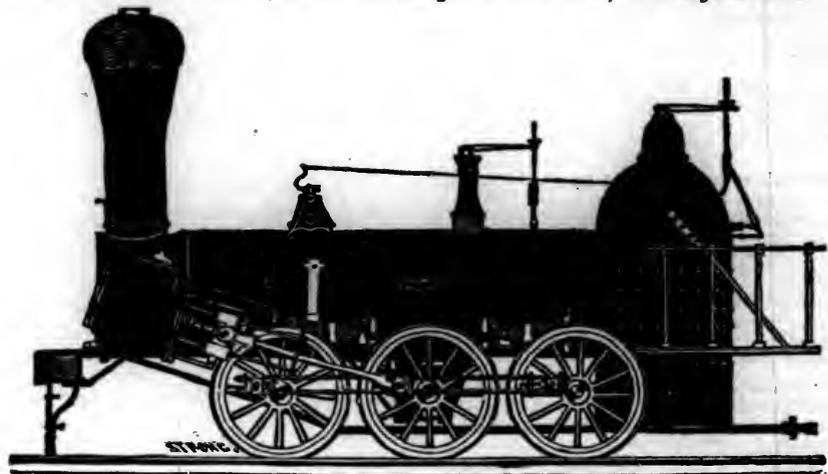
ANDREW C. GRAY, a45 President of the Newcastle Manuf. Co.

NEW YORK AND ERIE RAILROAD Company Notice. The Stockholders of the New York and Erie Railroad Company are hereby notified, that the annual election for Directors of the company will be held at the office, No. 45 Wall st., in the city of New York, on Tuesday, the 15th day of October next, from 10 o'clock, A.M., to 3 o'clock, P.M.

The Transfer Books will be closed from the 22d of September until the day after the election.

By order of the Board of Directors,
NATHANIEL MARSH, Secretary.
New York, September 12, 1846. 438

NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of	Cylinder,	× 20 inches	Stroke.
" 2,	14	"	"	× 24	"
" 3,	14½	"	"	× 20	"
" 4,	12½	"	"	× 20	"
" 5,	11½	"	"	× 20	"
" 6,	10½	"	"	× 18	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

Georgia Railroad and Banking Company. Annual Report.

The following statistics of the Georgia Railroad and Banking Company, which are referred to in the engineer's report, were unavoidably omitted in last week's Journal.

Statement of the expenses incurred for working the Georgia Railroad from April 1, 1845, to April 1, 1846.

CONDUCTING TRANSPORTATION.	
Stationery, printing, etc.....	\$1,298 45
Loss and damage.....	775 87
Incidentals.....	1,246 42
Oil and tallow.....	450 60
Provisions, clothing, doctors' bills, etc., for negroes.....	3,658 23
Expenses of Warrenton branch	620 36
Expenses of horse car, Athens branch.....	1,189 99
Wages of laborers and watchmen.....	5,370 15
Agents and clerks.....	11,222 22
Conductors.....	4,981 49
Repairs of depot building....	539 71
	\$31,353 53

MOTIVE POWER.	
Expenses of water stations..	3,167 21
Incidentals.....	590 04
Wood for locomotives.....	9,314 79
Oil and tallow for engines....	2,172 60
Repairs of engines.....	8,515 07
Engineers and firemen.....	9,672 09
Provisions, clothing, doctors' bills, etc., for negroes.....	2,974 66
	36,406 46

MAINTENANCE OF WAY.	
Mens' wages.....	19,075 40
Superintendants and supervisors.....	3,375 00
Provisions, clothing, doctors' bills, etc., for negroes.....	7,837 07
Incidentals.....	351 36
Tools.....	267 48
Spikes.....	1,287 09
Wooden rails and cross ties..	16,710 43
Repairs of bridges.....	459 64
Repairs of 'Tilman track....	1,430 03
Repairs of culverts.....	480 14
Division houses.....	148 18
Work done by car factory....	1,408 68
“ “ machine shops.....	762 06
	53,592 56

MAINTENANCE OF CARS.	
Repairs to sundry cars.....	12,401 19
New cars to replace old ones worn out and condemned..	2,450 00
	14,851 19

\$136,203 74

Distances on the Georgia railroad between Augusta and Atlanta, from station to station, in miles and the nearest decimal.

Augusta to Belair.....	10.1
“ Berzelia.....	20.9
“ Dearing.....	28.9
“ Thomson.....	37.5
“ Camak.....	46.9
“ Cumming.....	56.8
“ Crawfordville.....	64.3
“ Union Point.....	76.0
“ Greensboro'.....	83.1
“ Buckhead.....	95.5
“ Madison.....	103.3
“ Rutledge.....	112.1
“ Social Circle.....	119.3
“ Covington.....	129.9
“ Conyer's.....	140.3
“ Lithonia.....	146.7
“ Stone Mountain.....	155.2
“ Decatur.....	164.6
“ Atlanta.....	170.7
Camak to Warrenton.....	3.7
Union Point to Woodville.....	4.7
“ Maxey's.....	12.3
“ Lexington.....	22.1
“ Athens.....	38.4

Statement of the business of each station on the Georgia railroad for the year ending March 31, 1846.

	Passengers up & down.	Freight up.	Freight down.
Oothcaloga....		\$4,640 96	\$194 08
Kingston.....		5,329 07	3,131 28
Cartersville....		5,719 70	3,890 17
Ackworth.....		483 21	327 97
Marietta.....		7,914 54	2,214 05
Atlanta.....	\$37,325 54	26,022 80	5,658 08
Decatur.....	469 00	1,305 82	792 69
Stone Mountain	423 50	651 88	428 71
Lithonia.....	70 00	353 66	410 50
Conyer's.....	70 00	367 77	394 00
Covington.....	9,509 50	15,918 91	8,634 10
Social Circle....	1,416 00	2,170 59	2,207 56
Madison.....	3,666 78	7,525 69	13,398 36
Buckhead.....	122 50	164 07	1,096 51
Greensboro'....	2,401 88	3,039 55	5,316 26
Athens.....	9,274 11	23,545 57	5,812 40
Lexington.....	760 00	1,882 87	3,689 93
Maxey's.....	227 25	962 78	2,482 31
Woodville.....	232 00	1,229 53	1,381 39
Union.....	2,163 26	350 08	809 07
Murden's.....	7 00		
Crawfordville..	1,307 71	1,207 36	2,554 45
Cumming.....	2,052 25	1,048 75	3,211 70
Warrenton.....	3,274 44	1,896 10	3,231 82
Camak.....	492 90	285 14	1,059 47
Thomson.....	796 00	640 66	877 40
Dearing.....	186 75	112 71	123 65
Ben Verdery's..	31 81		
Berzelia.....	258 50	125 61	500 11
Pepper Hill....	75 32		
Belair.....	159 50	53 51	1,474 05
Lawrence's....	30 75		
Way passeng'rs and freight..	15,860 73		4,858 34
	\$92,664 98	\$114,938 09	\$80,160 47

Total amount as per above table.....	\$319,371 24
Extra trips.....	739 45
Extra baggage, etc.....	337 33
Season tickets.....	237 00
Lots negroes.....	870 50
Freight between stations.....	4,858 34
Rents.....	417 65
	326,831 51
Deduct for Western and Atlantic railroad proportion.....	11,489 92
	\$315,341 59

Statement of the aggregate amount of business done on the Georgia Railroad, from April 1, 1845, to April 1, 1846.

MONTHS.	Pass'rs.	Amount.	Freight up.	Bales cotton down.	Amount.	Up and down.	Mail.	Total.
April.....1845	1,633.1	\$6,135 27	\$9,855 18	8,446	\$10,366 60	\$20,221 78	\$2,968 49	\$29,325 54
May.....	1,582.1	5,916 68	5,022 67	2,304	3,464 62	8,487 29	2,968 49	17,372 46
June.....	1,466	5,013 89	3,344 11	837	1,796 93	5,141 03	2,968 49	13,123 43
July.....	1,709	5,734 97	3,225 25	1,178	1,666 03	4,891 28	2,968 49	13,594 74
August.....	1,558.1	5,178 67	3,582 91	1,719	1,046 19	4,629 10	2,968 49	12,776 26
September.....	2,091.1	6,809 76	8,932 02	1,119	1,594 38	10,526 40	2,968 49	20,304 65
October.....	2,394.1	9,610 18	14,101 11	4,676	5,680 23	19,781 34	3,310 15	32,701 67
November.....	1,970	8,250 40	10,598 86	7,082	8,870 97	19,469 83	3,310 15	31,030 39
December.....	2,639	9,631 76	8,295 21	9,693	12,624 80	20,920 01	3,310 15	33,861 92
January.....1846	2,343	9,682 73	7,128 99	7,105	9,916 01	17,045 00	3,310 15	30,377 89
February.....	2,102.1	8,945 81	24,568 12	5,555	7,324 45	31,892 57	3,310 15	44,148 53
March.....	2,596.1	10,549 03	16,283 65	8,036	10,950 92	27,234 57	3,310 15	41,093 76
Totals.....	23,966.1	\$91,459 15	\$114,938 09	56,821	\$75,302 13	\$190,240 22	\$37,671 87	\$319,371 24

Numbers and names of engines.	Weight of each engine in tons and decimals.	Commencement of service.	Number of miles run by each engine from beginning of April 1, 1845, to April 1, 1846.	Total cost of repairs and alterations.	Condition of engines.	Remarks.
1. Pennsylvania.....	11.40	May 5, 1837	24,336	\$5,404 42	In shop undergoing repairs and alterations.	
2. Georgia.....	11.50	May 5, 1837	27,127	6,706 85	In shop for repairs.	
3. Florida.....	11.40	Dec 27, 1837	60,581	3,526 74	.....	Sold to the state of Georgia.
4. Alabama.....	11.40	Jan. 12, 1838	10,824	5,937 21	.....	Sold to the state of Georgia.
5. Louisiana.....	11.30	Feb. 2, 1838	33,585	696 58	On road in good order.	
6. Tennessee.....	15.40	May 29, 1838	5,147	1,407 89	On road in complete order.	
7. Wm. Dearing.....	13.00	Nov. 6, 1838	16,925	4,915 10	In house in good order.	Altered to a 6-wheel connected engine.
8. Virginia.....	12.96	Dec. 24, 1838	6,021	5,260 25	In house in good order.	
9. Mississippi.....	13.00	Dec. 28, 1838	17,618	4,889 99	On road in good order.	
10. Kentucky.....	13.00	Mar. 24, 1839	18,602	6,104 41	On road in good order.	
11. Wm. Cumming.....	12.35	Dec. 14, 1839	4,984	1,740 68	On road in complete order.	
12. James Kamak.....	12.35	Dec. 23, 1839	5,073	2,898 11	In house in good order.	
13. Athenian.....	11.08	Jan. 3, 1845	15,635	697 14	On road in complete order.	
14. Cherokee.....	15.40	April 28, 1845	11,118	306 86	In shop for renewal driving wheels.	[for Athens branch,
15. South Carolina.....	15.68	Nov. 1, 1845	7,718	306 86	In house in good order.	B. & W.'s patent 6-wheel connected engine,
16. North Carolina.....	15.43	Nov. 4, 1845	7,558	57 26	In house in good order.	“ “ “ “ “ “
17. Eagle.....	13.00	Dec. 5, 1845	13,680	368 10	On road in complete order.	“ “ “ “ “ “

Statement of the condition of the Georgia R. Road and Banking company on Monday morning, April 6, 1846.

ASSETS.		
The road and its outfit...	\$2,386,989	89
Extension of road beyond Madison.....	811,206	85
Materials for road.....	26,267	71
J. E. Thomson, chief engineer and general ag't extension account.....	48,212	30
		3,272,676 75
Salaries, incidental charges and protests.....	10,452	22
Interest account.....	27,648	42
Road expenses.....	139,599	42
		177,700 06
Real estate for road.....	47,606	67
Banking house and lot.....	32,184	49
Negroes.....	49,573	00
		129,364 16
Balances due by agents..	8,110	41
Due by state of Georgia.	70,537	85
Assets taken in compromise.....	64	63
Stock in other institutions	16,790	00
		95,502 83
Discounted notes.....	130,806	60
Discounted bills.....	42,150	06
Bills receivable.....	25,524	05
		188,780 71
Notes of suspended banks [value].....	148	10
Notes of banks in other states.....	8,851	50
City of Augusta and Savannah, change bills..	57	18
		9,056 78
Due by banks in N. York, Philadelphia, Charleston, Savannah & Athens	29,359	35
Notes of specie paying banks in Georgia.....	44,241	50
Gold and silver coin in the vaults of the bank....	49,535	00
		123,135 85
Total assets.....	\$3,996,217	20
LIABILITIES.		
Capital stock.....	2,289,284	92
Collections on personal account.....	27,318	04
Collections in Newton co. stock.....	4,101	09
Bills payable and permanent deposit.....	14,690	00
		46,109 13
Income from railroad....	321,058	10
Discount, premium and rent accounts.....	7,029	24
Profit and loss.....	204,596	08
		532,683 42
Deposits on long time...	139,000	00
Deposits on interest.....	125,363	13
Company's bonds.....	574,900	00
Dividends unpaid.....	11,234	78
		850,497 91
Due to banks and corporations.....	1,514	44
Due to agents.....	1,019	83
Due chief engineer of the state of Georgia.....	400	78
Due depositors.....	52,952	57
		55,887 62
Bank notes issued.....	1,439,195	00
Railroad receipts issued.	28,755	50
		1,467,950 50
Bank notes and railroad receipts on hand.....	1,246,196	30
Bank notes and railroad receipts in circulation..		221,754 20
Total liabilities.....	\$3,996,217	20

The Trenton News says that a new railroad bridge is now in process of erection across the Brandywine.

Eleventh Annual Report of the Hartford and New Haven Railroad Company.

Before presenting the results of the business of the year just closed, a few general observations on the past and present condition of the company appear to be appropriate to this report.

But a short time since the prospects of the company wore a discouraging aspect. Its total annual income was then only about \$90,000, its credit in a depressed state, its stock selling in the market at less than half its par value, and the dividends irregular and uncertain. At that critical period, the extension of the road to Springfield was boldly undertaken, and was prosecuted with vigor against every obstacle, with a success which has surpassed the most sanguine expectations. The result has produced a complete renovation of the affairs of the company, insuring the steady and stable growth of its resources and a constantly increasing business. The income of the company has more than doubled, so that it now yields a liberal dividend to the stockholders, with the certain prospect of their continuance for the future. In short the completion of the extension road has placed the prosperity of the company upon a footing not likely to be shaken by any future ordinary contingency.

Nor is the extension road considered with reference to the future, less important than its bearing on the present condition of the company. Since its completion, and in a great measure, in consequence of it, two new and important additions have been made to the great chain of railroad, which rapidly extending along the populous valley of the Connecticut, is destined at no distant period to connect Lower Canada with the waters of Long Island sound. Each new northern extension will bring to this road a large accession of business and travel, which according to all experience must increase and expand with each successive year.

Such is a brief view of the prospects of the company, with reference to what may be considered its local business, and although the "through travel" between Boston and New York is in comparison with this, a consideration of minor importance, still when the road between New Haven and New York shall be constructed, of which there is now a favorable prospect, it cannot be doubted that this road will receive a share of travel between those two capitals, whatever may be the claims of other existing routes. When this line is completed, the entire distance between New York and Boston, via New Haven, Springfield and the Western railroad, can be traversed by "through trains" with ease and regularity in less than eight and a half hours. The necessity of a more expeditious route will not then be considered very urgent, or as offering a sufficient inducement for capital: and even the supposition that a more expeditious one is practicable, as yet rests on pretension only.

The earnings of the road from Sept. 1st, 1844, to Sept. 1st, 1845, as appears by the last annual report, were \$176,984 40. The extension road was not opened for business until the 9th of December, 1844. The in-

come of the last nine months of that year were therefore made the basis of an estimate for the earnings of the current year, and the amount was fixed in that report at \$210,000.

It will appear by the report of the secretary that the receipts have been from—

Passengers.....	\$155,061	01
Freight.....	61,250	73
Mails and expresses.....	12,300	00

Total.....\$228,611 74
Showing an excess over the estimated income for the year, of..... 18,611 74

The amount expended for repairs of track, rebuilding bridges, repairs of engines and cars, including all expenses chargeable to the cost of operating and maintenance of the road is....\$89,187 95

There has been paid for interest on bonds and loans... 34,295 29
From the income, to wit.....\$228,611 74
Deduct, (expenses and interest,)..... 123,483 24

And there is left as balance of net income for the year..... 105,128 50
equal to 7½ per cent. on the amount of stock issued.

In this statement the earnings of the steamboats owned by the company and the amount of stock issued for their purchase, are not included.

The amount received from the sale of stock since the commencement of the year is...\$133,204
From forty bonds sold, including premiums. 41,110

Total.....\$174,314

Of which sum \$125,300 has been applied in the payment of the debts of the company standing on the books Sept. 1st, 1845; \$24,069 for locomotives and cars; \$13,947 in relaying the track with T rail, and the balance for new engine houses, machine shops, and other purposes chargeable to construction account.

On the first of May a reduction in the price of passenger fare was made, and the rates were fixed as near as practicable at three cents per mile. The price previously charged between Hartford and New Haven was \$1 50. The reduction of fare between these two points has not yet been attended with favorable results on income, as the local business does not admit of very rapid expansion.

The receipts on the whole road, however, for the four months since the reduction show an increase of \$4,208 80 over the corresponding period of the last year.

The number of passengers transported between Hartford and Springfield, (exclusive of "way and through travel,") has been during the year 45,945. Between Springfield and New Haven, (exclusive of "way and through travel,") 8,968. The number between Hartford and New Haven, (exclusive of "way and through travel,") is 16,084. The whole number of passengers transported between all the stations is 191,270. Of this large number not one has received the slightest injury while on the road.

The amount received for travel between New York and Hartford, and the stations north of Hartford, has been \$36,739, which is 16 per cent. only of the gross receipts.

After a careful examination of the subject, the board effected, on the first of June, a pur-

chase from C. Vanderbilt, Esq., of his three steamboats, employed on the routes between New York and Hartford, and New Haven and New York, for which they paid 1800 shares of the stock, at its par value, which the company were specially authorized to do, by an act of the legislature, passed for this purpose. The boats on these routes has done a prosperous business, and it is certain, that a part of the line being owned by the company, such other advantages will accrue, as will give the company a more independent control of their business. The terms of purchase are considered by the board to be reasonable, and they believe that the interests of the stockholders have been greatly benefited by the measure.

The construction of a branch, to connect the main track of the road, with the wharves at Hartford, was authorized by a vote of the stockholders at the last annual meeting.—Owing to some unavoidable delays, the work was not commenced until July last, but it is now progressing rapidly, and the branch will be completed and ready for use on the opening of navigation in the spring. The estimated cost is \$75,000, which includes a valuable property on the bank of the river, freight depots, etc. The greater portion of the right of way has already been purchased, and contracts have been made for the work, at prices which make it nearly certain, that the cost will be brought within the estimate. The company have thus far done but a small portion of the transportation north of Hartford, the amount of which, on the river above, is not less than 40,000 tons per annum. Connected as the road will then be on the completion of the branch, with deep water navigation at Hartford and New Haven, it cannot fail to command a large share, perhaps the whole of the extensive business of which the valley of the Connecticut is the great natural outlet, in the direction of the chief commercial city of the Union.

To provide means for the construction of the branch, the board has authorized the issue of seventy bonds of \$1,000 each, with interest at six per cent. and payable in three to five years from the first of August, 1846.—These bonds are convertible into the capital stock of the company, at its par value, prior to maturity, at the option of the holder.

In the expectation that the company would the ensuing year, relay the road between Hartford and New Haven with heavy rail, and to avoid the necessity, as far as possible, of putting in new material in the present track, the board have purchased four hundred and three tons of T rail, which is now being laid on the highest grades on this portion of the road, and the sound material which is removed, will be used in repairing other parts of the road. In this manner those grades will be made easy for the transit of the trains and little or no waste will be made of the sound portion of the old superstructure. But the work should not stop here. The board cannot conceal the fact that the interest of the stockholders will be greatly jeopardized, if the present superstructure is not speedily replaced by one of a more substantial kind,

and adequate to sustain the increasing business of the road. A conclusive reason for the immediate commencement of this work, is the greatly increased economy of maintaining the track, when relaid with heavy rail. The experience of the past year is sufficient evidence on this head. The expense of repairs (material and labor) has been on the extension road, twenty-six miles in length, \$3,657 92, which is equal to \$142 per mile; and the cost of repairs, (material and labor) on the old road, thirty-six miles in length, has been \$16,579 87, equal to \$460 per mile. It cannot therefore be doubted, that the reduced cost of maintaining the track, together with the diminished wear and tear of locomotives and cars on the improved superstructure will fully offset the interest on the additional outlay. To these considerations may be added, additional security from accident, the increased speed of the trains, and the more favorable reputation the route will then sustain.

Such portion of the timber in the present track, which is sound, may be advantageously used in the new superstructure, and the cost of relaying the road (after deducting the value of iron and timber, now in use) is estimated at \$260,000.

The board have entire confidence in the ability of the company to accomplish this important work, without interrupting the regular dividends; and with this view, they recommend to the stockholders, to authorize at this time, a sale of the reserved stock, on such terms and conditions, as they may judge most beneficial for their interest, to an amount sufficient to raise the necessary funds. The company has still the right to dispose of 5,200 shares, including 1,000 shares of the branch road, transferable to this company, a part of which only will be required to renew the track as proposed.

When the track is relaid with T rail, the condition of the company may be stated, with sufficient accuracy, as follows:

Amount of stock issued, including boat stock.....	\$1,580,000
Add cost of branch road, including 26 bonds sold.....	75,000
For unsettled land claims, extension road.....	10,000
Estimated cost relaying track.....	260,000
515 bonds issued [including 10 pledged].	515,000
	<hr/> 2,440,000

A detailed account of the affairs of the company with respect to capital and liabilities appears in the secretary's report.

The board, in connection with this subject, do not consider it inconsistent with their duties to add, that the income of the company the coming year, after paying current expenses, may be estimated, from all sources, at \$195,000, which, after paying seven per cent. on the proposed amount of capital and liabilities of the company, will leave a balance of \$24,000 as a contingent fund.

The board has declared a dividend of 3½ per cent. payable October 1st.

All which is respectfully submitted.
By order of the board,
C. F. POND, President.
Hartford, September 9th 1846.

Directors Chosen 9th September, 1846.
Charles F. Pond, David Watkinson, Hartford, Conn.; James Bootman, Elisha Peck, Cornelius Vanderbilt, New York city; Ezra C. Read, New Haven; F. R. Griffin, Guilford; James S. Brooks, Meriden; Chester W. Chapin, Springfield Mass.

Officers Elected for the Ensuing Year.
Chas. F. Pond, president; Horatio Fitch, secretary; James H. Wells, treasurer.

SECRETARY'S REPORT.

To the Directors of the Hartford and New Haven Railroad Company:

GENTLEMEN: The following exhibits the business on the books of the company the past year:

Cash on hand September 1st, 1845.....	\$15,641 25
Debts collected and cash borrowed (for branch company) etc.....	24,827 89
Stock issued for steamboats.....	180,000 00
Forty extension bonds sold.....	40,000 00
Premium on do.....	1,110 00
Twenty-six bonds for branch company sold.....	26,000 00
Passages year ending 31st	
August, 1846.....	\$156,061 01
Freight do.....	61,250 73
U. S. mail and expresses do.....	12,300 00
Rents and storage.....	127 15
	<hr/> 228,738 89
	516,318 03

Paid.—Land, damages, etc., old road.....	649 35
New machine shop and fixtures.....	6,604 68
New engine house, N. H....	2,889 64
Improvements.—Paint shop, wood house, side track, patent rights, cleaning dock, at New Haven, etc.....	4,552 79
Depot repairs and wharf rent at New Haven.....	1,339 42
Two locomotives.....	12,800 00
Two passenger and 9 freight cars.....	11,279 14
Insurance, directors and auditors bills, printing, advertising, agencies Albany, etc	2,870 31
Labor and materials repairing old road.....	16,579 87
Repairs extension road in Connecticut.....	2,727 75
Do. in Massachusetts.....	970 17
Wood, coal and oil, including stock on hand.....	23,616 85
Materials and labor for repairs on locomotives and cars.....	13,784 88
Salaries and labor.....	29,717 41
Furniture—scale, stoves and clocks.....	434 32
Interest on bonds and notes..	34,295 29
Dividends.....	86,635 00
One share Tomlinson bridge stock.....	1,606 67
Three steamboats.....	180,000 00
Reconstruction track, T rail	13,947 94
Damaged goods, lost baggage, cattle damaged, etc.....	804 31
Branch company.....	36,659 64
Cash on hand....	80 39
Cash in treasury..	26,582 21
	<hr/> 26,662 60
	516,318 03

Due the company on account	18,290 50
The company are indebted on account and for borrowed money for branch road, etc.....	24,348 38

The expenses of operating the road the past year by the superintendent's report to the board..... 81,430 21
To which add salaries, etc.,

insurance, advertising, damages, etc., not included in his account.....	7,748 74
Amounting to.....	89,187 95
There is due Boorman, Johnston & Co., N. York, for T rail iron to relay track on old road not included in the above statement, payable 7th Jan., 1847....	24,818 10
Whole number shares stock issued, 15,800.	
One hundred and fifteen original bonds of the company are still out.	
Three hundred and ninety bonds for the extension road have been sold.	
Twenty-six bonds for the branch co. have been sold.	
For the extension road 4,000 shares of stock have been sold.....	400,000 00
Amount collected for rents..	934 49
Due the old road on sale of bonds.....	381,072 65
	782,007 14
Accounted for as follows:	
Depot buildings.....	25,860 44
Real estate other than roadway.....	32,697 18
In hands of agent for payment of land.....	2,238 40
Railroad, viz:	
Right of way and materials, labor, etc., in construction.	616,875 48
Loss on sale stock.....	14,406 00
Interest on bonds, etc., deducting premiums on sale of bonds.....	17,879 64
1441 shares distribution stock old road at 50 per cent....	72,050 00
	782,007 14

HORATIO FITCH, Secretary.
Hartford, September 8, 1846.

(Official) Reading Railroad.

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending—	Sept. 21, 1844.	Sept. 20, 1845.	Sept. 19, 1846.
Travel.....	\$1,839 71	\$2,103 84	\$3,892 39
Freight on goods.....	960 93	1,198 09	2,153 33
Do. coal.....	14,002 98	28,233 37	38,704 33
Miscell's receipts.....	.....	.....	.....
Trans. U. S. mail.....	.....	.....	.....
	\$16,803 62	\$31,535 30	\$44,750 05
Coal trans.—tons.....	12,636	24,004	26,678
A comparative statement of the business on the Philadelphia and Reading railroad for the week ending—	Sept. 28, 1844.	Sept. 27, 1845.	Sept. 26, 1846.
Travel.....	\$1,844 48	\$1,945 48	\$2,816 67
Freight on goods.....	911 94	1,050 23	2,652 99
Do. do. coal.....	14,217 91	26,623 72	44,980 07
Miscell's receipts.....	.....	.....	.....
Transp. U.S. mail.....	.....	.....	.....
	\$16,674 33	\$29,619 43	\$50,449 72
Coal trans., tons.....	12,720	22,465	31,223

English Iron Trade.

FROM THE LONDON MINING JOURNAL, SEPT. 4, 1846.
From our correspondent.

Iron continues active at quotations, and a good business is doing in all descriptions of English.—Scotch pigs are in rather better request this week, with buyers at 75s.

Monthly Report.—Iron [English] continues firm, and higher prices are now realized. In bars and rails a very active business is doing at £8 10s. for the former, and £9 15s. for the latter, delivered in Wales. Pig iron, of every description, is in great demand, more especially Scotch—many thousand tons of which have been placed this week at 73s. to 74s. for No. 3; 75s. mixed Nos; and 76s to 80s. for No. 1—free on board at Glasgow. The latter rate has been paid for Gartsherrie, which is in great re-

quest for the American markets. Swedish iron has been sold in limited quantities at £11 to £11 10s., and Swedish steel at £13 5s.—to arrive.

To the Editor of the Mining Journal.

Glasgow Pig Iron Trade.—Sir: Since the date of our last, the pig iron market here has experienced a slight revival. The improved state of the money market, and the arrival of some good orders from America, are no doubt the causes. During the last three days a large business has been done at gradually improving prices, and the market has closed firmly this afternoon at 73s. 6d. for No. 3; 76s. for 3-5ths No. 1 and 2-5ths No. 3; and 77s. to 78s. for all No. 1—cash, free on board.

Glasgow, Sept. 2. DOUGLAS & HILL.

LONDON, SEPT. 11, 1846.

	£.	s.	£.	s.	d.
Bar a Wales—ton.....	0	0	8	15	0
" London.....	0	0	9	15	0
Nail rods.....	0	0	10	10	0
Hoop (staf.).....	11	5	11	10	0
Sheet.....	0	0	13	0	0
Bars.....	0	0	11	0	0
Rails, average.....	0	0	10	0	0
Welsh cold blast foundry pig.....	0	0	8	15	9
Scotch pig b Clyde.....	3	15	3	17	6
Russian, CCND c.....	0	0	16	0	0
" PSI.....	0	0	16	0	0
" Gourieff.....	14	5	14	5	0
" Archangel.....	0	0	13	10	0
Swedish d, on the spot.....	11	0	11	10	0
" Steel, fagt.....	16	0	16	10	0
kegs e.....	0	0	13	10	0

a, discount 2½ per cent.; b, net cash; c, discount 2½ per cent.; d, ditto; e, in kegs ¼ and ½ inch.

From our correspondent.

Iron.—A good business has been done this week in all descriptions of iron, and prices are decidedly firm. Swedish iron and steel are nominal at quotations—no sales having been made since the publication of last week's Mining Journal.

Communicated by Messrs. Whitcomb & Barton.

English bar iron has been in considerable demand this week, and prices have again advanced. Makers are now asking £9 on board at the port. Welsh and Staffordshire pig iron continue to improve.—Scotch pig iron is exceedingly firm, although the demand, during the last week, has been limited; we quote the price 75s. to 77s. 6d., according to Nos.—Foreign iron and steel without alteration.

From a correspondent.

English iron is firm at quotations. Bars are much inquired for, and a considerable business has been done at £8 10s. net cash, which sellers now refuse. The market for Scotch pig iron has been quiet for the last week; some business has been done at 75s. cash, for mixed Nos., free on board; and 77s. 6d. for No. 1, bill at four months, adding interest.

To the Editor of the Mining Journal.

Glasgow Pig Iron Trade.—Sir: We have had a better business to-day and yesterday than for some days previously. Our quotations are for No. 1, 77s. to 78s.; No. 2, 73s; and mixed Nos. 75s.—cash free on board.

DOUGLAS & HILL.

Glasgow, Sept. 9.

Miscellaneous Items.

The Keene, (N. H.) Sentinel says, "our railroad grading and bridging is going on finely upon every part of the line. The commissioners have just sanctioned the road, and assessed the damages to within a mile or a mile and a half of Bellows Falls, and would have completed their work on that part of the line had the engineers been fully prepared for them. It is now probable the bridge across the Connecticut, to connect with the Rutland road, will be laid just above the present bridge, and the depot located on the island north of the dwelling house of Simon Baxter, Esq. The commissioners will meet again on the 25th, to locate the line across portions of our village not yet completed.

"All who are obliged to travel in stages will very much rejoice when they can get out of our valley by railroad. The public stages are now often dangerously crowded, and two accidents of turning over have recently occurred, though no very serious injury, we are glad to learn, has resulted. In one which occurred on Saturday, three ladies were bruised, and one, (on the top,) actually thrown over the fence. Besides the too common over-loading of stages, there is a dangerous propensity to crowd the tops unnecessarily, when the body is not full. While we say so much, it is due to the drivers on the several lines to and from this town, to say that a stage accident is a very uncommon event, and that they are not only obliging, but attentive and careful. Nine inside and five outside, fill every seat provided, with two on the driver's seat, and when more offer the proprietors can well afford to provide extra conveyance."

The correspondent of the Baltimore Sun, writing from Frederick, Md., has the following announcement of the death of a gentleman well known in that vicinity.

I have to record the death of Mr. David Steiner, the agent of the Baltimore and Ohio railroad company, formerly at this place, and more recently at Cumberland. His illness has been of some month's duration. He was a most estimable citizen; honest and upright; and in regard to his official capacity, he had but a single eye to the interest of the company during his association with it, now 14 years.

Americans in Russia.—The Cincinnati Chronicle says, Col. Todd (late minister to Russia) informs us that the grading and working on the entire railroad line, from St. Petersburg to Warsaw, 440 miles, was given to American contractors. The contract amounts to \$4,500,000, and was given to American contractors, in the face of the competition of all Europe, without security.

Great Project.—We have heard, from various quarters, that a plan is seriously in contemplation, to unite all the railroads which run out of Boston by a semi circular sweep of a very few miles, from East Boston to the Old Colony road. The most obvious advantage of such an arrangement would be the placing of each of the roads at once upon tide water. A load of cotton for Lowell, for instance, might be lifted from the hold of the vessel into the cars designed to carry it to its destination.

Erie Railroad.—The earnings of the eastern division of the Erie railroad for the month of Sept., 1846, were as follows:

From freight.....	\$12,101 98
Passengers and mail.....	6,230 91

Total.....	18,332 89
Same time last year.....	15,585 92

Increase..... \$2,746 97

Stonington Railroad.—	
Receipts in September, 1845.....	\$12,684 86
" " " 1846.....	20,622 07
" " July, August and September, 1845 3 mos.....	34,845 54
" do. do. 1846.....	55,784 70

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.

Saturday, October 10, 1846.

Iron Mines in Missouri.

It will be seen by an advertisement in this number of the Journal that the HORSE SHOE BEND IRON MINES, in Missouri, not far from St. Louis, are offered for sale or lease. The position and extent of this deposit of valuable ore, and the extent of the water power must render this a very desirable property for those who wish to engage in the manufacture of iron in the southwest; and we know of no more favorable location for an investment in the iron business than in that region of country, where, within a few years, must be constructed many hundred miles of railroads, and many hundred thousand tons of machinery, for steamboats, mills, and factories.

TO IRONMASTERS.—THE UNDERSIGNED is now prepared to sell or lease the valuable seat for Iron works, known as the "Horse Shoe Bend" of the Merrimac River, together with several hundred acres of Iron Ore of a superior quality, in the immediate vicinity. The Ore lies in inexhaustible beds on each side of the River, (based some on sandstone and some on limestone,) and is a brown Oxide, the principal beds known as "Pipe Ore."—The beds are from five to thirty feet in thickness, from one to three hundred yards in breadth, and from one quarter to one mile in length. The ore occurs in distinct masses of from one to five hundred cubic feet in size, is connected with Yellow Ochre, and in point of quantity and quality is believed to be not inferior to any in the state. The distance of the Ore from the Bend is from one-fourth to three miles, and the cost of mining and transporting it to the furnace from the farthest beds, will not exceed sixty or seventy cents per ton.

The lands are thickly timbered with Oak, Hickory, Ash, etc., and when cleared off are fine for agricultural purposes. The distance around the Bend of the River is four miles, and the amount of natural fall in that distance is nine feet, to be made available by cutting a race three hundred yards in length across the Narrows, through which, if wanted, the whole River may be drawn by increasing the size of the race. Its situation is three miles below the Virginia Mines in Franklin Co., Mo., sixteen miles south of "South Point," on the Missouri River, and thirty-two miles west of a good shipping point on the Mississippi, from which latter the Merrimac River is navigable to the Virginia mines, and above for keel boats, batteaux, and other light craft, for more months in the year than the Ohio.

This water power, from its great extent and cheapness over any other now in use, must necessarily draw to it the smelting of those rich Ores of Copper and Lead which recent discoveries have shown to be so abundant in this region.

The wants of the vicinity require the erection of good grist mills; also, a large and profitable business can be done with saw mills, the material for lumber being varied, rich and extensive.

Large forests of Yellow Pine exist on the head of the Merrimac River, which can be easily floated down to the Bend, and from that point the rafts of

lumber, can pass out to the Mississippi in any season of the year. The property is offered very low, as will be apparent to any one examining the same. Titles amply guaranteed.

441) FERNANDO A. EVANS.
 Virginia Mines, Franklin Co., Mo., Sept. 1846.

BOSTON WATER WORKS.—PROPOSALS will be received from the 5th of October next (to the 12th inclusive, for the excavation on the Aqueduct, from Needham to Brookline, a distance of about nine miles, including the earth and rock cutting and two tunnels one about 2,300, and the other 1,100 feet in length, together with the shafts necessary for the working of the tunnels. The quantity of earth and rock to be removed is upwards of 500,000 cubic yards.

The line will be staked out and ready for examination, and profiles, specifications, and a description of the work will be furnished by the day first above mentioned.

Satisfactory security will be required for the faithful performance of the work.

Application may be made at the Office of the Commissioners in Boston, to E. S. Chesbrough, Chief Engineer, at West Newton, to Henry S. McKean, Resident Engineer, Newton Lower Falls, or to Thomas S. Williams, Resident Engineer, Newton Corner.

Boston, Sept. 22. 1841

Smoking Cars.

The smoking portion of the community is certainly not the least respectable portion—it is moreover quite too large to be neglected in providing for the comfort and convenience of the public.

Notwithstanding all the "counterblasts" from King James down to Mr. Lane, the practice holds its sway over men, and undoubtedly ever will as long as tobacco grows—there is no use then in denying accommodations to smokers on the ground of objections to the habit—too many, and too many great and good men have smoked and do smoke, to allow of any one stigmatizing the practice as vulgar or indecent.

But beside this, men will smoke and no one can prevent them. The tedium of a long or of an oft repeated short journey is very agreeably beguiled by a smoke. In England the attempt to put down smoking, by not providing separate cars, has led to very loud complaints, and ere long, suitable cars for the exclusive use of smokers will be found on every great line in the kingdom.

In the United States there is no regular arrangement for this purpose. Passengers are very properly forbid smoking in the usual cars, that is, in those which contain ladies and persons to whom it might be disagreeable or injurious. On some lines a car is found for the exclusive use of those who wish to enjoy their cigars, and such a car we have seen both comfortable and cleanly. We have seen too the vilest, filthiest old broken down affair that could be made by any possibility to run, employed for the same purpose.

There should be found in every train a clean, comfortable and sound car, or compartment of a car—for the use of smokers.

Second Class Cars.

We are no advocates for unnecessary separations or distinctions in the social world, least of all would we multiply occasions by which the more wealthy can distinguish themselves from the less wealthy.—It is on this ground that we have always considered the use of first and second class cars, where the difference consisted only in the fare paid, as both foolish and useless. Experience has proved that this is so. If the second class cars are good and comfortable, every one will ride in them, if they are not, no one will.

There are however, many people who travel

who are not fit or decent companions for the large mass of the travelling public. Filthy in their persons and dress, few would like to sit near them, much less upon the same seat. Few are willing to be on such intimate terms with the dark race, even if theoretically they preach up the perfect equality of all men. Here there are two distinct classes of passengers, which it is expedient should be separated from the rest. No regulations which enjoin that loafers should occupy this car and negroes that, would be tolerated—in fact there are special laws in some states preventing the enforcement of such regulations, as far as the negroes are concerned.

We propose the following remedy for this difficulty: Let a separate car, or compartment be provided in each train for the negroes, and another for the loafers. Let it be understood that a lower price should be paid for a passage in these cars, and no difficulty would be found in inducing each class to take their own car. The negro when he applies for a ticket is seated with his own people in a good and comfortable car, and as a compensation for his doing so, is carried at a lower rate. Does a loafer want a passage, show him into the loafers car, (only be careful not to give it this name,) and tell him he can ride there for half price—he will in most cases quietly take his seat.

Now and then it is true, an obstreperous subject will be found, but if he is let alone, the temptation of half price, and the feeling that he is out of his place will pretty surely draw him out.

India Rubber Floats.

The New York Express gives an account of the India Rubber floats intended for the army, which have been exhibited at Jersey city, within a few days. The invention is by an officer of in the U. S. army. The Express says:

"The contrivance is remarkably simple, consisting of two or more cylinders, made of heavy canvass, coated with 'Goodyear's insoluble rubber,' inflated and attached to baggage wagons and ordnance, for floating the same across rivers. In this experiment two small cylinders were used, and attached to a wagon weighing 1685 lbs.; and the wagon was then filled with persons, and it floated with as much buoyancy as a life boat. If the water is shoal, the wheels support the wagon, and in deep water the floats sustain it. It is attached in a few moments, and detached by removing six pieces, so that it can be drawn across the stream with cords, and attached to other wagons; and in this way an army with their baggage train can be passed over a stream as rapidly as over a bridge. For the western and southern portions of our territory, where there are no bridges, this apparatus will be found invaluable, aside from the uses of the army, and we have no doubt will recommend itself as a most valuable improvement."

Pumping Water from Lake Michigan.

The want of water to supply the Illinois canal has induced the present canal company to think of pumping water from lake Michigan. The Pittsburg Gazette in alluding to the subject, remarks as follows:

"They wrote to Messrs. Knapp & Totton of Pittsburg, and furnished them with data to calculate whether it could be done, and what force and what machinery would accomplish it. These gentlemen soon furnished an answer, and the other day received in return,

an order to build some powerful machinery for that purpose—a steam engine and eight pumps of four and a half feet bore and six feet stroke. We are glad to hear that this eminently scientific firm have been selected to execute this order. Their shop and mechanical force are not excelled by any establishment in the United States.

"In Holland they supply their canal with water from the meadows by windmills.—Hundreds of windmills, moving whenever the wind blows, are constantly at work, keeping the meadows dry and the canals, which are higher than the meadows, full. The wind, however, is a capricious laborer, and though there is generally quite enough of it on the shores of lake Michigan, the supply of water, if trusted to the windmills, would be rather irregular, sometimes too little perhaps, and sometimes a deluge."

The Great Lakes.

We extract the following from a late writer who speaks from personal observation.

"Ships, of which there used to be several in these lakes, have disappeared entirely—the general rig is that of the *hermaphrodite* brig—though there are some schooners, but no sloops of which the huge boom would I suppose be found unmanageable in the sudden and violent gales of the lake.

"Propellers are increasing in number and favor—they combine the qualities of sailing and steam vessels, and being less expensive in structure and in running, these steamers do a large business in freighting, and in conveying immigrant passengers. A fine one, the *Genesee Chief*, from Rochester, came up to this place and Chicago, a few days ago and attracted unusual notice by the excellence of her arrangements and accommodations, and the appearance of good time she made. This vessel like all others from Ontario, passes through the Welland canal, and thus turns on British soil, the falls of Niagara, which, but for British enterprize in the very heart of this our own country, would be an impassable barrier between the St. Lawrence, lake Ontario and the upper lakes.

New England Railroads.

The railroads in the New England states were never doing a more prosperous business than they are at the present time; and we find in the newspapers of the day, from that region, constantly, the most flattering accounts of the prosperity of those roads. The dividends are increasing, the value of the stock is regularly advancing, and new roads and new branches from old ones, are being made in every direction. But a few years hence and an iron net work will cover the whole surface of the thickly populated portions of the eastern states; and we are glad to witness this evidence of the increasing prosperity of the railroad interest. The Boston Courier has the following remarks upon this subject:

"All the railroads are said to be doing a large business, particularly the Western, the

receipts of which, for a number of weeks past have averaged rising twenty thousand dollars each, making the increase in seven and a half months over one hundred thousand dollars, and the harvest of the year yet to come. In view of this increased traffic, the whole income for the year has been estimated at a million of dollars, which would show a gain of one hundred and eighty-seven thousand dollars over what was earned on the road last year, or six per cent. additional income. Great interest is felt in the success of this noble enterprize, by every citizen of the commonwealth. The following statistics have been collected with some care, and may not be altogether uninteresting.

"The road was opened through to Albany in 1842, when the receipts were \$512,688; in 1843, they were \$573,882; in 1844, they were \$753,752; in 1845, \$813,480; and in 1846, if the above estimate shall be realized, they will be \$1,000,000, having nearly doubled in four years! Should this increase be continued, the time is not very remote when the company will be enabled to make unheeded dividends, the interest on five-eighths of the costs being a fixed charge, at five and six per cent., while all the net surplus will be for the benefit of the other three-eighths, held by the shareholders. The reserved fund of net earnings, entirely distinct from this year's business, is \$129,066, and the value of the two sinking funds at the close of the year will be 545,854, which, by its own operations, will redeem the whole debt at maturity. The road is 156 miles in length, from Worcester to Albany; the land, depots, bridges, embankments, cuts, and all the heavy outlays, except iron, being arranged for a second track, the cost of ironing which is estimated at about seven thousand dollars per mile.

"Within a year or two a double track will be required for fifty miles between Springfield and Pittsfield, in the centre of the line, corresponding with that between Boston and Worcester. New shares will be created for this purpose, the premium upon which will be an extra dividend to the old shares, as in the cases of the Concord, Fitchburg, Worcester, Lowell, Providence, Maine, Eastern, etc., none of which are doing better than the Western railroad, the stock in which commanded at one time 104 dollars. On the 4th June, 1845, it was sold at Mr. Brown's auction at 103½ dollars! and on the 1st January, 1846, after the violent but groundless attack upon the property in one of the morning papers, and its failure of a union with the Worcester road, it fell to 87. It has since risen to 98, and is daily gaining the confidence of the public, and of those who at one time thought very meanly of it."

It does not require the gift of popcey to foresee that this road is to become one of the most important and profitable roads, of its length, in the country. We have only to judge of the future by the past to arrive at correct and satisfactory conclusions.

A Railroad Hint.

An English engineer, writing to the Morning

Journal, makes a suggestion which may "come to something" in time. The writer asks:

"Why not employ the force of a large still spring, similar to the spring of a watch, to put in motion a railway train? The spring might from time to time, be wound up by the power of small stationary engines; and as watches will go 24 hours without winding up, why should not a locomotive, furnished with a similar source of power within itself, go for an equal space of time? Those who have seen and understood the construction of common musical snuff boxes will readily comprehend how the force of a spring may be made to communicate to the driving wheels of a locomotive any required degree of velocity; the little fly-wheel or fan box revolving at a rate far greater than would ever be required in railway locomotion. It may be added to the above that a spring of force sufficient to carry a whole train is by no means necessary. They may be multiplied—one to every two or three cars, if expedient.

Cannot some ingenious Yankee improve upon these hints.

The Anthracite Coal Trade.

Continued from page 583

In the gap of the Sharp or Tuscarora mountain, the coal and iron ore veins, developed and worked, are as follows, commencing with the lowermost coal vein, it being that which crops out to the surface near the top of the mountain, and proceeding north towards the centre of the basin.

No. 1, coal vein, locally called S vein, contains 4 feet of good coal at top, 1 foot of undermining, and 3 feet of rough coal in bottom. The gangway has been driven in this vein about 200 feet on the west side of the gap.

No. 2, coal vein, locally called R vein, in which the gangway has been driven on the west side of the gap for about 1800 feet, contains 5 feet top bench of coal, 1 foot undermining, and 3 feet bottom bench of coal.

No. 3, coal vein, locally called QQ vein, contains 3 feet top bench of coal, 1½ foot of dirt in the middle, and 1½ to 2 feet of coal bottom bench.

No. 4, coal vein, locally called Q vein, contains about 4 feet of coal in one bench. The Q vein is ten feet north of the QQ vein. The gangway through which the coal of both veins is brought to the surface has been driven on the west side of the gap upwards of 3000 feet. These two veins are worked under lease from the Lehigh coal company on the east side of the gap. The coal is very regular and free from fault.

No. 5, coal vein, locally called P vein, in which the gangway has been driven on the east side of the gap for about 1500 feet, is about 14 or 15 feet between slates, there is 3 feet bottom bench of coal over which is 1 foot of undermining, and the remainder or top bench is coal and slate alternating.

No. 6, small coal vein, about 1 foot in thickness.

No. 7, coal vein, locally called the O vein, contains 3 feet bottom bench coal, 1½ foot boney coal, and about 5 feet top bench good coal. The gangway upon this vein has been

driven in on the west side of the gap about 1000 feet.

No. 8, vein of coal, locally called OO vein, was proved by a tunnel cut across the measures to the north about 300 feet in from the mouth of the O vein gangway. The cross cut or tunnel was made through about 24 feet of slate. The vein of coal cut was 6 feet in thickness, but proved very soft, and consequently has not been wrought.

No. 9, coal vein, small, not opened.

No. 10, coal vein, locally called N vein, is 3 feet in thickness, has a rock top, and has been worked upwards of 1000 feet on the west side of the gap.

No. 11, coal vein, locally called M vein, contains about 1 foot of coal.

No. 12, coal vein, locally called L vein, contains 3½ feet of coal, the gangway has been driven in west of the gap say 1000 feet. The vein has a rock top.

No. 13, supposed vein, small.

No. 14, vein of coal, 18 inches in thickness.

No. 15, vein of coal, locally called K vein, contains 6 feet of coal of a soft nature, the gangway has been driven in about 300 feet west of the gap.

No. 16, vein of coal, 1½ foot in thickness.

No. 17, vein of coal, 2½ feet in thickness.

The above veins of coal all dip to the north at an angle of 70 or 80 degrees; the dip decreases from south to north. Up to No. 9, the veins may be considered of the white ash class; No. 10 to 17 are red ash.

Still proceeding north from No. 17, there is developed between it and the valley, four red ash veins which have a south dip. These are evidently the uprising to the north of some of the last described veins, thus forming a trough or basin.

In a former communication I promised that after I had given a description of the coal veins at Tamaqua, I would submit my views relative to the formation of the mass of coal found on the Lehigh estate at the Summit Hill mine, on which Prof. Rogers, in his second annual report of the Geological Exploration of the State of Pennsylvania, p. 80, has remarked as follows:

"A very analogous displacement of the same mountain ridge,* and on a scale scarcely less considerable, occurs on the southern side of the basin, at the Summit mines of the Lehigh company, where the eastern prolongation of the Sharp mountain, has been thrust northward of the western, through a distance of many hundred yards. This has formed a broad, elevated plateau, between two disjointed summits of the mountain from which all the upper coal measures have been swept away, and the strata denuded precisely to the fortunate depth necessary to lay the vast deposit near the base of the series, accessible on the surface of the hill. Thus an immense mass of coal has been spread out over a wide space, in a nearly horizontal po-

* Prof. Rogers here alludes to what he terms in the foregoing paragraphs, of the same work, "an enormous dislocation in the entire change of the Sharp mountain, nine miles east of Pottsville," on which I shall have occasion to offer some remarks, which will appear in their proper place.

sition, disturbed however by numerous sharp east and west wrinkles, or parallel anticlinal axis. These undulations point distinctly to the transverse disruption of the mountain and the adjoining coal measures, as the origin of this remarkable table land."

The conclusions arrived at from my own observations of this part of the coal field, relative to the cause which produced the great deposit of coal at the Summit Hill mine, is not that the mountain has been thrust forward for several hundred yards to the north; but that the gradual elevation of the basin or synclinal axis or coal veins, formed by the north dip of the veins of the Sharp mountain basin, and rising again to the north of Tamaqua, becomes at the Summit Hill mine, so near the surface as to expose some of the thicker and lower veins of the series. These veins, saddling over to form a second north dip, constitute those which are now being worked by the Lehigh company, at Summit Hill. The great thickness of coal may be attributed in part to the fact, that in many places where saddles of veins occur, the coal is much thicker than it is in its regular north or south dip. The same fact may apply to the saddling of two or more veins, and the saddle, or anticlinal axis of coal worked at the Summit Hill mine, may be the aggregate thickness of two, three, or more veins; for the fact has been satisfactorily proved that the distances between the coal veins in the central part of the region are much greater than they are between the same coal veins, in their continuation towards the east and west termination of the basin. The rocks lying between the coal veins, in the central portion, occupying a space of many yards, then out in other places, leaving at last the coal slate only, and sometimes not that, to separate the coal veins. The great thickness of coal and slate alternating, at the Summit Hill mine, may be caused by two or more veins coalescing in this manner.

The basin, or synclinal axis of coal veins, before described, continues eastward to the Summit Hill new mine, an excavation of much smaller area than that of the Summit Hill old mine; passing this, the chain of mountain is discontinued, the gradual elevation of the basin, and the falling off of the mountain, effect a diminution or discontinuation to this trough of coal veins; all the supposed shoving, disruption and dislocation, is nothing more than the natural consequences to be expected from causes like the foregoing—that is, to use the miners' phrase, the coal veins, from their elevated position as found at the Summit Hill, "baining out."

Like terminations to the above are found in different places in the coal formation, both as regards separate veins and series of veins, which will be treated upon in their proper places.

The second north dip of this coal strata, maintain the same prolongation from Tamaqua to the Summit Hill mine, and from thence to the point of termination of the coal veins near the Lehigh.

The synclinal axis formed by the uprising of the Locust mountain coal veins at Tama-

qua, continues to Rhume Run, and here in consequence of the higher elevation of the veins, and the deep gap in the mountain, it is perfectly developed. The coal veins of this axis saddles over, and forms a second dip to the south. The synclinal axis runs out some distance east from Rhume Run, but the second south dip of the veins continue until they meet in the point of termination, near the Lehigh.

W. F. ROBERTS,
Engineer of Mines, Philadelphia.

Prospects of the Iron Trade.

There never was, perhaps, a period in the history of the iron trade in which its prospects were so promising as at the present moment. We have high prices, occasioned not by speculation, but by legitimate requirements—short stocks, which are daily becoming shorter, as the supply cannot keep pace with the exigencies of the public; a prospective demand now closely pressing on the market, great beyond all precedent; and this, without the possibility of increasing the make of iron to any considerable (if any) extent. That the present very remunerative prices of iron are not the result of speculation, but of legitimate business, is well known to every one who has paid the slightest attention to the iron market for the last few years. Between 1835 and 1840, the prices ranged very high—pig iron being £6, £7, and even £8 per ton.—This was in part occasioned by the impetus given to the trade by the increased demand, but far more by the spirit of speculation, then abroad; and the consequence was that, as soon as speculation subsided, a reaction took place, and a period of depression came, unexampled in its severity. Since then, the uses to which iron is applied have much increased; large supplies of rails have been wanted; and the trade recovering itself, not suddenly, but by a steady and sure progress, has attained the position in which it now stands. With the single exception of the early part of last year, when for a short time, there was a little, gambling in iron speculation has not for many years prevailed in the iron market; and it is to be hoped it will remain absent for the future, as nothing tends more to place the iron master in an embarrassing position than high prices artificially produced, as they interfere with the costs of production, and lead universally to his ultimate loss.

During the period of depression—from 1840 to 1843—the ironmasters unable to sell, and unwilling to blow out their furnaces, accumulated large stocks of iron, which have stood them in good stead since the period of prosperity has set in; as for some time past the make has been beyond question unequal to the demand, and the deficiency has been supplied from their accumulated stores, which have been thus gradually sold off, and are now, we may say, dissipated; for we believe there never was a time in which the iron in store in this country was so short as at present, and it is daily getting shorter; as at Glasgow the stocks are reducing at the rate of fully 1,000 tons per week, with no chance of an increased make, owing to the scarcity of minerals in the Glasgow district—whilst in Staffordshire, minerals are becoming so scarce,

that many of the masters find great difficulty in keeping their furnaces at work. If then, there be this difficulty in meeting the present demand, how will it be possible to meet that which will press upon the market from this time forward until the railway system (which is now in its infancy,) be fully developed?—In this country, acts were obtained, in 1844 and 1845, for 3,543 miles; and this session—and this does not include the acts passed just before the adjournment of parliament—for 3,951 miles; making together 7,494 miles of railroad authorized for this country alone—whilst, (according to the report of Mr. Morrison's select committee on railroads,) in France, at the present time, about 620 miles of railroad are in operation; and the whole number of miles to which the railroads will extend in six years is estimated at about 3,700 miles—so that there are 3,100 miles to be constructed in the next six years; and in Prussia, 700 miles are in the course of construction; upwards of 800 miles more finally adopted, and upwards of 700 miles remain merely as projects; besides which, in every part of Europe, railways are either constructing or projected, and this will constantly be the case so long as the system remains incomplete, as the advantages of this means of communication are so great that the progress of railways cannot be arrested—it is a question of time merely. In India, too, the railway system is likely to find considerable favor, as there is little doubt that the early requirements of that country will not be less than 2,000 miles. Without however, estimating any but lines already authorized, we have in England, France, and Prussia, above 12,000 miles of railway, which will beyond question, be constructed within the next six years.

Let us consider the effect the demand for the iron required for these undertakings is likely to produce on the English market. It is certain that this country cannot depend upon any foreign market for iron: on the contrary we are large exporters—having exported in 1845, (as appears by the parliamentary return published in last week's *Mining Journal*), above 350,000 tons of iron and steel, in a manufactured and unmanufactured state. Our exports are to all countries, including France, Russia, Prussia, Germany and America—and they are on the increase; as, comparing the export of iron from London and the Clyde during the first six months of 1845, with the export of iron from the same places during the first six months of the present year, they have increased from 162,506 tons to 285,655 tons—an increase of nearly 75 per cent.—Being assured then, that we cannot look to foreign countries for a supply; but that, on the contrary, they will have to look to us for a very much larger supply than any they have yet received, particularly since the modification in the American tariff, it follows that we shall have to find iron for our own railways at all events—viz: for 7,494 miles, which will require, at 500 tons a mile, (a moderate estimate,) 3,747,000 tons of bar iron, equal (the loss on converting pig iron to bar being about 20 per cent.) to 4,496,400 tons of pig iron in round numbers—4½ millions tons of

pig iron. Now, the make of the kingdom is (as near as it can possibly be estimated,) 1,500,000 tons of pig iron per annum; of this at least 400,000 tons is got rid of in the exports—leaving 1,100,000 tons to supply this country—consequently, should the above railroads be carried out in the next six years, as (unless prevented by want of iron,) they undoubtedly will be, the English railroads will require 750,000 tons of pig iron per annum for six years to come, and to supply them this country must increase its make at least 70 per cent. That this is an impossibility, is beyond all question: the ironmasters have increased their make already almost, if not quite, to the limit. Iron ore is getting excessively scarce and dear in Staffordshire, and very few new furnaces are building. Indeed, so entirely are the iron properties occupied and pressed to their full work, that not even an iron company has started, with one single exception—that of the Banwen iron company, advertized in our columns of to-day; and this shows the tension of the system more fully, as there is no doubt that any iron property fit to be worked at all, must, for the next 10 or 20 years, return such large profits, that 20 per cent, will be considered but a small matter by the ironmaster—in short, those who are fortunate enough to hold iron properties, possess, as it were, a mine of gold; they have virtually a monopoly which cannot be interfered with, as iron must be had, however costly the price.—*Mining Journal*.

Improvements in the Manufacture of Iron.
Specification of patent granted to Thomas Lever Rushton, Esq., of Bolton-le-moore, in the county of Lancashire, iron manufacturer, for certain improvements in the manufacture of iron.

This invention relates to the manufacture of malleable iron in reverberatory furnaces. The first improvement consists in mixing hammer slack, roll scale, red ore, calcined ironstone, or other oxide in a pulverized state, with a proportion of finely pulverized charcoal, coke, or other suitable carbonaceous matter, which should be as free as possible from sulphur, and introducing the mixture into the furnace before, or along with, or immediately after, the charge of pig or refined iron. The mixture of ore and carbonaceous matter is turned over from time to time, until the iron is melted, and then they are worked together in the usual way. The patentee says, that this process is very similar to that described in the specification of a patent, which was granted to W. N. Clay, March 31, 1840; but in the present instance, the proportion of carbonaceous matter varies from 17 up to, but not including, 28 per cent., by weight of the ore or oxide; while Clay's invention was confined to the use of not less than 28 per cent. The proportionate weight of carbonaceous matter and ore or oxide employed, within the above limits, depend upon the quantity of carbon and oxygen they respectively contain, the description of pig iron used with them, and the amount of pig iron to be added to the mixture. The following proportions produce an abundant yield of excellent iron: 480 lbs. of No. 4 pig iron, 84

lbs. of Lancashire hematite ore, and 20 lbs. of coke dust; if No. 1 pig iron be used, a smaller quantity of carbonaceous matter will be required; but if the charge of No. 4 pig iron be reduced to 420 lbs., the weight of ore or oxide should be increased 180 lbs., and the coke to 48 lbs.

The second improvement consists in the addition of clay, argillaceous ironstone, or other substance containing alumina, to the ores or oxides which produce iron of the quality termed red short. The clay or other substance used, should be ground fine and dried, before being mixed with ore. A larger quantity of carbonaceous matter, generally above 28 per cent., will be required for a given quantity of ore, than if no clay were used, for the clay, in addition to its capability of taking up the carbon, has a tendency to diminish the contact of the ore or oxide with the carbonaceous matter, and thereby prevent a complete decomposition. The proportion of clay will vary with the quality of the ore, but from 4 to 10 per cent. of the weight of the ore will be sufficient when operating on the Lancashire hematite ores. If too much clay be used, the tap cinder will be very sluggish, and the ball, when under the hammer, will emit continuous showers of dark red cinders; and if too little be employed, the iron will retain some of its red short quality.

The third improvement consists in combining a portion of the tap or flue cinder of puddling and balling furnaces with a portion of clay, chalk, carbonaceous matter, and rich iron ore, or some of these substances, and manufacturing the mixture, either with or without pig or refined iron, in reverberatory furnaces, into malleable iron. The materials must be pulverized and dried before being mixed together. The relative proportions of the different substances may be as follows: 150 lbs. of tap cinder, containing about 71 per cent. of protoxide of iron, 150 lbs. of Lancashire hematite ore, 20 lbs. of pulverized Worsley fire clay, 20 lbs. of chalk, and 100 lbs. of coke dust.

With regard to the first part of this invention, the patentee says he does not claim to have discovered the manufacture of malleable iron in reverberatory furnaces, either with or without a portion of pig, or scrap, or refined iron, nor the advantage of pulverizing the ores and carbonaceous matter; but he claims the manufacture, in reverberatory furnaces, in the manner above described, of malleable iron, by means of ores and carbonaceous matter, mixed in proportions limited as before mentioned, and combined with a portion of pig or refined iron. Under the second improvement, he does not claim to have discovered the advantage of using a portion of clay or argillaceous ironstone in the manufacture of iron from certain ores, that having been previously done in the manufacture of pig iron from such ores; but he claims the use of clay as an ingredient to be employed in a pulverized state, mixed with certain ores and carbonaceous matter: also, pulverized, for the manufacture, both with or without pig or refined iron, of malleable iron in

reverberatory furnaces. With regard to the third improvement, he does not claim to have first applied a portion of tap or flue cinder or other silicate of oxide of iron with lime or carbonate of lime, and with iron ore, clay or carbonaceous matter, all these having long been used in the manufacture of pig iron; but he claims the manufacture of malleable iron from the combination of those substances, pulverized, both with and without pig or refined iron, in reverberatory furnaces, as before described.—*Mining Journal, Sept. 5th.*

Extensive Iron Railway Bridge and Viaduct.

An iron bridge, in size and magnificence, perhaps, never before equalled, is about to be erected, with a corresponding viaduct across the Tyne, from Gateshead to Newcastle-upon-Tyne, for the Newcastle and Berwick railway. The iron work contract was led at York; there were a good many tenders, but Messrs. Crawshaw and Sons, of Gateshead, were the successful competitors; Messrs. Losh, Wilson and Bell, of the Walker iron works, and Mr. John Abbott and Co., of the Gateshead iron works, will also take part with them in the construction of the work.—Messrs. Hawks taking the castings for the approaches and the other firms the arches for the bridge. The contractors are to make, supply and erect all the cast and wrought iron and wood work for bridge and approaches, according to the designs, and under the instructions of R. Stephenson, Esq.; it is to consist of six cast iron circular arches, with a curved approach at each end, and will in fact, be a double bridge; the railroad on the summit, and a carriage road and two footpaths suspended from the arches. The span of the arches will be 125 ft., supported on pillars 21½ ft. high, and 14 in. square, and the approaches from both Newcastle and Gateshead will be 251 ft. in length and precisely similar. Two courses of 3 inch planking will be placed beneath the rails, between which will be a layer of Borrowdale's patent asphalted felt, to render them waterproof; and the carriage road beneath will be paved with wood to prevent vibration, and the footpaths planked. Every arch will be completely erected on the contractors' premises by itself, when the engineer will inspect and test its strength and fitness; the quantity of iron required will be about 6,000 tons, and the contract is stated to be £120,000. The entire cost, exclusive of land and buildings, will be £300,000, and it is to be finished, so as to be available for public traffic by the 1st of August, 1848.—*Mining Journal.*

Providence and Plainfield Railroad.—A movement was made last spring in favor of a railroad from Providence to the Connecticut line, to connect with one to be constructed from that point, via Middletown, to New Haven, and thence to New York, forming, with the aid of the Boston and Providence railroad, already constructed, a complete and uninterrupted railroad communication between Boston and New York. Some progress was made, in the collection of statistics, which were found to be highly favorable, and to exhibit a promise of local business which is

hardly equalled by any route in New England. The valley of the Pawtuxet river is almost one continuous village, and the travel from the numerous manufacturing towns upon its banks and the transportation for the supply of these establishments, will afford such a local support as few railroads connecting distant points possess.

After resting for a while, this project has again attracted the serious attention of some of our most prominent and enterprising citizens. A subscription has been opened to defray the expenses of the preliminary survey and the more thorough collection of statistics. The sum required for these purposes, we doubt not, will be readily raised, and the friends of the project will very soon be able to present such an array of facts as will challenge the attention of capitalists.

A zealous effort will be made in the next legislature of Connecticut, on the part of the people of Hartford and other towns along and near the river above Middletown, to procure a repeal of the section authorizing the construction of a bridge at Middletown. Notice of an application to that effect has already been published in the Hartford papers.—Whether it will be successful or not remains to be seen. According to the charter as it now stands, the bridge is to have a draw 80 feet wide, which the Middletown people contend, is all that the interests of commerce require.

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,
45 North Water St., Philadelphia,
or by their Agent, ROBT. NICHOLS,
79 Water St., New York;

RAILROAD IRON.—THE NEW JERSEY Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to

FULLER & BROWN, Agent,
No. 139 Greenwich, corner of Cedar street.
September 18, 1846. 10c39

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE,
ja45 N. E. cor. 12th and Market sts., Philad., Pa.

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON
Mar. 20th 4 South Front St., Philadelphia.

Valuable Works on Engineering for Sale.

The following works, belonging to the late Wm. R. Casey, have been deposited at this office for sale. It will be seen that they comprise most of the standard books. The reports and non-enumerated pamphlets are however among the best part of the collection, as many of them are not to be found or purchased at any price. So desirable an opportunity seldom offers for securing an excellent set of professional works.

LIST OF ENGINEERING BOOKS BELONGING TO W. R. CASEY, DECEASED.

- 1.—The Civil Engineer and Architect's Journal, quarto, vols. 1, 2, 4, 5 and 6, and nos. 79 to 81, and 84 to 95—remaining numbers expected from Montreal, Canada.
- 2.—Railroad Journal, quarto, vols. 1, 2, 3; octavo, vols. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 and 17; octavo vols. 18, and loose nos. to date; being nearly a complete set.
- 3.—Reports and Documents, 6 or 7 octavo vols.
- 4.—Tredgold's Carpentry, quarto, with plates.
- 5.—Barlow on Strength and Stress of Timber, octavo, with plates.
- 6.—Turnbull on Iron, octavo.
- 7.—Nicholson's Masonry and Stone Cutting, octavo, with plates.
- 8.—Tredgold's Tracts on Hydraulics, octavo, with plates.
- 9.—Gregory's Mathematics for Practical Men, octavo, with plates.
- 10.—Wood on Railroads, octavo.
- 11.—Pambour on Locomotives, octavo, with plates, (Philadelphia edition.)
- 12.—Lecount on Railroads, octavo, with plates.
- 13.—Smeaton's Tracts, 1796, octavo, with plates.
- 14.—Seward's New London Bridge, octavo, with plates.
- 15.—Storrow's Treatise on Water Works, duodecimo.
- 16.—Report on Atmospheric Railway, etc., quarto, with plates.
- 17.—Gallier's Price Book and Estimator, octavo.
- 18.—Public Works of Great Britain, folio, \$25.
- 19.—Weale's Bridges, new and valuable, \$23.

The above books will be sold by the single volume, if desired, and forwarded by express, or otherwise, as directed by the purchaser.

Please address E. HEDGE, Railroad Journal Office, 36th 23 Chambers street, New York.

RAILROAD SCALES.—THE ATTENTION

of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

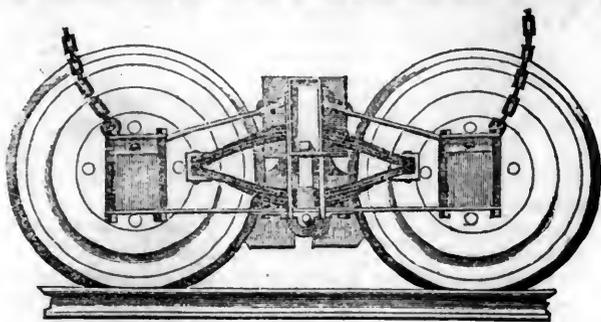
ELLICOTT & ABBOTT.
Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
Philadelphia, Pa.

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by JOHN W. LAWRENCE,
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

RAY'S EQUALIZING RAILWAY TRUCK--THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars--adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:--This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:--This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

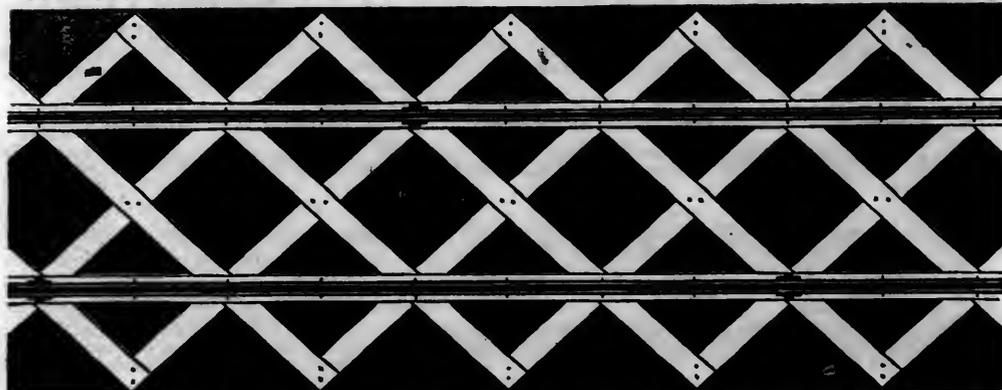
For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, Jamaica November 12, 1845.

[Signed,] JOHN LEACH,

1y19 Sup't Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected--1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. (This gain alone may amount to 20 per cent. on the usual load of an engine.--2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.--3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.--4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.--5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.--6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort for the traveller.--7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount with ballast, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
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One column ".....	8 00
One square ".....	2 50
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ENGINEERS and MACHINISTS.

- THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)
- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- PHENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATAILLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was perched by the extreme heat.

RICHARDS & CRONKHITE.
New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)
WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138 1/2 Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street
Charleston, S. C.

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

** The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

PATENT HAMMERED RAILROAD, SHIP AND BOAT SPIKES. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.
Albany Iron and Nail Works, Troy, N. Y.

The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merriitt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston.

ja45

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
Paterson, N. J., or 60 Wall street, N. York.

ja45

PATENT RAILROAD, SHIP AND BOAT SPIKES. The Troy Iron and Nail Factory keeps constantly for sale, a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

DAVENPORT & BRIDGES CONTINUE to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

ly4

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.



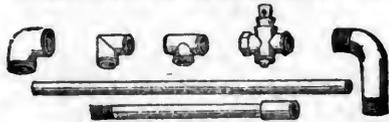
No 23 Pear street, below Walnut, 1y10 near Third, Philadelphia.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by MORRIS, TASKER & MORRIS, Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

LAP-WELDED WROUGHT IRON TUBES

FOR TUBULAR BOILERS, FROM 1 1/4 TO 6 INCHES DIAMETER, and ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentec.

1y25 29 Platt street, New York.

THE SUBSCRIBERS, AGENTS FOR

the sale of Codorus, Glendon, Spring Mt. and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L KIMBER, & CO., 59 North Wharves,

Jan. 14, 1846. [1y4] Philadelphia, Pa.

PATENT INDESTRUCTIBLE WATER PIPES. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

J. BALL & CO.

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP, 75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	Tons.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4 1/2	13 5	10	24 -	50	15-16	20	
13	3 1/2	8 3	8 1/2	16 -	27	11-16	13 1/2	
14	3 1/4	6 11	7 1/2	12 8	17	9-16	10 1/2	
15	2 1/2	5 2	6 1/2	9 4	13 1/2	1-2	7 1/2	
16	2 1/4	4 3	6	8 8	10 1/2	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee G. A. NICOLLS, Reading, Pa. ja15

OFFICE NEW YORK AND ERIE RAILROAD CO., 45 Wall Street, New York, Aug. 28, 1846.

NOTICE IS HEREBY GIVEN, THAT PROPOSALS will be received until the 13th day of October next, for the Grading, Masonry and Bridging required to complete that portion of the New York and Erie Railroad between a point three miles east of Port Jervis in Orange county, and the village of Binghamton in Broome county, a distance of about 133 miles.

Maps and profiles, estimates and specifications, will be found after the 10th of September in the office of the company, at New York city, where every necessary information will be given. The engineers on the line of the road will also furnish all requisite facilities to contractors desirous of examining the route.

The line will be divided into sections of convenient length for construction, and proposals in writing will be received at the New York office for the whole or any part of the work. By order of the President and Directors. T. S. BROWN, Chief Engineer. 6:36

TYLER'S PATENT SAFETY SWITCH.

The following decision of the Commissioners of Patents is respectfully submitted to Railroad Engineers, Superintendents, and all others interested in the subject.

(COPY.)

UNITED STATES PATENT OFFICE, } Washington City, D. C., April 28th, 1846.

SIR: You are hereby informed that in the case of the interference between your claims and those of Gustavus A. Nicolls, for improvements in safety switches—upon which a hearing was appointed to take place on the 3rd Monday in March, 1846, the question of priority of invention has been decided in your favor. Inclosed is a copy of the decision.—The testimony in the case, is now open to the inspection of those concerned. Yours Respectfully, EDMUND BURK, Commissioner of Patents.

To Philos B. Tyler.

Any further information may be obtained by addressing John Pendleton, Agent for the Proprietor 149 Hudson Street, New York. Im39

TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS, Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 1d1y

NOTICE TO CONTRACTORS.—BOSTON,

Concord and Montreal Railroad Company.—This company is now ready to contract for the grading and masonry of said road, or any portion thereof, south of Meredith Bridge, with the exception of two miles immediately north of Merrimack River. They are ready, likewise, to contract for sleepers, and lumber for fencing said road from Concord to Meredith Bridge. Any proposals for grading masonry, sleepers, or fencing, may be left with Theodore French, Esq., Treasurer of said company, at his office in Concord, and it will receive due attention. PETER CLARK, Agent. Concord, September 2, 1846. 3:39

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/2 x 1/2 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/2 x 1/2 " Flange Iron Rails. 75 " 1 x 1/2 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 1f

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

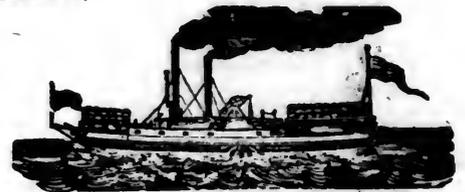
JOAN F. WINSLOW, Agent, Albany Iron and Nail Works,

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 42]

SATURDAY, OCTOBER 17, 1846.

[WHOLE No. 539, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.
Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.
Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.
Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7-20 a.m. and 3½ p.m.
All baggage at the risk of the owners thereof.
31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD and STAGES connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 32 ly J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Winter Arrangement, 1846-7.

On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.
Boston for Great Falls at 7½ a.m., 2½ and 3-25 p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 3-25 and 5 p.m.

Boston for Reading at 7½, and 11½ a.m., 2½, 3-25 and 6½ p.m.

Portland for Boston at 7½ a.m., and 3 p.m.
Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 7½, 8½, and 11 a.m., and 3 and 6½ p.m.

Reading for Boston at 7, 8½ and 9½ a.m., 12 m., 1½, 4 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that *personal* Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.
1y31 CHAS. MINOT, *Sup't.*

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3 30, 4-30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock, n the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams Bridge trains will be regulated according to the state of the weather.
1y18

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.
" Middletown at 6½ A. M. and 5½ P. M.
FARE REDUCED to \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M.
" Middletown at 12 M.
The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, *Sup't.*
March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 ff

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846.. Spring Arrangement.. 1846
Commencing April 1st.

Passenger trains leave daily, Sundays excepted—

Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6½ " and 2½ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES,
Superintendent and Engineer.
Western Railroad Office,
Springfield, April 1, 1846. }

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs. This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/4 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/4 a.m. and 4 1/4 p.m., or to connect with trains to Boston. Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

TROY AND SCHENECTADY RAILROAD. This road is laid its entire length with the heaviest H rail—which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/4 a.m. and 1 p.m. and 6 1/4 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/4 a.m., 8 1/4 a.m., 1 p.m. and 3 1/4 p.m., or on arrival of the trains from Buffalo and intermediate places.

TROY AND SARATOGA RAILROAD.
THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/4 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/4 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/4 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/4 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug 3, 1846.

1y 32

THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky, \$8 00
" " Sandusky to Buffalo, Cabin, 6 00
" " " " Steerage, 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, Sup'l, etc.
M. & S. C. R. R. Co.

Sandusky, Ohio.

RAILROAD IRON.—THE "MONTOUR Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sts. 43 1y

NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.

Passengers destined for Columbus and Cincinnati, O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance 56 " Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance 88 " Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance 65 "

TIME.
From Buffalo to Sandusky 24 hours.
Leave Sandusky 5 a.m. to Columbus 14 "
From Columbus to Cincinnati 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.
From Buffalo to Sandusky, Cabin \$6 00
" " " " Steerage 3 00
" Sandusky to Columbus 4 50
" " through to Cincinnati 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, setting 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Sup'l, etc.
M. & S. C. R. R. Co.

Sandusky City, Ohio.

BALTIMORE AND OHIO RAILROAD.

MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7 1/4 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER, 17 Burling Slip. New York.

1y10

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and

Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows: Leaves Baltimore at 9 a.m. and 3 1/2 p.m. Arrives at 9 a.m. and 6 1/2 p.m. Leaves York at 5 a.m. and 3 p.m. Arrives at 12 1/2 p.m. and 8 p.m. Leaves York for Columbia at 1 1/4 p.m. and 8 a.m. Leaves Columbia for York at 8 a.m. and 2 p.m.

FARE.
Fare to York \$1 50
" Wrightsville 2 00
" Columbia 2 12 1/2

Way points in proportion.
PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg \$9
Or via Lancaster by railroad 10
Through tickets to Harrisburg or Gettysburg 3
In connection with the afternoon train at 3 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at 5 1/4 p.m. Returning, leaves Owing's Mills at 7 a.m.
D. C. H. BORDLEY, Sup'l.
31 ly Ticket Office, 63 North st.

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m. Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily \$26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

1y25 JOHN KING, Jr, Agent.

CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight.

Rates of Passage, \$8 00. Freight—
On weight goods generally 50 cts. per hundred.
On measurement goods 13 cts. per cubic ft.
On brls. wet (except molasses and oil) \$1 50 per barrel.
On brls. dry (except lime) 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery 40 cts. per hundred.
On hds. and pipes of liquor, not over 120 gallons \$5 00 per hhd.
On molasses and oil \$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, Gen'l. Sup'l. Transportation.

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers, etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plate No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

2v19 1y

CENTRAL AND MACON AND WESTERN RAILROADS, GA.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad	190	Miles.
Macon to Atlanta—Macon and Western	101	
Atlanta to Oothcaloga—Western and Atlantic	80	

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot	0 20	pr. 100lbs. 35
Crockery, per cubic foot	0 15	" " 35
Molasses and Oil, per hhd., (smaller casks in proportion)	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each	1 25	1 50
Ploughs, (small,) and Wheelbarrows	0 80	1 05
Salt, per Liverpool Sack	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.		

Goods consigned to the subscriber will be forwarded free of Commissions.
Freight may be paid at Savannah, Atlanta or Oothcaloga.
F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846.

LITTLE MIAMI RAILROAD.—1846.—
Summer Arrangement.

Two passenger trains daily.
On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1½ p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m. On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m. Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield. Tickets may be procured at the depot on East Front street.

The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount.
W. H. CLEMENT, Superintendent.

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston	\$21 00
" " " Richmond	6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to
STOCTON & FALLS, Agents.

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA.—171 MILES.
AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.
This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

RATES OF FREIGHT.		Between Augusta and Oothcaloga.	Between Charleston and Oothcaloga.
		250 miles.	386 miles.
1st class.	Boxes of Hats, Bonnets, and Furniture, per cubic foot	\$0 16	\$0 25
2d class.	Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	0 90	1 40
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 55	0 80
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.	0 37½	0 62½
	Cotton, per 100 lbs.	0 45	0 65
	Molasses, per hoghead.	8 50	13 50
	" " barrel.	2 00	3 25
	Salt per bushel	0 17	
	Salt per Liverpool sack.		95
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.
Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.
J. EDGAR THOMSON, Ch. Eng. and Gen. Agent. Augusta, Sept. 2d, 1846. *44 1y

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.
CHAS. F. M. GARNETT, Chief Engineer. Atlanta, Georgia, April 16th, 1846. 1y1

MARAMEC IRON WORKS FOR SALE.
By Authority of a power of Attorney from Messrs. Massey and James, I will sell at Public Auction, at the Court House in the city of St. Louis, on MONDAY, the 2nd day of November next, the above named valuable IRON WORKS—together with 8,000 ACRES OF LAND, more or less, on which there are several valuable and productive Farms open and in cultivation.

The Maramec Iron Works are situated at the Maramec Big Spring, in Crawford Co., Mo., and consist of 1 BLAST FURNACE; 1 AIR FURNACE; 1 REFINING FORGE, with large Hammer for making Blooms and Anchovies; 2 CHEFFERY FORGES for Drawing Bar Iron; 1 ROLLING MILL for Rolling Blooms into Bars and Plates; 1 SAW AND 1 GRIST MILL,

All within 300 Yards of the head of the spring. There are 2 large frame Coal Houses, and all other Buildings necessary, such as Shops and Houses for the workmen.

This Spring is one of the largest in Missouri, discharging at the lowest time 7,000 cubic feet of water per minute. The Ore Bank from which the Ore has been heretofore taken is about 600 yards from the furnace; it is the *Specular Iron Ore*, the best for making Bar Iron, and the quantity inexhaustible.—It is an Iron Mountain, 400 feet above the level of the Maramec River; the ore is entirely uncovered, and there is an easy descent and a good road from it to the furnace.

The lands have been carefully selected by one of the owners with a view to the interest and convenience of the Works, and are situated principally on the Maramec River and its tributaries, embracing the best bottom lands and water powers. The following detached tracts, comprized in the above quantity, were selected for the advantages they possess

183½ ACRES in T. 40 N. of R. 8 W. in Sec. 3, near Wherry's Mill, in Osage Co.; entered to secure a very valuable Mill power on the Branch Spring and a good landing on the Gasconade River.

80 ACRES on Benton's Creek, 12 miles from the Works; entered to secure an extensive and valuable Ore Bank 2½ miles from the Maramec, at a point where there is ample water power.

320 ACRES in T. 38 N. of R. 4 W. in Sec. 22 and 28, affording an extensive and valuable water power on the Maramec river.

160 ACRES in T. 37 N. of R. 3 W. in Sec. 4, embraces two inexhaustible and valuable Ore Banks and is 1½ miles from Water power sufficient for a furnace and Grist Mill, and is distant 6 miles from the above site on the Maramec.

80 ACRES in T. 37 N. of R. 8 W. in Sec. 33, including an extensive bank of excellent Ore, and distant 14 miles from water power on the waters of the Gasconade River, in Pulaski Co., sufficient for Furnace and Mills. All those Banks are of the same kind as the one at the Works, and deemed inexhaustible.

1 LOT, containing nearly one Acre, on the South Bank of the Missouri River, 4 Miles above the town of Hermann, purchased for a warehouse and landing, and is one of the best landings on the River.

The lands above described are well timbered, and have been selected with a view to have an ample supply of wood and coal, for fences, building and other purposes. There are on the land valuable quarries of Limestone well adapted for Fluxes for the Ore, and also good quarries of Rock suitable for building. There are also on the land a great number the finest kind of Springs. A large portion of the lands are bottoms well adapted to the production of Corn and other crops. The Works are situated in a very pleasant and healthful part of the country. The Maramec ore is believed to be admirably adapted to the manufacture of steel.

A further description of the property at this time is considered unnecessary, as those wishing to purchase will no doubt view the property, which will be shown by the Agent, residing at the works.

The terms of payment required will be one-third of the purchase money in hand and the balance in three equal annual payments, secured by mortgage on all the property.

A more particular description of the property will be given, and further conditions of the sale made known, on the day of sale.

JNO. F. ARMSTRONG, Agent. St. Louis, June 6, 1846.

The Louisville, (Ky.,) Journal, Cincinnati Gazette, Tribune (Portsmouth, O.,) Nashville Whig, Pittsburg Gazette, National Intelligencer, United States Gazette, (Phila.) Railroad Journal (N. Y.,) and Boston Atlas, will publish the above once a week until the 20th day of October next, and send bills to this office for settlement, and mark price on first paper. 1846

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually; as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafing of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. 1yl

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 69,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 fe. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

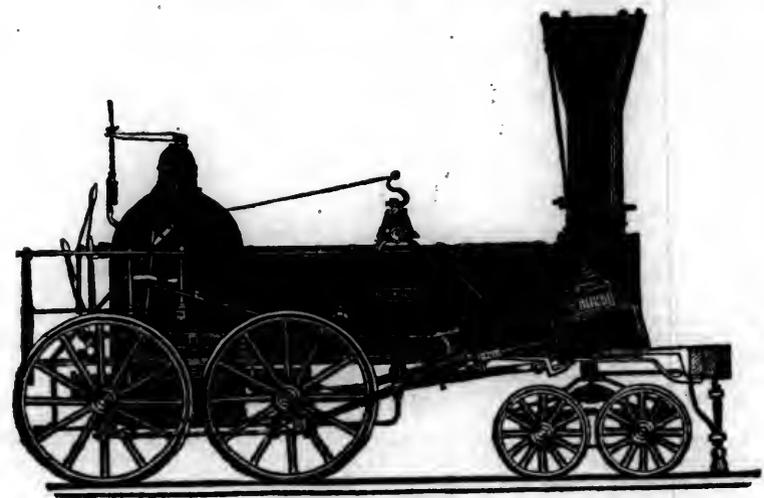
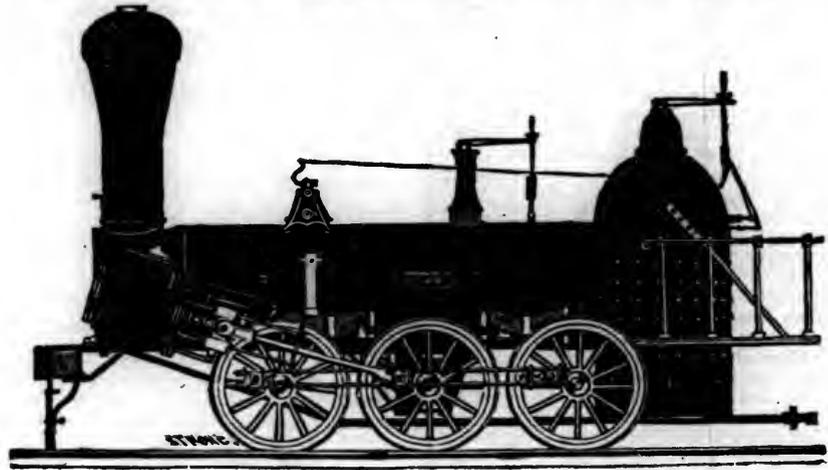
Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ¼ inch Flat Punched Rails, 20 ft. long.

25 " 2½ x ¼ " Flange Iron Rails.
75 " 1 x ¼ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 1lf

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address
JOAN F. WINSLOW, Agent,
Albany Iron and Nail Works,
1y

RAILROAD IRON.—THE NEW JERSEY Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to
FULLER & BROWN, Agent.
No. 139 Greenwich, corner of Cedar street.
September 18, 1846. 10:39

NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " × 24 " "
"	3,	14½	" " × 20 " "
"	4,	12½	" " × 20 " "
"	5,	11½	" " × 20 " "
"	6,	10½	" " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars

NORRIS, BROTHERS.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY, a45 President of the Newcastle Manuf. Co.

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by
A. & G. RALSTON
Mar. 20f 4 South Front St., Philadelphia.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Allaire, } New York.
 - Peter Cooper, }
 - Murdock, Leavitt & Co. }
 - J. Triplett & Son, Richmond, Va.
 - J. R. Anderson, Tredegar Iron Works, Richmond, Va.
 - J. Patton, Jr. } Philadelphia, Pa.
 - Golwell & Co. }
 - J. M. L. & W. H. Scovill, Waterbury, Con.
 - N. E. Screw Co. } Providence, R. I.
 - Eagle Screw Co. }
 - William Parker, Supt. Bost. and Worc. R. R.
 - New Jersey Malleable Iron Co., Newark, N. J.
 - Gardiner, Harrison & Co. Newark, N. J.
- 25,000 to 30,000 made weekly. 35 1y

Round and Flat Rails.

Relative Friction.—The following letter from Mr. Greenhow, on the relative friction of round and flat rails, may be worthy of attention, and we therefore give it a place in the Journal.

SIR: I beg to trouble you with the result of some very interesting experiments, made by me in the presence of several scientific and practical men, which entirely corroborate my views on the different amount of friction that exists between a wheel with a concave tire, adjusted as I propose progressing along a round rail, and a wheel with a flat running surface, and angular flange passing over a flat rail. I consider these experiments most important, as fully bearing out my demonstration of the relative amount of friction on the round and flat rails, contained in the Mining Journal of the 1st inst. I had two carriages of similar dimensions and weights, the one fitted with the wheels, as proposed in the geometrical system, the other with wheels such as are now used on railways, the diameter being the same in both cases. I had also railways adapted to each, of equal gauge, laid side by side, the ends of each being elevated so as to form inclined planes at a gradient of 1 in 20. Then by allowing the carriages, moved only by the gravitation, to run equal distances down the inclines, the one meeting with the least resistance from friction (the other resistances being equal in both instances) would acquire the greatest momentum on the incline, and consequently run to the greater distance on the level. While the one meeting with most resistance from friction would not only acquire less momentum in descending the incline, but would also meet with more resistance on the plane, and therefore run a much shorter distance on the level. The mean of six experiments gave the following result: the distance run, after leaving the incline by the carriage on the flat rail, was as 13 to 42; by that on the round rail showing the difference of resistance in the former to be many times more than on the latter, it is not necessary to go into a minute calculation of the exact value of the different resistances, the above round numbers sufficiently proving the case. Next a further experiment was tried, by raising one rail above the level of the other, a distance equal to one-tenth of the gauge—thus making it necessary for the flanges to act on the side of the rail, so as to prevent the carriages from running off the line. Still keeping the gradient of the incline at 1 in 20, as before, the carriages were then allowed to run down the inclines, when the great advantage of the concave tire, acting as a flange on the round rail, was immediately apparent; the carriage on the flat wheel and rail meeting with so much resistance from the action of the angular flange on the edge of the lower rail, merely moved to the bottom of the incline, without at all progressing along the level; while the one with the concave wheel tire on the round rail ran a distance, as 34 is to 42, in proportion to what it did with the rails at equal levels—fully proving that the increase of friction, when the concave flange is brought into close contact with the round rail

is infinitely less than when the flange and rail, at present in use, are placed in like circumstances.

This, I consider, at once sets at rest the question of friction, as proving the decidedly great advantage of a concave tire, when causes make it necessary for the flange to act; and when we consider that it is impossible to preserve that proper relative level between the rails, absolutely necessary to prevent the carriages inclining to either side, so as to bring the flange into close contact with the edge of the rail; also that the rails are incessantly making curves, which, however slight, still make it necessary for the flange of the outer wheel to act on the rail, in order to divert the straightforward tendency of the momentum, into the direction taken by the rails—the atmospheric resistance in high winds, and many other causes, constantly occurring to make this action of the flange necessary. I ask the simple question, is it not absolutely necessary to arrange the connection between the wheel and rail, in such a manner that the flange will act with the utmost certainty and safety, in resisting an attempt at lateral movement, at the same time that the increase of friction is of the smallest possible amount; and by this means greatly conduce to the safety and comfort of the traveller, while much economy of tractive power, and immense diminution of wear and tear will accrue to the railway company. Begging you will allow the importance of the subject to be an excuse for the length of my letter, I am, sir, etc., C. H. GREENHOW.

Atmospheric Railway Tubes.

The following article from the London Mining Journal describes another plan for working the atmospheric railway.

Clarke and Varley's Resilient Atmospheric Railway Tube.—We briefly noticed in last week's Mining Journal, that we had paid a visit to the establishment where working models of this ingenious invention are in operation. In the number for 27th June last, we described the tube as then at work; since which some very interesting and economical improvements have been effected, to lessen the amount of friction, and prevent leakage, by rendering the valve as perfect as possible. We will repeat the general description of the tube, preparatory to showing the improvements which have since been made. The tube, instead of being cast, is made of rolled iron; a sheet of the length intended for the tube, and about two inches wider than the diameter, has about an inch turned up at right angles then rolled up and hammered into a tube—the flanges of which form the longitudinal lips, and which are kept closed by the spring or resilience of the tube itself; these lips are lined with leather, fixed to the iron by Jeffries marine glue, and thus form an air tight joint, when lubricated with a greasy substance. The tubes are perfectly cylindrical, and in laying them they butt against each other, and a strap of the same metal is lined with leather and marine glue, and screwed up to the lips with bolts and nuts; besides these braces, there are, at every six feet, stays curved to the outside form of

the tube—one fixed, and the other working on an axis underneath, and both bolted to the lips; thus allowing one side of the tube to recede on the passing of the couler of the piston; this couler was much wider behind than in front, where it terminated in an edge; and this shape was to open as little as possible in front, while sufficient space was clear behind the piston, for the admission of air as it proceeded. Another form of tube was, by forming the lips into a trough, and inserting a rope valve well lubricated, which appeared to answer perfectly. Several very considerable improvements have, however, since been made—and first with respect to the valve; instead of lining the two flat lips with leather, one lip is made curved, the other flat; a continuous bar of iron, convex on one side to fit the curved lip, and of convenient length, is covered with stout leather, and the convex part is then firmly screwed up to the curved hollow lip; the flat lip then presses by the elasticity of the tube against the leather covered plane side of the iron bar, and forms a perfectly air tight joint, even without lubrication. To lessen still further the friction, the patentees have reduced the couler to the least possible thickness consistent with strength sufficient for its connection with the train; and, by the addition of a small friction wheel, running on the surface of the tube, it can be moved by the slightest pressure. In thus reducing the breadth of the couler, there is not sufficient opening for the admission of air behind the piston; to effect this, a continuous bar of iron runs the whole length of the tube, and which, by short levers, acts upon the moveable stays in such a manner, that a small wheel, attached to the carriage, pressing on this bar, pulls back the stays, and opens the lips to the necessary width, which of course close again as the piston proceeds. On a length of 12-inch tube, about 60 feet, which is now at work, the mercury in the barometer shows little variation when the air is rarified, and the pump left at rest, even for two hours: a fact which shows the perfection of this description of valve. It is estimated, to the greatest nicety, that a mile of this tube can be laid for, at most, £2000: while a cast tube on the other principles, costs, at least, £5000; and it would seem that on the resilient system, there is very little chance of leakage, and consequently, that enormous source of loss of power avoided. We understand, 150 yards will very shortly be laid down on the Blackwall line, which will be a certain test of its success or otherwise; we have no doubt of the result. Among the various proposals for applying the principle of atmospheric propulsion to the raising of ore from mines, we have not before seen a model erected for the purpose. Messrs Clark and Varley have erected a length of their tube, about 10 or 12 feet high, fitted up for this purpose, and which, from its lightness and economy, we should think would be very applicable, if the principle is found to answer, for great perpendicular heights. The tube is placed nearly perpendicular, and the box or carriage made, of course, with the opening upward—the side being attached to the piston instead

of the bottom, as on a railway; the effect produced by this model was successful. The inventors of the resilient atmospheric tube have applied the principle to various occupations—such as pile driving, a machine for excavating railways, pumping, etc., all of which subjects we shall refer to, illustrated by diagrams.

Railway Signals.

This is a subject deserving of more attention than has been given to it—and we shall always give place to suggestions in relation to it.

Mr. J. Stansbury, M. A., of Hackney, has devised a new system of audible signals, to be employed in addition to those in ordinary use. The peculiarity of the system consists in the adoption of whistles of different sounds on different lines of rail, and the sounding them at regular intervals of distances. The following are the details of his device:

1. Let there be attached to every engine two steam whistles, of different and easily distinguishable sounds.

2. Let one whistle be sounded when the engine is on one line of rails, and the other when on the other line of rails, invariably; let them never be interchanged.

3. Let the appropriate whistle be sounded by every engine, day and night, along the whole route, at every mile post, or at every half mile post, if necessary; and where lines unite or cross each other, still more frequently.

4. Let there be a signal man on every engine, whose sole business it shall be to make these signals, and observe them, and give the necessary directions to the engine driver.

5. It would follow, as a matter of course, that two trains being found to be on the same line of rails, whether moving in the same or in opposite directions, both should be immediately stopped, and thus a collision prevented.

1. It is submitted, that if this plan be adopted, no two trains can at any time be within a mile, or half a mile of each other, without the conductors of both being aware of it; and further, without their knowing whether they are on the same line of rails.

2. The whistle not in use might be closed under lock and key, to prevent it being sounded by mistake, on the wrong line of rails.

3. On dark nights, a lantern might be attached to each mile or half mile post, if it should be found necessary.

4. There should be the means of crossing from one line of rails to the other every few miles.

5. It is to be anticipated that persons residing near the line will become accustomed to the sound of the whistle, and associating with it the idea of the security of millions of lives, will not be annoyed by it.

6. The signals are not intended to supersede any of those now in use.—*Mining Jour.*

An Extensive Establishment.

The town of Crewe, Cheshire, 166 miles from London, had not a dozen houses in it seven years ago; at present it contains about 500, and there are near 300 more building.—Its inhabitants are probably 4,000. Crewe owes its origin to the Grand Junction railway company, having been constructed chiefly for the accommodation of the men employed in

their immense works, and it is an admirable proof of what may be effected by enlightened liberality. The streets are pretty nearly all straight, and laid out either parallel or in right angles with one another. They are paved, lighted with gas, and supplied with water by the company gratis. Each street contains a conduit, and on pressing in a kind of button, the stream issues forth, without giving the labor of pumping. The company have built a pretty church, lighted it in a most ingenious way, and maintain a chaplain for it. They have also erected a news room, an assembly room, school rooms, and hot and cold baths, (supplied by the steam engine at the works,) the charge for admission to them being, as we believe, a penny or two pence.—The houses are most commodious, and in general, have small gardens attached. The rent varies from 2s. to 3s. per week, which is not meant to be a pecuniary compensation to the company for the outlay they have been at, but is most judiciously held out as one, among many inducements for a good workman to remain in their employ. Each house has a due service of water, and is furnished with a gas light in the principal apartment, at a charge of 7s. per annum.

The works themselves are immense, covering something like five acres of ground.—The number of men employed is nearly 1,000 and their wages amount to upwards of £1,000 weekly. The required assistance from steam is obtained from an engine of 40 horse power which turns a quaitus of a mile of shaft.

The workmen are not paid by the week or day, but according to the labor they have performed. Six is the hour for assembling, and if a man be five minutes behind time, he cannot be admitted till after breakfast, that is at half past eight; if he be absent then he cannot be admitted till one. Work finishes at four o'clock on Saturdays, and at half past five on other days. No spirituous liquors or beer are allowed to enter the premises. Each man keeps a book in which he enters daily what he has done, and deposits it at a receptacle at the gate-way. Once a fortnight he receives his pay, which, after deducting whatever fines he may have incurred, is put into a little box for him, having his number on the top, so that a long and troublesome job is easily and quickly got through with by the cashier.

There is a surgeon kept in the company's employ, who is paid in the following way: each boy receiving 10s. a week and upward, is taxed 1d. per week; if receiving under 10s. one half penny, each married man, without a family, three and a half pence; each single man one penny; each married man with a family, one penny for himself and a half penny for each member of his household. Beyond these charges the doctor has no farther claim for his services and medicines.

Miscellaneous Items.

Syracuse and Utica Railroad.—We understand that a meeting of the directors of this company was held this week, at which the president was instructed to procure on the best terms that could be obtained, the heavy H rail, weighing not less than 56 lbs. to the

lineal yard, with which to re-lay the present track. It is contemplated to put down a portion of the heavy rail this fall, and the remainder next summer. A new track along side of the old one has been graded, and the timber necessary for laying it is already on the ground. The new track is on an uncommonly even grade, and every pains has been taken to make it substantial and permanent. When the new and heavy rail is laid this will be one of the best roads in the state and the distance (53 miles) can be performed in an hour and a half.

A similar course must be pursued by all the companies between Buffalo and Albany. The existing railroads were mostly constructed years ago, and are much inferior to those at the east. Nothing but re-grading and the adoption of heavy edge rails can make them what the public require. The thin rails and inadequate engines now in use, render the performance of our roads a constant theme of disparaging remark. It is impossible, as things are, to attain the proper degree of speed or to adopt the low fares so profitable in N. England.

We make these observations in no spirit of fault finding; the needed improvement will doubtless be effected as soon as practicable, and we rejoice that it is already commenced between Syracuse and Utica.—*Syracuse Star.*

The Wilton railroad corporation held its first meeting at Nashua on Thursday last.—Messrs. Daniel Abbott, Chas. F. Gove, Zeb- ediah Shattuck, Jesse Bowers and Joseph Greely, of Nashua and Nashville, and Abel Lovejoy and William Ramsdell, of Milford, were chosen directors. At a meeting of the Nashua and Lowell road, held on the same day, it was voted to assume the charter of this road, as soon as the legislative sanction shall be obtained. This road, we take it, is an opposition project to the Souhegan.

The Baltimore and Ohio railroad company has declared a dividend of three per cent. on the Washington branch railroad, for the half year ending the 1st inst.

North Adams and Pittsfield Railroad.—On Tuesday this road was opened to the public use.

Acton and Sterling Branch.—We learn that the Fitchburg railroad company have suspended all operations for the building of a branch road from Acton to Sterling. This is, we presume, in consequence of the certainty which now exists that the Worcester and Nashua road will be built.—*Bellows Falls Gazette.*

Mad River and Lake Erie Railroad.—The receipts on the Mad river railroad are already at the rate of \$80,000 per annum.—The receipts of the Little Miami road and the Mad river together, are now, in their unconnected state, \$200,000 per annum.—*Cincinnati Chron.*

The Salem Register says that the second track on the Eastern railroad is being laid on an entirely new plan. The sleepers are *ky-anized*, as it is called, by which they are prevented from rotting, and are then placed *length-*

wise on the road bed, and the rails are laid along upon them. It is thought the riding in the cars is much easier than on the old plan.

South Shore Railroad.—A meeting of the stockholders of this corporation was recently held at Scituate. Alfred C. Hersey, of Boston, and Ebenezer T. Fogg, of Scituate, were chosen directors, which completes the organization of the board. It was voted to proceed at once to locate the road; and stockholders have confidence that it will be completed to Cohasset within eighteen months.—*Quincy Patriot.*

St. Lawrence and Atlantic Railroad.—We are gratified to learn that Messrs. Wood, Storey & Co., who are contractors upon one section of our railroad, have taken the first 30 miles from Montreal, on the other end of the line. Before the winter sets in, therefore, the grading of both sides of the great line from the Atlantic to the St. Lawrence will have commenced.—*Portland Adv.*

The Bridgeport Standard says that the relaying of the Housatonic road has been completed to and beyond Gaylord's Bridge, and the entire work is to be finished before the 1st of December. The directors of the company have declared a semi-annual dividend of 4 per cent.

The New Hampshire Sentinel, (Keene,) of Wednesday, says:

The railroad commissioners have established the line of the railroad crossing near the Cheshire bank in this village. The depot will probably be on the 'Dorr Lot,' as it is called, west of the Main street. The decision, after a full hearing was unanimous.

Manufacture of Iron.

Observations on the more recent researches in the manufacture of iron. By Dr. J. Lawrence Smith, of Charleston, S. C.

We find the following interesting article on the manufacture of iron in the London Mining Journal of 29th August last. It is from the pen of a countryman of ours, although we find it in a foreign journal. It is written in a style which shows that the writer understands what he is writing about, and it will enable the reader to understand it also. We shall endeavor to obtain the "former article," alluded to by the writer, and also give the continuation of this one when it comes to hand.

In a former article on this subject, the operations of the blast furnace alone were alluded to; and among the statements then given, was that of the composition of the gas taken from the mouth of the furnace: which gas contained about 24 per cent. of carbonic oxide—this representing a large portion of the combustible used, which is lost in most of the furnaces now in operation in this country.

M. Ebelman states, that the combustion of the gas passing from the mouth of the blast furnace is equal to from '62 to '67 of the calorific effect of the coal used, and MM. Bunson and Playfair set it down as '90, which last, I am inclined to believe, is rather too large a fraction; they spoke of the furnace worked with bituminous coal, and Ebelman

had allusion to one worked with charcoal. Without being able to decide exactly what portion of the combustible of the blast furnace is lost, it is sufficient to know that it is far greater than that consumed, to lead at once to the employment of means bringing into use this waste combustible.

The employment of the heat lost from the mouth of the blast furnace, for the purposes of the metallurgy, etc., has been claimed by many as having been used by them since 1834. The following are some of the claimants: MM. Thomas and Laures, (civil engineers): MM. d'Andelarre and d'Lisa, (forge masters at Treveray); M. le Maréchal Marmont, (in Austria); M. Houzeau Muiren, (of Ardennes); and M. de Faber Dufaur, (of Wasseraifngen.) All their claims of priority, however, ought to be laid aside since the operation was performed many years prior to the time that any of them claim to have first employed the lost heat. And as a proof of this assertion, I give the following extract from the Journal des Mines, June, 1814:—"M. Aubertot, of the department of Cher, and owner of furnaces, and other works in excellent condition and management, which he superintends personally, made several years ago a great many experiments to discover some means of economizing the amount of fuel used in the working of iron, either by endeavoring to introduce the operation by catalan furnace or otherwise. He was led to try what could be accomplished by making use of the flame which passed out of the blast and refining furnace. He first employed it for the cementation of steel, in which he succeeded perfectly; then he used it for calcining lime, also for burning bricks and tiles. Afterwards he passed it into a reverberatory furnace, in which the temperature was raised sufficiently to heat the blooms and bars, for hammering the one and drawing the other out. Finally, he succeeded in producing all the above effects at one and the same time, by causing the flame to circulate through several furnaces side by side."

In 1834, M. Houzeau Muiren took out a patent for using the waste heat from the mouth of the blast furnace, for carbonizing wood at the furnace of Bievres (Ardennes); in which he states, that twice the quantity of charcoal is obtained by treating the wood after this method, than by the ordinary way of burning in the woods. By the heat lost from the furnace, 100 parts of wood gave 35 of charcoal, and from 40 to 45 of charcoal rous (half burnt wood.)

But after all, it is not to those who first applied this lost heat to economical purposes that we are indebted for the practical information that is now in our possession; for had they made their arrangements so as to exhibit an undisputed advantage arising out of its adoption, it would not have been so tardy in its progress.

It is to M. de Faber Dufaur, superintendent of the iron works at Wasseraifngen in the kingdom of Wurtemberg, that most of the credit is due for the present method of converting pig into wrought iron, by using and burning the gases that escape from the

mouth of the blast furnace. The best idea that can be given of the manner in which the operations are conducted in the above works, and the advantages accruing therefrom, is contained in the following short extract from a letter written by M. Grouvelle to M. Dumas:

"The establishment at Wasseraifngen is supplied with ore, three-fourths of which is a hydrated oxide of iron, and the other fourth is an ore in grains. The influence of the first species of ore gave to the pig so bad a quality that it was used altogether for castings. M. Dufaur, by his processes, without altering the operations of the blast furnace, now obtains from the pig a wrought iron of superior quality.

"The first gas furnace put in operation by him was a refining furnace, into which the pig metal was run as it issued from the blast furnace, where the refining was executed with the air of the hot blast. From this the most beautiful results were obtained, and it worked regularly during the year 1837. In 1838, he erected a puddling furnace; and finally, in 1839, he completed his magnificent system for the fabrication of iron, by constructing a furnace for reheating and welding."

At Wasseraifngen there are now turned out annually, 1,000,000 pounds of wrought iron in various forms, made in these new furnaces, and owing to the deficiency of moving power, all the pig cannot be worked up.—This operation of refining iron by the combustion of gas without any other fuel, has been in successful operation at the above localities for several years, and it has been followed with a great improvement in the quality of the iron, and has reduced the loss to one-fourth of what it was originally.

This method of refining the pig has also been in active operation in a number of places—and whenever properly executed, is always attended with economy and success. M. de Andelarre, in one of the departments of France, in a letter states, "our puddling furnaces, heated altogether by the gas lost from the mouth of the blast furnace, has been attended with the most complete success, which rarely happens in the first attempts at the application of any improvement, which most generally require long experience. We lighted up our furnace on the morning of the 5th, and put in the first charge at 11 o'clock on the morning of the 6th, and shingled the same at $\frac{1}{2}$ past 12. The accomplishment of results so quickly, passed our expectations, resulting in

"1. An economy of the total amount of fuel used in the refining of iron, which, in a furnace with two doors, amounted, in 24 hours, to 6000 pounds bituminous coal, costing \$12.

"2. Improvement in the quality of the iron.

"3. The loss was very small, being 5 instead of 20 per cent., which it is by the old processes.

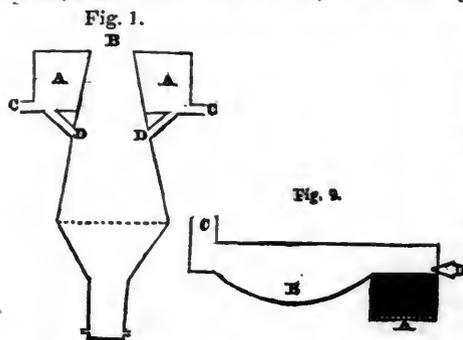
"4. The operations of the furnaces are much improved."

Here we see that the experience of M. de Andelarre accords exactly with that of M

Dufaur, and already have Russia, Prussia, Sweden and Germany sent commissioners to Wasseraalengen, to study the processes as they are there carried on. The government of Wurttemberg have opened their works to the inspection of all who may wish to make themselves acquainted with their character.

The advantages arising from the employment of the waste gas from the mouth of the blast furnace, is no longer problematical; and as some of those interested in this matter may not be acquainted with the method by which the gas is collected and employed, a few words explanatory of it will not be out of place.

The gas, as it rises through the fire room of the furnace, containing from 60 to 80 per cent. of the combustible effect of the fuel used, is made to pass into a chamber surrounding the upper and outer part of the fire room, some idea of which may be formed by



the representation in figure 1. B, is the mouth of the furnace; A A, gas chambers surrounding the upper part of the fire room; DD, pipes connecting the fire room and gas chamber; CC, pipes to carry off the gas, which is drawn out by means of blowing cylinders, and forced into the refining, puddling or other furnace, through a number of small orifices alternating with other orifices, through which a cold or hot blast of air is thrown, that serves to keep up the combustion of the gas when once united; and by regulating the supply of air by means of stop cocks, the maximum of heat can be obtained. In order to arrive at the maximum of heat, just sufficient air should be admitted to burn all the carbonic oxide and hydrogen contained in the gas coming from the blast furnace. If the amount of air be too small, some of the combustible gases pass out unconsumed; if too great, the excess cools the furnace, and at the same time oxidizes the metals undergoing refining. The regulation of the supply of the blast is of the utmost importance, and is said to be easy of accomplishment. The differences between the reverberating furnaces worked in this way, and those in which coal is used, is that carbonic oxide with a little hydrogen is the fuel, and it is burnt by a full supply of air. It is hardly necessary to say more of the advantages that are to rise out of this important change in the working of iron; for there is no expense for fuel in the refining of the pig, as the gaseous combustible issuing from the mouth of the blast furnace is more than sufficient to refine all the pig made from the furnace. The qua-

lity of iron is also improved as none of those impurities contained in the coal and other fuel can interfere in the working of the iron.

The sooner these modifications are introduced into our furnaces, the sooner we will be able to place iron in the market at a price to compete with that coming from any other quarter of the world, and entering our ports free of duty; at the same time it will increase the value of those works whose woodland has been diminished by a too rapid and improvident use of fuel.

The Magnetic Telegraph.

The application of this great discovery to practical purposes, is no longer an experiment; and we notice with gratification that its utility is being appreciated in every section of our country. We alluded briefly, a few weeks ago to the probable establishment of a line of communication by this means between Pittsburg, or Buffalo, and Cincinnati, and thence to Louisville, and so south. It appears that the business men in the west are now agitating the subject in good earnest; and there is prospect that the line will be continued through the whole south and west, within a short period. Of the great benefits resulting to the commercial interests from this invention, it is now quite unnecessary to speak.—The mercantile community are well apprised of its usefulness, and the ready transmission of foreign as well as domestic intelligence by this means, is now fully understood. The western market is most especially interested in the matter—and we are gratified to learn, by late papers from that region, that the mercantile public are especially alive to its great importance. The Cincinnati Enquirer, of September 23d, has an article in relation to the telegraph, which contains some facts of interest to our readers—and from which we make the following extracts. The editor of the Enquirer is a gentleman of good judgment, and is well acquainted with the rise, progress and whole history of this wonderful agent.—In the course of his remarks, he says:

“A spirit of inquiry has been fairly aroused to the question of connecting Cincinnati with the Atlantic by telegraph, and we deem it proper to state a few facts, which may be of general interest.

“The telegraph is now built from New York, passing through the intermediate large towns—from New York to Buffalo, Philadelphia, Baltimore and Washington city—from Philadelphia to Harrisburg (not quite finished we believe)—from Boston to Lowell—and it is also being built from Boston to Portland, in Maine: making together more than one thousand miles of magnetic wire. Of the productiveness of the stock nothing is yet certainly known, though there seems to be no doubt that it will yield very rich dividends. Last summer, while in Washington, we were informed by Hon. Amos Kendall that the line between Baltimore and New York, though it had been in operation but a few weeks, and had not been carried across the river to New York city, had yielded \$80 per day. As some evidence of the productiveness of telegraphic investments, he informs us that while he was postmaster general, he put on an express mail from Washington to New Orleans, charging treble postage on letters, and carrying newspaper slips, containing news, free; and that, notwithstand-

ing it was only two days and a half ahead of the regular mail, it yielded an income of \$200 per mile per annum. This sum would build the telegraph, and leave \$40 per mile to defray the ordinary expenses, the first year.

“The wires are found to work just as well upon the longest lines as upon the shortest. And were a continuous line in operation between this city and Boston, the communication would be, to all appearance, instantaneous. Were a continuous wire stretched eleven times around the earth, the magnetic fluid would pass the distance in one second. It would, were a continuous wire stretched through them, pass through London, Paris, St. Petersburg, Constantinople, Cape Town, Lima, Cairo, (in Egypt,) Peking, and back by the way of Oregon, during the time of one pulsation of the heart.

“The question of building a telegraphic line from here to Pittsburg is seriously agitated.

“The present owners of the patent, are S. F. B. Morse, the original patentee, who owns one-half; F. O. J. Smith, who owns one-fourth; Leonard D. Gale and Alfred Vail, who own one-eighth each. Hon. Amos Kendall is the agent for Messrs. Morse, Gale & Vail. The owners of the patent, in their contracts with companies, put the patent against the stock. Then, if a company were to raise \$50,000 to build a line from here to Pittsburg, \$100,000 of stock would be issued, viz, \$50,000 to the company, and \$50,000 to the patentees. The interest upon this sum would be \$6,000. Probably \$160 per mile would build this line, with locust, cedar and black walnut posts, and finish it in the most perfect working order.

“We do not believe that the expenses, aside from the interest on the investment, need exceed \$10,000 per annum. \$50 per day would give over \$18,000 per year; and it is reasonable to believe that this sum would be received at once at the cities of Cincinnati and Pittsburg, leaving out the intermediate stations of Wheeling, Zanesville, Columbus, etc.”

Upon this subject the press in the west generally appear to be very deeply interested. In every quarter, from Pittsburg to New Orleans, the same feeling prevails, and there is now no doubt that the line will be “put through” at a very early day. Such men have undertaken the project, as are not baffled or discouraged by small difficulties, and we may very soon expect to hear that Boston and New York “talk with New Orleans by lightning!” The Herald informs us that Mr. D. Bravo, of New Orleans, left New York on the 17th ult., on his return home, having completed his arrangements for the extension of this rapid and important method of communication from Philadelphia to New Orleans. His efforts have been highly successful, and under his energetic management, a few months will suffice to complete the line. It extends, says the Herald, from Philadelphia to Harrisburg, Pittsburg, Wheeling, Cincinnati, Louisville, St. Louis, Nashville, Memphis, Vicksburg, Natchez to New Orleans. This line will comprise two companies, one extending from Philadelphia to St. Louis, and the other formed by Mr. Bravo, from St. Louis to New Orleans.

The citizens of New Orleans in particular, and the western country generally, are indebted solely

to the exertions of Mr. Bravo, for the establishment of these companies, and for the probable completion of these lines, as he has under the most discouraging and adverse circumstances, succeeded in forming them. We trust this enterprising gentleman will receive that countenance and support from that section of the country, which will be so much benefited by his efforts, which he so richly deserves.

The Philadelphia North American adds to the above the following: "Another link of 'universal lightning line' has just gone into successful operation. The Philadelphia and Harrisburg section of the 'Atlantic and Ohio telegraph' was completed and worked on the 16th as far as Lancaster with substantial iron cord, instead of light copper wire—the 'cord' will also be immediately substituted between Lancaster and Harrisburg. Time and space will thus soon be virtually annihilated in correspondence between the political and commercial capitals of Pennsylvania, and the people throughout the whole breadth of the state will speedily participate in the advantages of the 'lightning line,' as the arrangements insure prompt completion of the telegraph west of Harrisburg to Pitsburg, and indeed to Cincinnati and Cleveland in Ohio."

The New York correspondent of the Cincinnati Atlas says: "The arrangements for erecting a telegraph line between this city and New Orleans, by the way of Cincinnati are about completed, and in the course of six months we shall be enabled to talk to you by lightning."

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.

Saturday, October 17, 1846.

ATLANTIC AND ST. LAWRENCE RAILROAD. Notice to Contractors. Proposals will be received at the office of the Atlantic and St Lawrence Railroad Company, in this city, from the 19th to the 24th October instant, inclusive, for the Grading, Masonry and Bridging of the second division of the road, extending from the termination of the first division, near the west bank of Royall's River, in North Yarmouth, to the Old Danville road, so called, a distance of about sixteen miles.

Also for the erection and completion of a pile bridge across the outlet of Back Cove, at Portland. Plans, Profiles and Specifications will be exhibited, and the requisite information given at the engineer's office, in Portland, on and after the 20th of this month.

Persons offering to contract for the work, or any part thereof, who are unknown to the undersigned, or to the directors, will be required to accompany their proposals with references as to character and ability; and in all cases where any proposals shall be accepted, and a contract entered into, the Contractor will be required to give bonds for the faithful completion of his contract, according to the terms agreed on.

WM. P. PREBLE,
President Atlantic and St. Lawrence Railroad.
A. C. MORTON, Chief Engineer.
Portland, October 7, 1846.

RAILROAD IRON.—1000 TONS HEAVY
RH Railroad Iron, 60 lbs. per lineal yard, expected to arrive within the next 30 days. Apply to
DAVIS, BROOKS & CO.,
October 9. [1042] 68 Broad St.

Correction.

In an article on page 585 of the Journal, a statement is made in reference to the receipts upon the route between New York and Boston, which was erroneous. The figures represent the receipts and passengers as follows:

	Numbers.	Receipts.
July, 1845.....	18,110.....	\$45,208
July, 1846.....	12,301.....	35,963

Diminution..... 5,809 decrease...\$9,245
The figures, it appears, were transposed, and should read thus:

	Numbers.	Receipts.
July, 1845.....	18,110.....	\$35,963
July, 1846.....	12,301.....	45,208

Diminution.....\$5,809 Increase...\$9,245

Our authority for the original statement, was the Boston Courier—from which we quoted in the usual form at the time. This correction has been quite too long delayed, but the delay has arisen from its having been accidentally mislaid.

The Harlem Railroad.

We are gratified in being able to state, for the benefit of travellers, that the Harlem company are rapidly pushing their road towards Albany.

Twenty-five miles, in addition to the twenty-six, now in use, will soon be in operation—leaving but a short stage route [16 miles] to connect with the Housatonic railroad—and of course greatly reducing the time usually occupied in the winter season, in journeying from this city to Albany. The extension road is laid with a 55 lb. T rail, which will be appreciated by those who may have occasion to use the road. It will also be recollected that the Housatonic road has been re-laid with a heavy edge rail, during the past summer.

Atlantic and St. Lawrence Railroad.

A correspondent says: "You will observe that this road, both in Maine and Canada, is now in course of construction. By the 1st of November next there will be 60 miles under contract, there being 30 miles at the Montreal end, and the same distance extending from Portland into the interior.—The friends of the road are preparing for a vigorous prosecution of the work, and its further extension into the interior from both termini."

T. J. Carter, Esq., C. E., will please accept our thanks for his courtesy in furnishing us with a copy of the "Reports of the Railroad Corporations in New Hampshire for 1846;" also for his report on the "Routes surveyed for the Portsmouth and Concord Railroad," containing a map showing its connection with other railroads.

Large Railway Train.

The Mining Journal says, "one of the largest trains probably ever seen, left the Rugby station on Friday. It consisted of 84 carriages, and was impelled by three of Stephenson's powerful 6-wheeled engines. Its length extended to nearly half a mile, and the weight of merchandize, exclusive of the carriages, was upwards of 240 tons." This may be considered a long and heavy train at the "Rugby station," but it would be looked upon as only half a load at the Richmond station of the Reading railroad—where it is a daily occurrence to have trains of 100 and more cars arrive with 450 to 500 tons of coal on board; and more than one train, we believe, has been brought over this road, by a single engine, in

which were 150 cars, with over seven hundred tons of coal.

Rome, Ga., and Memphis Branch Railroad.

On Thursday week, says the Rome Journal of the 18th ult., an adjourned meeting of the stockholders of the Rome and Memphis branch railroad took place having for its object, further preliminary arrangements in reference to the construction of this road.—On this occasion, it appears from the report, that the entire capital stock, \$150,000, had been subscribed for; and the sum of \$15,000, or \$5 on each share, had been paid in.

This shows that the right spirit prevails among those interested, and that prompt, decided action is the result of that spirit. We now feel quite encouraged as to the early construction of this branch road—than which none of its length and cost, will, probably, produce more important results in that region of country. Its completion, connection with the Coosa river, will make an important stride towards the southwestern waters; and insure further early movements in that direction.

The Rome Journal of the 18th Sept. says, that on the 10th inst.,

According to adjournment, the subscribers to the stock of the Memphis branch railroad and steamboat company, of Georgia, met at the court house; Philip C. Guieu was called to the chair, and W. T. Trammel was requested to act as secretary.

The object of the meeting was explained by Judge King to be, to ascertain the progress made in the subscription of the stock, and for the construction of the road, and then to proceed to the organization of the company.

It was determined by the meeting that the conditional subscriptions to the stock, previously made, should be laid aside, and that the commissioners appointed to receive subscriptions should be requested to open a book of subscriptions in strict accordance to the charter. This was done. The number of shares required by the charter for the organization of the company having been subscribed, the commissioners stated that fact to the meeting, and besides, the first instalment required to be paid by the charter had been complied with, and that the amount thus paid in, was in their possession and ready to be disposed of as the meeting should direct.

The meeting of subscribers took into consideration the statements placed before it, and on motion, it was unanimously agreed that the meeting of subscribers should resolve itself into a convention of the stockholders of the Memphis branch railroad and steamboat company of Georgia. It was then moved that the number of directors should be seven, and that as the requisite number of shares had been subscribed, and the instalment paid in, agreeably to the provisions of the charter, on motion of Judge King,

Resolved, That the number of directors, for this company consist of seven members, any four of whom, or three besides the president, shall constitute a quorum.

The motion was agreed to, and the stockholders proceeded to the choice of directors. On counting the ballots, it appeared that Messrs. J. P. King, Daniel Tyler, W. R. Smith, Alfred Shorter, D. R. Mitchell, John E. Park and J. W. M. Berrien had received

a large majority of the shares; these gentlemen were therefore declared to be elected directors of the Memphis branch railroad and steamboat company, of Georgia, for one year from this date.

On motion of D. R. Mitchell, Esq., Resolved, By the stockholders of the Memphis branch railroad and steamboat company, of Georgia, that the stockholders shall not be required by any order of the board of directors to pay any funds for the purpose of constructing said road further west than the town of Rome, without the unanimous consent of the stockholders, given at a regular meeting of the same. Passed.

On motion, the meeting adjourned.
P. C. GUIEU, chairman.
W. T. TRAMMEL, Secretary.

Subsequently, the directors assembled for the purpose of electing their officers, when the following gentlemen were chosen: Wm. R. Smith, president, John E. Park, secretary and treasurer.

The road will extend from Kingston, descending the Etowah river, to the junction of that stream with the Oostenaula, the distance being, from the survey already made, 17 3/4 miles. It is estimated that the actual cost of the work fully equipped, cannot exceed half of the capital stock subscribed.

Reports of the Railroad Corporations in New Hampshire.

Eleventh Annual Report of the Nashua and Lowell Railroad Corporation.

To the Honorable Legislature of New Hampshire:

The directors of the Nashua and Lowell railroad corporation hereby submit their eleventh annual report of their acts and doings, receipts and expenditures, under their acts of incorporation, for the year ending April 30, 1846.

Amount of capital paid in, as per last report.....	\$380,000 00
Amount of capital paid in during the past year.....	120,000 00
Total amount of capital paid in.....	500,000 00

The amount expended during the past year, exclusive of the amount spent and charged to the cost of road, is as follows:

For repairs of road, including repairs of bridges and T rails, for renewels of track and extending side track, and improvements of line and depot accommodation in Lowell, and land for the same; and sleepers and subsills, for the the renewal of about one-third of the main track,

New Hampshire.....	10,473 85
Massachusetts.....	20,712 58
	31,186 43

For repairs of engines and cars, including seventeen new freight cars, and repair of cars, over the Boston and Lowell railroad.....

For fuel, oil, salaries, wages, loading, merchandize, expenses on Boston and Lowell railroad, and all other miscellaneous expenses.....

	31,470 03
	72,376 39

The amount received during the past year has been as follows:

For passengers.....	56,059 81
For merchandize.....	62,263 41
For U. S. mail, rents, and miscellaneous.....	4,815 80
	123,139 02

The number of miles run during the past year is, viz:

With passenger trains.....	28,450
“ merchandize do.....	13,965
“ miscellaneous do.....	4,260
	46,675

The amount of profits divided during the past year is 50,000, dollars being two dividends of five per cent each.

A reduction of about 20 per cent. on passenger fare and freight, was made the preceding year; and a further reduction of 20 per cent. on passenger fare took place on the 1st of November last.

During the past year the second track, referred to in our last report, has been completed, and is in daily use; greatly facilitating the business of the road and the convenience of the public travel; for which has been expended the sum of \$120,000 as follows:

	In Mass.	In N. H.	Total.
For iron.....	\$66,676 86	\$32,085 22	\$98,762 08
Superstructure... ..	5,646 66	2,885 57	8,532 23
Grading.....	10,509 96	3,024 23	12,534 19
Engineering.....	118 74	52 76	171 50
	82,952 92	37,047 78	120,000 00

The earnings since the opening of the road, to May 1, 1846, have been....	\$753,838 13
From which deduct expenses for same period, including expenses on Boston and Lowell railroad.....	449,710 71
	304,127 42

Leaving net earnings.....	304,127 42
Of which, in proportion to cost of road, belongs to Massachusetts.....	181,796 27
Belongs to New Hampshire.....	122,331 15
	304,127 42

It will be seen that the expense account for repairs of road is considerably increased for the past year, beyond that of former years. This is occasioned by charging to that account \$20,000, expended for iron and other materials for side tracks, and the renewals of the general line: for improving the line and depots in Lowell, and land for the same; for new sleepers and subsills for about one-third of the old track; and for the balance of cost of new second track beyond the stock created for that purpose. This sum the directors thought should be taken from the earnings of the road, and charged to expense account, rather than to create new stock and thereby increase the capital for that purpose. This course is deemed less expensive to the public and at the same time just to the stockholders, inasmuch as the improvement made by that outlay is yet deemed far short of the actual depreciation of the track, bridges, buildings and furniture.

Since our last annual report, the railroad commissioners have informed us that in their opinion, the charter made it the duty of the directors to ascertain and apportion the profits of the road between the two states in which it is located, and to insert the same in their annual report to the legislature. This, however the directors have never heretofore assumed to do, believing that it was the intention of the legislature that the commissioners and not the directors, should perform this duty.

The language of the charter is this: "The railroad commissioners shall ascertain what proportion of the receipts and profits of said railroad shall properly appertain and belong to the portions of said railroad situated in said two states." By the acts of union, the directors have always considered the company as *one company*, and the road, although in two states, as one entire road; and in conformity with this opinion, they have made report of the *whole* receipts and disbursements of the road, with the length and cost of construction in each state, thereby furnishing the materials from which the apportionment could easily be made, according to any rule or principle which might be established and deemed equitable.— But whether this apportionment should be made according to length of road, or the amount expended in each state, they supposed that they were not empowered to decide. In this opinion they have felt confirmed by the fact that the legislatures of the respective states have always "Resolved that the report so made is satisfactory." But wishing to do their whole duty, they have ventured in this report to make the apportionment as above. They have adopted the principle which seemed to be most equitable and just, and apportioned it according to the amount expended in each state.

Daniel Abbot, Henry Timmins, Chas. F. Gove, Jesse Bowers, Directors of the Nashua and Lowell Railroad Corporation.
May 1, 1846.

Eighth Annual Report of the Eastern Railroad in New Hampshire.

To the Honorable Senate and House of Representatives of the state of New Hampshire, in General Court Convened:

The directors of the Eastern railroad in New Hampshire, by leave, respectively make their eighth annual report of their acts and doings, receipts and expenditures.

This road is leased to the Eastern railroad company of Massachusetts, (under authority of this state,) for a term of ninety-nine years, from Feb. 18th, 1840, giving the Eastern railroad the entire right to use the road, with locomotive engines, carriages, etc. By this arrangement the two roads, forming a continuous line, and placed for practical use under our direction, the receipts and expenditures applying to income account are kept by the Eastern railroad company of Massachusetts.

By the terms of the lease, the dividend of profits earned are to be equally divided upon the stock of the two roads in proportion to their respective capitals paid in.

Since the last annual report, we have received from the lessees \$38,600, from which a dividend of four dollars per share was made July 1st, 1845, and a second dividend of four dollars per share, was made and payable Jan. 5th, 1846, on 4,825 shares.

The cost of the buildings, land and road, to June 1st, 1846, as appears by the books of the company, is \$485,704 50, of which \$700 has been expended during the past year in permanent improvements on the road.

The repairs on the road, and expenses of running, are paid by the lessees.

All of which is respectfully submitted:

Ichabod Goodwin, B. T. Reed, Stephen A. Chase, Daniel P. Drown, Directors.
 Portsmouth, June 8th, 1846.

Sixth Annual Report of the Boston and Maine Railroad Corporation.

To the Honorable Legislature of New Hampshire:

The directors of the Boston and Maine railroad do hereby make their sixth annual report of their acts and doings, receipts and expenditures, for the year ending November 30, 1845.

The Boston and Maine, and the Boston and Maine railroad extension companies, have been united by acts of the legislatures of Massachusetts and New Hampshire respectively, and by the acceptance of the same on the part of the stockholders; and they now form one corporation. The united roads now extend from Boston to the Portland, Saco and Portsmouth railroad, at South Berwick, in Maine, with a branch road to the Great Falls village, in New Hampshire. That portion of the road which lies between Wilmington and Boston was so far completed on the first of July last, that the passenger trains were discontinued from the Boston and Lowell railroad, arrangements having been previously made for maintaining the communication between the two roads, by means of trains run by the Boston and Lowell railroad company to meet our trains at the point where the new road diverges from the former track, which point is two and a half miles distant from the former intersection with the Boston and Lowell railroad. The freight trains were discontinued from the Boston and Lowell railroad on the first of December last.

The beneficial effects of extending the road into the city of Boston, by an independent line are beginning to manifest themselves in the accommodation it affords to a large population, who had heretofore been debarred from railroad conveniences; in the increased value of property in the towns through which it passes; and the opportunity it affords to the crowded population of the north part of the city, to avail themselves of a conveyance into the country, where lands and buildings are cheap in comparison with other sections of the country in the vicinity in Boston.

A petition has been presented to the legislature of Massachusetts, for permission to change a part of the present location of the road, in the town of Andover, for the purpose of reducing the heaviest grade on its whole line, and carrying the road over the lands of the Essex company, which company are now constructing a dam across the Merrimack river, for manufacturing purposes.

The passenger and freight depot buildings in Boston, and on the line of the road, are nearly completed.

The total of capital stock paid, up to November 30, 1845, was \$1,887,328 76
 Of this sum, the amount received of stockholders during the year, was.. 218,662 00
 Sale of house and land in New Hampshire .. 2,687 25

Total..... 221,349 25
 Expenditures on account of construction in Massachusetts, on the old road..... 3,635 74

Do. do. Extension road.....	400,815 91
Do. do. New Hampshire.....	3,231 27
Do. do. Maine.....	841 43
New engines and cars.....	41,107 16

Total..... 449,631 51

Income and expenditures for the year ending Nov. 30, 1845:

Received for transportation of passengers.....	172,603 25
Do. merchandize.....	27,486 46
Do. gravel trains.....	7,718 00
Do. miscellaneous receipts.....	9,255 39

287,063 10

Expended on repairs of road in Massachusetts.....	6,560 45
Do. New Hampshire.....	6,126 30
Repairs of engines and cars.....	18,947 55

Balance of interest chargeable to annual expenses..... 14,764 70

New Hampshire state and other taxes. Amount paid Boston and Lowell railroad..... 31,169 62

Amount paid Portland, Saco and Portsmouth railroad..... 12,267 17

Fuel, oil, salaries and miscellaneous expenses..... 59,241 54

154,099 95

A dividend has been declared of \$3 50 per share, payable on the 1st of July amounting to..... 46,833 50

Also, a dividend declared of \$3 50 per share, payable on the 1st of January, amounting to..... 69,331 50

116,165 00

The number of miles run by locomotive engines, in the year ending November 30, 1845, was—

Passenger trains..... 145,218

Freight trains..... 35,568

Gravel trains..... 14,160

194,946

In addition to the above, our passenger trains have run on the Boston and Lowell road, drawn by their locomotives..... 16,290

Do. Portland, Saco and Portsmouth road... 47,576

Our freight trains on the Boston and Lowell road..... 9,300

All of which is respectfully submitted,

Thomas West, Thaddeus Nichols, John Howe, Sam'l A. Walker, A. Peirce, Wm. F. Weld, R. W. Bailey, Directors of the Boston and Maine Railroad.

Boston, January 22, 1846.

Fifth Annual Report of the Concord Railroad Corporation.

To the Honorable Senate and House of Representatives:

The directors of the Concord railroad corporation respectfully submit the fifth annual report of their acts and doings, receipts and expenditures, for the year ending April 20, 1846.

In the last annual report it was stated, that a further charge to construction would be necessary to make the road and equipments complete. For this purpose the sum of \$23,139 has since been expended for land and enlargement of the freight depot at Manchester, new passenger depots at Nashville and Amoskeag falls bridge, and for the construction of a bridge over the railroad at Hooksett, which amount added to the "construction account," as reported at the last annual meeting will make the present cost of the road and furniture

\$779,581 41.

The capital stock of the corporation has been increased within the last year \$50,000, by creating one thousand new shares, which makes the present capital \$800,000, of which there is now on hand \$20,418 59, to be applied to the future wants of the road.

The earning of the road for the past year have been as follows, to wit:

From passenger department.....	\$109,971 64
From freight.....	115,469 17
From rents and interest.....	3,038 46
	228,479 27

EXPENSES:

For road repairs.....	\$26,817 74
For wood and oil.....	10,813 08
For repairs of engines.....	10,750 00
For taxes.....	6,537 41
For freight, passenger, and other expenses.....	80,136 17
	135,054 40

Net earnings..... 93,424 87

Out of which two dividends of 5 per cent. each have been paid, amounting to..... 80,000 00

Leaving a balance to be added to the contingent fund, of..... 13,424 87

Which makes the present contingent fund..... 30,865 36

In the foregoing expenses, extraordinary charges have been included, such as, 24 freight cars, one 14 ton freight engine; and also, 3 new passenger and 1 baggage car, to replace those consumed by the late fire at Concord.

In the charge for "road repairs," \$13,750 is included for the deterioration of bridges, sleepers, fences, rails, etc., and in the charge for expenses, \$3,656 is included for deterioration of passenger cars, which will be expended for two new cars, now contracted for—both of which sums are credited to "deterioration account."

The funds of the corporation are invested in "stock in machine shop," wood and oil, notes receivable, balances due for freight, and cash.

On the first day of November last the passenger tariff was reduced from \$2 to \$1 75 for through passengers, and from \$1 to 80 cts., for the local passengers between Concord and Nashville. And, in the opinion of the directors, the income of the road for the past year will justify a further reduction of the freight tariff at an early date.

The second track laid down by the Nashua and Lowell railroad the past year, has greatly facilitated the business of the line; and the attention of the directors has been called to the subject of extending it to Concord. And after a full discussion, were unanimously of the opinion that the business of the road required it, and accordingly voted, on the 30th of April last, to proceed immediately in the construction of that portion between Nashville and Manchester the present season. For this purpose, 4,000 shares have been created, and offered to every stockholder holding stock on the first day of June next.

It will be seen, by the statistics herewith submitted, that the business of the road, both in freight and passengers, has greatly increased; and should it continue to increase in the same ratio for the future, it will be found necessary, at an early date, to run additional

freight, and perhaps passenger trains, in order to render suitable accommodations to the business coming upon the road from the north, and to the local business upon the line.

The following comparative statement will show the number of passengers carried over the road, the amount of tonnage transported, and the number of miles run, since the opening of the road.

NUMBER OF PASSENGERS.		
8 months to April 30, 1843.....	39,822	
12 " " " 1844.....	73,355	
12 " " " 1845.....	100,843	
12 " " " 1846.....	151,530	

Total in 3 years and eight months..... 365,550

PERIOD.	TONS TRANSPORTED.		No. of trains run.	No. of cars run.	Average tons per car.	Average tons per train.
	Tons up.	Tons down.				
5 1/2 months to April 30, 1843.....	6,799	4,975	11,774	276	4,556	24,421
12 " " " 1844.....	21,075	21,604	42,679	624	14,446	3,681
12 " " " 1845.....	33,660	33,884	67,544	618	21,334	3,109
12 " " " 1846.....	41,752	47,636	89,388	618	24,222	31,144

103,286,108,009,211,385

The tonnage on 22,275 cords of wood is included in the above statement.

NUMBER OF MILES RUN.		
8 months to April 30, 1843.....	66,924	
12 " " " 1844.....	138,528	
12 " " " 1845.....	127,296	
12 " " " 1846.....	124,696	

Total miles run in 3 years 8 months..... 457,444

The trains have run regularly through the year, without interruption and without accidents to persons or property.

In conclusion, it affords the directors great satisfaction to be able to say, that the road and fixtures, after the expenditure of the amount appropriated for that purpose, will be "as good as new," and that, after the construction of the second track, the road will be enabled to do four times its present business with a small additional capital, and at a great comparative reduction of expenses.

Looking forward to the time when the great lines of communication will be extended to Burlington and Ogdensburg, and up the valley of the Connecticut and Passumpsic rivers to Sherbrook and Montreal, thus connecting this road with the far west and the Canadas, they believe that this line will afford facilities equal, if not superior to any other, and at such prices as cannot fail to meet the expectations of the public, and of giving to the stockholders such remuneration as is provided for in the act of incorporation.

All which is respectfully submitted :

Addison Gilmore, Isaac Spalding, Josiah Stickney, Joseph Low, Robert Read, Nathan Carruth, C. H. Peaslee, Directors of the Concord Railroad Corporation.

First Annual Report of the Northern Railroad.

To the Honorable Senate and House of Representatives :

The directors of the Northern railroad hereby respectfully submit their first annual report of their acts and doings, receipts and expenditures. Their capital stock of \$1,500,000 having been all subscribed, the company was duly organized on the 18th day of July last, and measures taken for the immediate location and commencement of the work of their railroad. The services of an efficient engineer and assistants were secured, and accurate surveys of the several routes proposed, made. The directors, availing themselves of all the information thus obtained, after a personal survey of all the routes, and a hearing of all parties desiring to be heard, unanimously adopted the route originally surveyed by Mr. T. J. Carter, and laid out by the railroad commissioners, with such amendments as a critical resurvey suggested. This route is through Franklin and Andover to the Connecticut river, at Lebanon, and its length is about 68 miles. The whole line was put under contract in October and November last and the work is now being actively prosecuted along its whole length.

This line has been laid out and approved by the proper authorities of the state, and the land damages have been appraised by the commissioners; and in the great majority of cases, their award has been received by the owners of the land. In cases where it has not been satisfactory, the company are now about to make the necessary tender and deposit of the money awarded, as required by law. The directors desire, however, to bear their testimony to the general good will towards the road manifested by the land owners along the line.

Three assessments have been laid upon the capital stock. The first of these has been paid upon every share of the stock, and but comparatively small portions of the second and third instalments remain due to the treasury. A fourth assessment has just been laid, payable the first day of August next.

The receipts and expenditures of the company up to that time appear from the following statement of the treasurer, made on the first day of May last.

RECEIPTS.	
Capital paid in.....	\$474,561 00
Interest.....	345 77
	<hr/> 474,906 77
CASH PAID OUT.	
Fencing.....	8 80
Superstructure.....	4,208 80
Changing roads.....	6 00
Grading and masonry.....	45,501 73
Iron.....	20,441 14
Land damages, etc.....	15,897 94
Engineering and expense.....	13,123 12
Preliminary surveys.....	1,640 08
Cash to balance.....	374,079 16
	<hr/> \$474,906 77

From this statement it appears that, up to first of May last, the company had expended about \$100,000, and then had on hand \$374,079 16. Considerable drafts have since been made and are making upon this, to pay land damages and the different contractors on the work.

The directors anticipate that the road will be completed and opened for use to Franklin this year, and they confidently hope the remainder may be completed in another year.

Geo. W. Nesmith, Timothy Kenrick, Solomon Wildes, Chas. Theo. Russell, B. B. David, Nathan Carruth, Francis N. Fisk. Concord, N. H., June 3, 1846.

From the Marion, Va., Pioneer.

Railroad Convention at Weston, Va.

The convention was organized by the appointment of Hon. Joseph Johnson of Harrison, as president; one vice-president from each county represented in the convention; and Jackson and McCreary, of Wood, Owen of Lewis, and Somerville, of Harrison, secretaries.

Mr. Lee, of Harrison, read the preamble and resolutions reported by the committee. The first resolution declares, that the refusal of the last legislature to grant the right of way, was an act of injustice unparalleled in the history of legislation. The second expresses a hope that such a course will not be continued and a determination to persevere till success is obtained. The third agrees to petition the legislature again for the unrestricted right of way through Virginia, for the B. and O. railroad, from some point on the Potomac, not lower down than the south branch, to some point on the Ohio river not lower down than the mouth of the Little Kenawha river.—The fourth appoints committees to draft memorials, obtain signatures to them, and to correspond with the friends of the general right of way. The fifth authorizes the officers to transmit the proceeding to the governor, with a request to lay them before the legislature; all the resolutions were passed without opposition except the third—to that, the Hon. E. S. Duncan, (judge of the Clarksburg district) stated that he held in his hand an amendment, which instead of giving the Baltimore and Ohio railroad company, the right of way merely to the mouth of the little Kenawha, threw open the whole western border of the state and permitted the company to terminate the road anywhere within the limits of the state on the Ohio river. He stated moreover, that he would at the proper time offer an amendment. The Hon. Geo. C. Dromgoole, who was present, then addressed the convention. He went for legislation which would benefit the whole state, and opposed all enactments for the benefit of particular localities anywhere. He spoke an hour and a half with great ability and adroitness. He was followed by Robert A. Thompson, of Kanawha, candidate for congress. After him came Judge Duncan, in a speech of the most consummate ability. He proposed his amendment to the third resolution and supported it, with all that talent and ingenuity combined, could furnish. After the conclusion of his remarks the further consideration of the amend

ment was postponed until the night session. The convention took a recess until seven o'clock.

Night Session.—Immediately after the convention met, Judge Duncan withdrew his amendment. The original resolution as reported by the committee, then passed. Judge Duncan then introduced a separate resolution, of which the following is the substance: "Resolved, That this convention, in the efforts which they are making to obtain an extension of the Baltimore and Ohio railroad through the northwest portion of the state, are not influenced by mere local or selfish considerations—that they desire to develop the national resources of their country—to increase its trade, and with it, to increase its population and wealth—and although they might prefer to prescribe the line of the route and its terminus on the Ohio river, they are ready to forego their individual preferences when brought in conflict with other portions of the west, and they are therefore willing that the improvement should be conducted along any route, and terminate at any point on the Ohio river which shall be deemed most advantageous to the western portion of the state."

Judge Duncan supported this resolution in a speech of great ingenuity. He was followed by Stephenson, of Wood, who opposed it with the utmost virulence. Mr. S. was followed by Mr. Taverner, of Lewis county, in opposition to the resolution of Judge Duncan. After the conclusion of his remarks it was evident the resolution could not pass. Judge Duncan then said that, after all the discussion which had taken place, he had heard nothing to convince him that the resolution should not pass. Nothing but mere local jealousy—local attachments—and still more trifling, local interests, had yet been arrayed against it. He believed the convention would see cause for regret in the spirit with which this resolution had been received. Future events (said he,) may prove that some of the members who have opposed it, have been actuated by a policy which carries with it, its own punishment. Believing however, that 'he who fights and runs away, may live to fight another day,' he withdrew the resolution, without surrendering the principle. It was accordingly withdrawn.

After the appointment of the committees mentioned in the fourth resolution the convention adjourned *sine die*.

The spirit manifested towards Judge Duncan's motion has done much to do away with the influence which the convention would otherwise have had. The virtual rejection of that resolution secures the defeat of the right of way this winter. Note the prediction. Remember it. There is a division of sentiments among the members which can now never be healed; and the result will be they can accomplish nothing towards their great purpose and the law of last winter, making Wheeling the terminus of the road, will stand. This is now the opinion of some of the best men who attended the convention. It is Parkersburg or no place, with the Parkersburg people, and bitterly will they hereafter

rue the hour they showed so plainly their hands.

Massachusetts Railroad Capital.

Some thirty-seven millions of dollars are invested in the railroads of Massachusetts. This includes the capital invested in New Hampshire roads by Massachusetts men. This aggregate is enormous, but it is a pretty good indication of the confidence which monied men in the east, have in their railroads. Most of the roads in which this large amount is invested are now doing an excellent business, and the majority of them pay very handsome dividends to the stockholders. The following estimate appears in the Albany Evening Journal, copied from an eastern paper, and contains some interesting information to those concerned in railroad enterprises.

"The Western road, 156 miles in length, cost eight millions, with recent additions to its stock, purchases of land and extension of depths, new track, etc.; the Worcester, three and a half millions, including its branches to Newton Falls, Saxonville and Milford, which add 20 miles to the 44 of main stem; the Eastern in Massachusetts and New Hampshire, will cost three millions and a quarter, including its Gloucester branch of 12, Marblehead 4, and Salem to Danvers 3 miles—making its entire length with branches, 74 miles; the Maine, two and a half millions, including its Medford and Essex city branches—its whole length is 75 miles.

"The Providence now has a capital of \$2,157,000, to which additions will ere long be made; its length is 56 miles, including branches to Dedham, Stoughton, and from Attleboro' to Pawtucket. The Lowell has cost \$1,900,000, and its line is 28 miles, including branch to Woburn. The Fitchburg has a capital of \$1,763,000, and its length, including branch to Watertown, is 53 miles. The Old Colony has a capital of \$1,200,000, and its line, including branch to Bridgewater, is 44 miles. The Connecticut river, or Springfield and Greenfield, has a present capital of \$650,000, which must be increased to a million ere it is completed to the latter place; its length is 38 miles. The Fall River and Braintree will cost about \$800,000, and its line is 41 miles. The Vermont and Massachusetts has a reliable capital of \$800,000, and its line at present is some 25 miles.

"The New Bedford and Taunus 20 miles long, and cost \$450,000; the Taunton branch 11, and cost \$300,000; the Nashua and Lowell 15, and cost with double track, half a million; The Berkshire 11, and cost \$250,000; the Pittsfield and North Adams 18, and cost \$400,000. Besides these, the Concord and Nashua of 34 miles, and the West Cambridge and Lexington 7½ miles, and its cost \$175,000, has a capital of one million; the Northern or Concord extension, one and a half millions, the Cheshire one million, the Central two millions, the Ogdensburg and lake Champlain two millions, the Providence and Worcester one million, and the Norwich and Worcester has cost some two and a quarter millions. Besides those enumerated, there is considerable Massachusetts interest in New York railroads, the Reading railroad and even some of those in Georgia have been aided by northern capital and enterprise."

Breaking of the Telegraph Wires.—We understand, says the New Haven Register, that several rods of the wire of the telegraph were broken and carried off on Thursday night, near North Haven depot, by half a dozen ruffians. The outrage caused the suspension of communication between New York and Boston for five or six successive hours, just at the very time when the steamer was momentarily expected. Fortunately the injury was discovered and repaired in season to send the steamer's news over the line. The superintendent and officers of the telegraph are anxious to detect and punish some of the scoundrels who commit these outrages. We are requested to say that any information that will lead to their punishment, if left with the night watchman of the line, or with the the manager of this station, will be liberally rewarded.

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-ea barrels, by JOHN W. LAWRENCE,
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

TO IRONMASTERS.—THE UNDERSIGNED is now prepared to sell or lease the valuable seat for iron works, known as the "Horse Shoe Bend" of the Merrimac River, together with several hundred acres of Iron Ore of a superior quality, in the immediate vicinity. The Ore lies in inexhaustible beds on each side of the River, (based some on sandstone and some on limestone,) and is a brown Oxide, the principal beds known as "Pipe Ore."—The beds are from five to thirty feet in thickness, from one to three hundred yards in breadth, and from one quarter to one mile in length. The ore occurs in distinct masses of from one to five hundred cubic feet in size, is connected with Yellow Ochre, and in point of quantity and quality is believed to be not inferior to any in the state. The distance of the Ore from the Bend is from one-fourth to three miles, and the cost of mining and transporting it to the furnace from the farthest beds, will not exceed sixty or seventy cents per ton.

The lands are thickly timbered with Oak, Hickory, Ash, etc., and when cleared off are fine for agricultural purposes. The distance around the Bend of the River is four miles, and the amount of natural fall in that distance is nine feet, to be made available by cutting a race three hundred yards in length across the Narrows, through which, if wanted, the whole River may be drawn by increasing the size of the race. Its situation is three miles below the Virginia Mines in Franklin Co., Mo., sixteen miles south of "South Point," on the Missouri River, and thirty-two miles west of a good shipping point on the Mississippi, from which latter the Merrimac River is navigable to the Virginia mines, and above for keel boats, bateaux, and other light craft, for more months in the year than the Ohio.

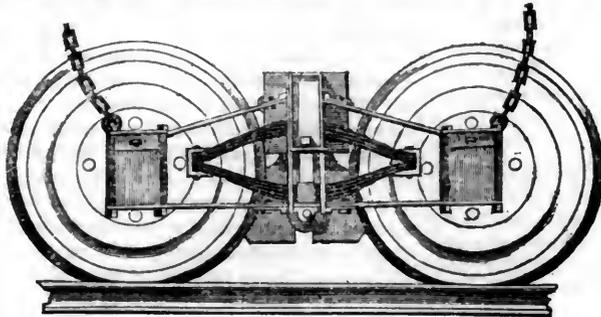
This water power, from its great extent and cheapness over any other now in use, must necessarily draw to it the smelting of those rich Ores of Copper and Lead which recent discoveries have shown to be so abundant in this region.

The wants of the vicinity require the erection of good grist mills; also, a large and profitable business can be done with saw mills, the material for lumber being varied, rich and extensive.

Large forests of Yellow Pine exist on the head of the Merrimac River, which can be easily floated down to the Bend, and from that point the rafts of lumber, can pass out to the Mississippi in any season of the year. The property is offered very low, as will be apparent to any one examining the same. Titles amply guaranteed.

FERNANDO A. EVANS.
Virginia Mines, Franklin Co., Mo., Sept. 1846.

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

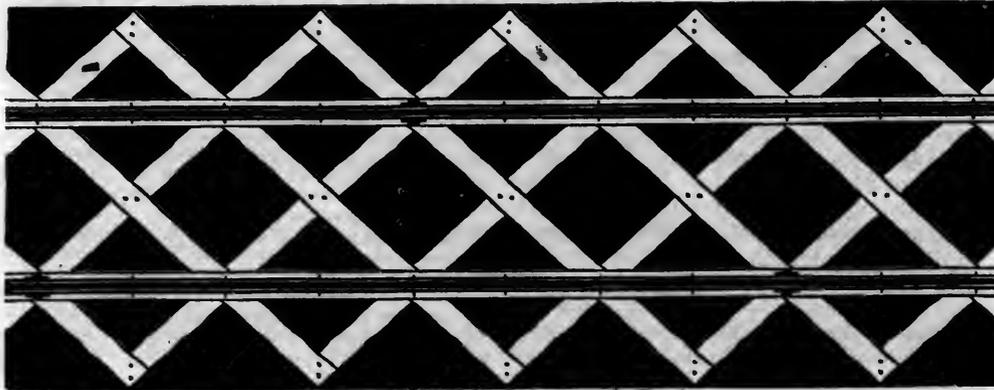
Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Sup't Motive Power.

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column "	50 00
One square "	15 00
One page per month	20 00
One column "	8 00
One square "	2 50
One page, single insertion.....	8 00
One column " "	3 00
One square " "	1 00
Professional notices per annum...	5 00

ENGINEERS and MACHINISTS.

- THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)
- J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
- KITE'S Patent Safety Beam. (See Adv.)
- FRENCH & BAIRD, Philadelphia, Pa. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Company.
- SETH ADAMS, Engineer, South Boston
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- PHENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.

HERRON'S IMPROVEMENTS IN RAILWAY Superstructure effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum. To insure the faithful performance of this contract, he will pledge one-fourth the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

1y1



RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATTAILE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed) WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent, 138 1/2 Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

16 of

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed.

FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

** The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

PATENT HAMMERED RAILROAD, SHIP AND BOAT SPIKES.

The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co, Boston.

ja45

MACHINE WORKS OF ROGERS,

Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J., or 60 Wall street, N. York.

a45



PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

DAVENPORT & BRIDGES CONTINUE

to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

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ENGINEERS' AND SURVEYERS'
INSTRUMENTS MADE BY
EDMUND DRAPER,
Surviving partner of
STANCLIFFE & DRAPER.



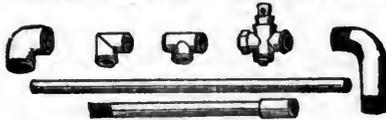
No 23 Pear street, below Walnut,
1y10 near Third, Philadelphia.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to 1/2 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

LAP - WELDED WROUGHT IRON TUBES

FOR

TUBULAR BOILERS, FROM 1 1/4 TO 6 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,
Patentec.

1y25 28 Platt street, New York.

THE SUBSCRIBERS, AGENTS FOR

the sale of
Codorus,
Glendon,
Spring Mill and
Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L KIMBER, & CO.,
59 North Wharves,
Jan. 14, 1846. [1y4] Philadelphia, Pa.

PATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly *indestructible*. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

J. BALL & CO.

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,
57 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

Wire gauge number.	WIRE ROPES.		HEMPEN ROPES.		CHAINS.		STRENGTH Tons.
	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	
11	4 1/2 INCH.	13 5 LBS. OZ.	10 INCH.	24 LBS. OZ.	50 LBS.	15-16 INCH.	20
13	4 1/4	8 3	8 1/2	16 -	27	11-16	13 1/2
14	3 1/2	6 11	7 1/2	12 8	17	9-16	10 1/2
15	2 1/2	5 2	6 1/2	9 4	13 1/2	1-2	7 1/2
16	2 1/4	4 3	6	8 8	10 1/2	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentec
G. A. NICOLLS,
Reading, Pa. ja45

TYLER'S PATENT SAFETY SWITCH.

The following decision of the Commissioners of Patents is respectfully submitted to Railroad Engineers, Superintendents, and all others interested in the subject.

(COPY.)

UNITED STATES PATENT OFFICE,
Washington City, D. C., April 28th, 1846.

SIR: You are hereby informed that in the case of the interference between your claims and those of Gustavus A. Nicolls, for improvements in safety switches—upon which a hearing was appointed to take place on the 3rd Monday in March, 1846, the question of priority of invention has been decided in your favor. Inclosed is a copy of the decision.—The testimony in the case, is now open to the inspection of those concerned. Yours Respectfully,

EDMUND BURK,
Commissioner of Patents.

To Philo B. Tyler.

Any further information may be obtained by addressing John Pendleton, Agent for the Proprietor 149 Hudson Street, New York. 1m39

TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS.

Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture: and for sale by

MORRIS TASKER & MORRIS,
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 1tf

RAILROAD IRON.—THE SUBSCRIBER'S

New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,
45 North Water St., Philadelphia,
or by their Agent, **ROBT. NICHOLS,**
79 Water St., New York. 28tf

TO RAILROAD COMPANIES AND MANUFACTURERS OF RAILROAD MACHINERY.

The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,
45 N. E. cor. 12th and Market sts., Philad., Pa.

RAILROAD SCALES.—THE ATTENTION

of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

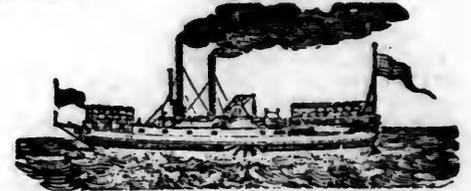
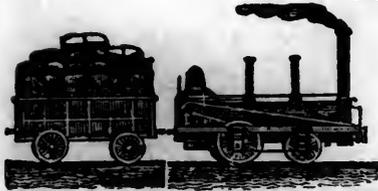
The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLCOTT & ABBOTT.
Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
Philadelphia, Pa. 1y25

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 43]

SATURDAY, OCTOBER 24, 1846.

[WHOLE No. 540, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.
Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.
Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.
Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3½ p.m.
All baggage at the risk of the owners thereof.
31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD AND STAGES Connecting with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich. New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 321y J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Winter Arrangement, 1846-7.

On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:
Boston for Portland at 7½ a.m. and 2½ p.m.
Boston for Great Falls at 7½ a.m., 2½ and 3-25 p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 3-25 and 5 p.m.

Boston for Reading at 7½, and 11½ a.m., 2½, 3-25 and 6½ p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 7½, 8½, and 11 a.m., and 3 and 6½ p.m.

Reading for Boston at 7, 8½ and 9½ a.m., 12 m., 1½, 4 and 7½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1y31 CHAS. MINOT, *Super't.*

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10 and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave Cihite Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams Bridge trains will be regulated according to the state of the weather. 1y18

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE. From April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A. M. and 4 P. M.
" Middletown at 6½ A. M. and 5½ P. M.
FARE REDUCED to \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P. M.
" Middletown at 12 M.
The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, *Sup't.* March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 1/2

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846.. Spring Arrangement.. 1846 Commencing April 1st.

Passenger trains leave daily, Sundays excepted—
Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6½ " and 2½ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.
Boston, Albany and Troy:

Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES, Superintendent and Engineer. Western Railroad Office, Springfield, April 1, 1846. }

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail—which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

TROY AND SARATOGA RAILROAD.

THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug. 3, 1846.

1y 32

THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00
 " " Sandusky to Buffalo, Cabin..... 6 00
 " " " " " " Steerage.... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, Sup't, etc.
 M. & S. C. R. R. Co.

Sandusky, Ohio.

RAILROAD IRON.—THE "MONTOUR

Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sts. 42 1y

NEW RAILROAD ROUTE FROM Buffalo to Cincinnati.

Passengers destined for Columbus and Cincinnati, O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance.....230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy Iron,] to Mansfield, distance..... 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

TIME.
 From Buffalo to Sandusky..... 24 hours.
 Leave Sandusky 5 a.m. to Columbus.... 14 "
 From Columbus to Cincinnati..... 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.
 From Buffalo to Sandusky, Cabin.....\$6 00
 " " " " Steerage..... 3 00
 " Sandusky to Columbus..... 4 50
 " " " " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Sup't, etc.
 M. & S. C. R. R. Co.

Sandusky City, Ohio.

BALTIMORE AND OHIO RAILROAD.

MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7 1/2 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

THE SUBSCRIBER IS PREPARED TO

execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER, 17 Burling Slip.

New York.

BALTIMORE AND SUSQUEHANNA

Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:
 Leaves Baltimore at.....9 a.m. and 3 1/2 p.m.
 Arrives at.....9 a.m. and 6 1/2 p.m.
 Leaves York at.....5 a.m. and 3 p.m.
 Arrives at.....12 1/2 p.m. and 8 p.m.
 Leaves York for Columbia at...1 1/2 p.m. and 8 a.m.
 Leaves Columbia for York at...8 a.m. and 2 p.m.

FARE.
 Fare to York.....\$1 50
 " Wrightsville..... 2 00
 " Columbia..... 2 12 1/2
 Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg..... \$9
 Or via Lancaster by railroad..... 10
 Through tickets to Harrisburg or Gettysburg.. 3
 In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5 1/2 p.m.
 Returning, leaves Owing's Mills at.....7 a.m.
 D. C. H. BORDLEY, Sup't.
 Ticket Office, 63 North st.
 31 1y

L EXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.
 Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 26 miles. Fare \$1-25.
 On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.
 The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.
 351y

SOUTH CAROLINA RAILROAD.—A

Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.
 Fare through from Charleston to Montgomery daily.....\$26 50
 Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 22 00
 The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.
 JOHN KING, Jr, Agent.
 1y25

CENTRAL RAILROAD—FROM SAVAN-

nah to Macon. Distance 190 miles.
 This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—
 On weight goods generally... 50 cts. per hundred.
 On measurement goods..... 13 cts. per cubic ft.
 On brls. wet (except molasses and oil).....\$1 50 per barrel.
 On brls. dry (except lime)... 80 cts. per barrel.
 On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
 On hdds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.
 On molasses and oil.....\$6 00 per hhd.
 Goods addressed to F. WINTER, Agent, forwarded free of commission.
 THOMAS PURSE,
 Gen'l. Sup't. Transportation.
 y40

MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.
 These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plate No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.
 2v19 1y

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. 1y1

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 63,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches,

Work shop, 86x33 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

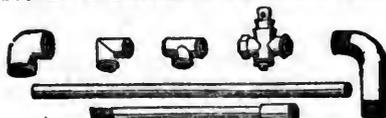
For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ½ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.

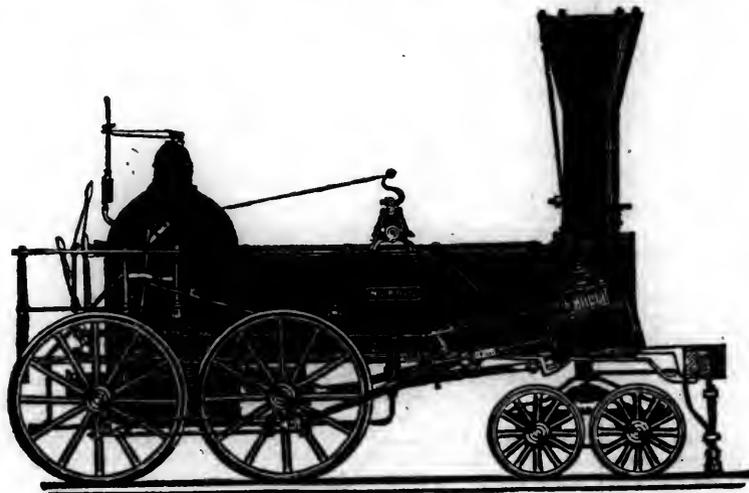
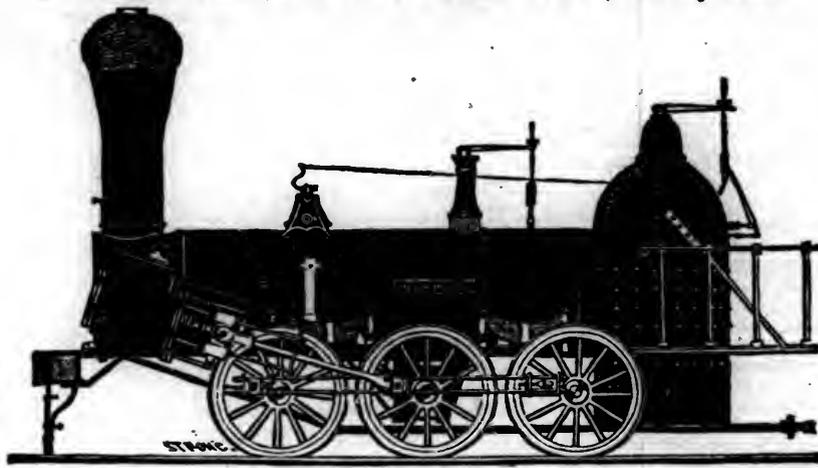


Manufactured and for sale by MORRIS, TASKER & MORRIS. Warehouse E. E. Corner of Third & Walnut Streets, PHILADELPHIA.

RAILROAD IRON.—THE NEW JERSEY Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to FULLER & BROWN, Agent, No. 139 Greenwich, corner of Cedar street. September 18, 1846. 10:39

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " × 24 " "
"	3,	14½	" " × 20 " "
"	4,	12½	" " × 20 " "
"	5,	11½	" " × 20 " "
"	6,	10½	" " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY, a45 President of the Newcastle Manuf. Co.

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON Mar. 20th 4 South Front St., Philadelphia.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Allaire, } New York.
- Peter Cooper, } New York.
- Murdock, Leavitt & Co. } New York.
- J. Triplett & Son, Richmond, Va.
- J. R. Anderson, Tredegar Iron Works, Richmond, Va.
- J. Patton, Jr. } Philadelphia, Pa.
- Colwell & Co. } Philadelphia, Pa.
- J. M. L. & W. H. Scovill, Waterbury, Con.
- N. E. Screw Co. } Providence, R. I.
- Eagle Screw Co. } Providence, R. I.
- William Parker, Supt. Bost. and Worc. R. R.
- New Jersey Malleable Iron Co., Newark, N. J.
- Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly. 35 1y

A Statement of the Comparative Cost and Income of Canals and Railroads.

BY A. WHITNEY, ESQ.

The following comparative statement is from the vigorous pen of the bold projector of the OREGON railroad. It has not until this time met our eye, or it would before have been given to the readers of the Journal, as it fully sustains the views often put forth in its pages; we will merely add, that we should be much pleased if it could be read by every citizen of the United States—but especially by those of the cities of New York and Philadelphia. It would certainly give many of them more liberal and enlightened views than they now possess.

The communication appears to have been addressed to George W. Edwards, Esq., who has long been connected with the Reading railroad.

Philadelphia, 15th December, 1845.

G. W. EDWARDS, ESQ.,

Dear Sir: In answer to your inquiry—"Why a railroad is better than a canal, to accommodate a general business of transporting passengers and property, providing grades do not occur in the former exceeding 50 feet to the mile?" I submit the following remarks, as the result of a few hours' labor devoted to the investigation of that subject.

If public sentiment is deemed of any value in establishing the affirmative of this proposition, any further evidence in its favor would seem to be useless; for we see railroads are being constructed everywhere, both in this country and in Europe, while nowhere do we see it propose to construct a new canal. The advocates for canals seem to confine their exertions to finishing a few lines that were commenced several years ago, and before it was known that railroads were as well adapted to the movement of property, as canals. It is easy, however, to understand why this is so, when we come to compare the relative productiveness of investments in the two kinds of structures. This I will attempt to do in a very general way, commencing with the canals and railroads in the

State of New York.—The canals of this state may be said to have been eminently successful, much more so than in any of the other states. The reason of this is obvious, for it may safely be asserted, that nowhere on this continent has nature presented so few and inconsiderable obstacles to the construction of an extensive system of canals, or over which so large a trade could be made to pass.

By these canals, there is open on the north a navigable communication between the Hudson and lakes Champlain and Ontario, and the lower St. Lawrence, by which an inland navigation is opened throughout the whole extent of that river, which, added to these lakes, gives a navigable line of waters extending not less than 2,000 miles.

On the west, a navigable connection is formed with lake Erie, at Buffalo and Black Rock. The lake coast thus opened, including lakes Huron and Michigan, extends nearly 4,000. Besides these, there are several smaller lakes in the interior of the state, with which these canals are connected, thus forming, between all these points and the city of New York, a navigable inland water communication of nearly 7,000 miles in extent. To accomplish all this the state has con-

structed only 780 miles of canal, which have cost,

\$27,865,664

Besides this sum there has been expended on unfinished canals 2,595,659 And there will be required to finish the latter, and to complete the enlargement of the Erie canal, the further sum of 15,000,000

Making the whole cost, when finished, - - - - \$45,461,323

As has been stated, these 708 miles of canal cost \$27,865,664. The net revenue derived from them in the year 1844, was 1,803,768, which is 6½ per cent. on the amount paid for their construction, or a little less than 6 per cent. on the amount expended on all the canals.

There has been constructed and put in operation, in the state of New York, 548 miles of railroad, which have cost \$11,213,789. The net income of all these roads for 1844, was 788,643, which is a fraction over 7 per cent. on their cost.

It is proper to remark here, that the canals of the state of New York being state works, the legislature has refused to permit one of the main links of the line of road between Albany and Buffalo to transport property, except during the suspension of navigation on the canals, and then only by paying to the state the same tolls as would have been charged on such property, had it been transported on the state canals. This restriction affects the whole line of road between Albany and Buffalo, although, technically, it only applies to that portion lying between Schenectady and Utica—that portion of the line, therefore, lying west of Utica cannot engage in a general transportation business to any considerable extent, because the same facility cannot be enjoyed east of Utica. If this restriction was removed, and the most approved means employed for performing that kind of service, there is no doubt but the net revenue would be increased several per cent. on the cost of the whole line of road between Albany and Buffalo.

The State of Ohio has constructed 787 miles of canal, at a cost of \$15,027,459. The net revenue from these canals for 1844, was 340,788, which is only 2.06 per cent. on the cost of their construction. There have been no finished lines of railroads in operation in the state of Ohio yet, but there is every probability that the roads now being constructed will be as productive as any others, particularly the one connecting Cincinnati with lake Erie.

State of Pennsylvania.—The public works of this state are of both kinds, canals and railroads. The cost of these works has been \$28,623,410. Of this sum, say 22,536,721 has been paid for constructing 547 miles of canal, and 6,086,689 for 119 miles of railroad. The net revenue derived from these works for 1844 was, say on the 22,536,721 paid for 547 miles of canal, 344,318, which is only 1.53 per cent. on their cost, and on the 6,086,689 paid for 119 miles of railroad, 281,254, which is 4.62 per cent. on their cost—thus showing that the amount invested in

railroads is more than three times as productive as that invested in canals, while both are under the same system of management.

New England States.—In these states, canals and railroads have been constructed and managed by corporations. Of canals, there have been completed and put in operation 226 miles, 191 of which have cost \$2,070,000. The cost of the remaining 35 miles I have no means of stating. The business on these 191 miles, in 1844, did not produce a net revenue of 1 per cent. on their cost; and the remaining 35 miles, it is believed, have not been more productive.

Railroads have been, or are about to be, constructed on lines parallel to all, or nearly all, these canals, and judging from the effect these roads have had thus far on the business of the canals, it is safe to assume, that when the other parallel lines are completed, there will not be over 10 miles of the 226 that will retain business enough to keep them in repair. The only portions of these canals that can be made to sustain themselves, will be a few short sections containing numerous locks, which may continue to be used to accommodate the lumber trade passing down the Connecticut and Merrimac rivers. As an instance of this, it may be sufficient to state the following, which will illustrate the probable fate of the whole.

The Middlesex canal, one of the oldest and best located for business of any in New England, extends from Chelmsford, on the Merrimac, 2 miles above Lowell, to Charlestown, near Boston. This canal was designed to facilitate the intercourse between the Merrimac valley, in New Hampshire, and Boston, and it had that trade until the Boston and Lowell railroad was put in operation in 1835. Since that time nearly the whole business has been transferred to the railroad. Almost the only portion of it retained by the canal, is the carrying of stone, quarried near its banks, to the city of Boston.

The Farmington, Hampden and Hampshire canals, extending from New Haven, Conn., to Northampton, Mass., up the valley of the Connecticut river 78 miles, has shared the same fate since the construction of the railroads between those two points, and the same thing will probably happen to the Blackstone canal, which extends from Providence, R. I., to Worcester, Mass., 45 miles, when the railroad is completed between those two towns.

There have been constructed in New England, 854 miles of unfinished railroad, which have cost \$31,029,636. The net revenue derived from these roads in 1844, was 7 per cent. on the sum expended in their construction. These comparisons might be continued with all the railroads and canals in the country, and it is believed the contrast would continue to be as much in favor of railroads, in a fiscal point of view, as it has been in the instances already cited; it is, therefore, deemed unnecessary to pursue the inquiry, in this form, any farther.

The data on which the comparisons have been made thus far, have been taken from legislative documents, and from the published

reports and statements made or sanctioned by the corporations to the business of which they refer.

The following table will show, at a glance, the comparative merits, in reference to cost and productiveness, of the two kinds of structures as far as they have been examined :

CANALS.					
	Miles	Total cost.	Cost per mile.	Net revenue in 1844.	Per ct. on the total cost.
New York...	708	27,865,664	39,358	1,803,768	6 1/2
Ohio	787	15,027,459	19,095	340,788	2.26
Pennsylvania	547	22,536,721	41,200	344,318	1.53
New England	191	20,070,000	10,838	20,700	1
Average			30,229		3.71

RAILROADS.					
	Miles	Total cost.	Cost per mile.	Net revenue in 1844.	Per ct. on the total cost.
New York...	548	11,213,780	20,463	788,643	7.13
Ohio.....	119	6,086,689	51,149	281,254	4.62
Pennsylvania	854	31,029,636	36,323	2,172,074	7
New England					
Average			31,775		6.71

This exhibit does not present canals or railroads in a view worthy of imitation in reference to their original cost; yet, when we remember that canals are almost as old as the civilization of man, and that railroads are comparatively a very recent invention, it is but fair to presume that there has been quite as great a want of sagacity, skill and economy employed in designing and constructing the latter as the former. It must also be remembered, that there has been included in the costs of these roads, the motive power, cars, water stations, depot buildings, ware houses and offices, while the boats, horses, harness, stables, warehouses, offices, etc., have not been included in the cost of the canals.

Notwithstanding these inequalities in reference to original outlay, the railroads appear to have cost but a fraction more per mile than the canals, and that the capital invested in railroads is now nearly twice as productive as that invested in canals.

All who are familiar with the history and operations of our railroads, know that it was not until quite recently that any of them have been advantageously employed in transporting property, and the opinion is even now entertained to some extent, that they can only be usefully and profitably employed to transport passengers and light articles of freight of great value, on which high charges can be collected. It has been from this kind of business mainly, with one or two exceptions, that the results shown above have been obtained.

The first successful attempt to adapt the locomotive engine to the movement of heavy freight trains, was made during the autumn of 1842. The first machine of this kind was then put in operation on the Georgia railroad, and since then there have been made and put in use, 43 of these freight engines, viz :

On the Georgia railroad, 4; South Carolina, railroad 7; Central railroad, 5; Wilmington and Raleigh railroad, 2; Monroe railroad, 1; Philadelphia and Reading railroad, 13; Montgomery and West Point, 2; Western railroad, Mass., 3; Madison and Indianapolis, 1; Western and Atlantic, 2; Phi-

ladelphia and Columbia, 1; Little Miami, 2—total, 43.

The result has been, that so many of these roads as had navigable water communications running parallel to them, have not only taken the passengers, but also the general transportation of merchandize and produce from the latter, and the others are conducting profitably and usefully the whole transportation business of the country through which they pass, as far as they have provided themselves with the means of doing it.

As instances of the former, it will be sufficient to refer to the following cases, viz: until within the last two years the merchandize and produce passing to and from the upper part of Georgia, were transported on the Savannah river, between Augusta and the seaboard; but now it is nearly all carried on the South Carolina railroad, which extends from Charleston to Augusta. The same thing has happened in the southwestern part of Georgia, where the general transportation business that was formerly conducted on the Altamaha and Ocmulgee rivers, has, in like manner, been transferred to the Central and Monroe railroads, terminating at Savannah. The Schuylkill navigation company enjoyed exclusively, until the season of 1843, the transportation business of the Schuylkill valley, including the coal trade from Pottsville and its vicinity. Since then the Philadelphia and Reading railroad have procured the improved machinery referred to, and finished their road with two tracks, and during the present year it will have transported over 800,000 tons of coal, while the Schuylkill canal has carried less than 300,000 tons.

It is proper to remark here, that all the means the railroad company could command have been fully employed during the whole season, and it is believed that it could have done a much larger share of the whole business, if more machinery could have been procured in season; notwithstanding, its price has been about 10 per cent. above that charged by the carriers on the canal.

The public prefer the railroad mainly, because of the greater expedition, rendering it practicable to conduct a correspondingly increased business with the same amount of capital.

It is believed that all the expenses attending the movement of property on a will constructed and furnished railroad, need not necessarily exceed that incurred on our best canals; while by the former it is moved at a velocity of ten miles an hour, and by the latter at only about two miles per hour.

The late improved engines on the Reading road, are computed to take 500 tons of net freight, (exclusive of weight of wagons,) 100 miles in 12 hours on a level road. The whole expense for motive power of this description, including repairs and maintenance does not exceed two mills per ton per mile. On a road over which passes say 500,000 tons annually, three mills per ton per mile will be adequate to keep in repair the road and wagons, and cover all other incidental expenses, which makes the whole cost half a cent per ton per mile, for a road used exclu-

sively for freight purposes. The additional expense incurred in passing over elevations rising at a rate not exceeding 50 feet per mile, will be found sufficiently accurate for all practical purposes, by adding to the length of the road one mile for every 20 feet of ascending grade, and calculate the expense of motive power for this new length, while the other expenses only apply to the real length of the road.

I have extended these remarks already beyond what I intended, yet I cannot forbear to mention another instance where railroad and canal transportation may be justly compared; that is, the Erie canal and the line of road running parallel with it, and extending east from Albany to Boston. Until late, during the past season, freights were lower on the Erie canal than ever before. For several months, flour, a leading article of descending freight, was taken from Buffalo to Albany, 364 miles, on that canal, as low as 40 cents per barrel, including tolls. This low price was produced by competition, and did not pay the actual expenses of the parties engaged in it; 75 cents per barrel is as low as flour can be profitably transported on that canal, including the tolls charged last season which were a fraction over 33 cents per barrel, including the tolls on the boat in which it was carried.

Allowing 10 barrels of flour to the ton, and the freight from Buffalo to Albany, 50 cents per barrel, and we have, 1.37 cents per ton per mile, and at 75 cents per barrel, 2.05 cents per ton per mile on the canal.

The Western railroad, extending from Albany to Boston, 200 miles, passes over two main summits, one of which is 1,456 feet, and the other 836 feet above their respective basins, making an aggregate elevation to be overcome of 22,221 feet. This elevation is passed over on grades, rising, in some instances, at the rate of 83 feet to the mile.

The price for transporting flour on this road, from Albany to Boston, for the last two seasons, has varied from 25 to 30 cents per barrel. Dividing these prices by the 200 miles of road, and we have, at 25 cents per barrel, 1 1/2 cents per ton per mile, and at 30 cents per barrel, 1 1/2 cents per ton per mile.

Thus we see that the analogous prices on the railroad and canal are: say on the canal 1.37 and 2.05 cents per ton per mile; say on the railroad 1 1/2 and 1 1/2 cents per ton per mile.

Notwithstanding the unfavorable grades on this road, it appears that its prices for transporting flour is nearly 20 per cent. less than that charged on the canal.

By reference to the last two annual reports of the Western railroad company, it will be observed that the capital invested in it has produced a better income than that invested in the canals of New York, and that the transportation of property has been quite as important a branch of its business, as that of transporting passengers.

It has been stated, that the line of road between Albany and Buffalo has been permitted by the legislature of New York to transport property during the suspension of navigation on the canals, by paying to the state the

same tolls as such property would be subject to, if it was transported on the canals.

Now, is it not likely, or rather, is it not certain, that if the disabilities imposed on the railroads were removed, and the roads furnished with the most improved machinery for transporting property, that they would compete successfully for the great trade now enjoyed by the canal? This conclusion is inevitable, when we remember that the road is 38 miles shorter than the canal, and that it has no grades to encounter, in the direction of the preponderating trade, over 25 feet to the mile.

The favorable grade of that line of road, connected with the magnitude of the business would enable it to transport profitably, at one cent per ton per mile. The distance by railroad, from Albany to Buffalo, being but 326 miles, at one cent per ton per mile, would be but 326 cents for a barrel of flour from Buffalo to Albany, which is a fraction less than the toll now charged on the canal.

With these facts before us, and in view of the several lines of road that are now being and about to be constructed between the Atlantic cities and the great lake basin and Mississippi valley, is it not more than likely that the canals that now enjoy so large a portion of that trade, will soon share the same fate that others have, when subjected to a fair and open competition with railroads? Or is it likely, that the great and growing trade that is to be carried on between these two sections of the country, will consent to employ the more tardy and expensive means of transit?

Report of Committee of Wilmington and Charleston Railroad.

The committee charged, at the public meeting of the citizens of Charleston, with the collecting of information, and examining into the expediency and practicability of a railroad from Charleston to Wilmington, North Carolina, with an approximate estimate of the cost of the same, respectfully report: that they have given to this project (not for the first time brought to public notice,) all the mature consideration, which the importance of the commission, devolved on them would seem to impose. Although there were some disagreements in opinion among the members of the committee, as to the relative importance and probable influence, *beneficial* and *injurious* on the commerce of Charleston; from the various roads projected; the majority concurred in the views; that to fill up either of the links between the North and South Carolina railways at this time, was in advance of the necessity; but that whenever that necessity was more apparent than at present, and imposed *immediate* and *efficient* action on the citizens of Charleston, that the *lower route* via Georgetown direct to Wilmington was the one most strongly identified with the commerce and interests of this city. At present however, other and more important objects require her attention. Your committee in common with the entire population of Carolina, and of our sister state of Georgia, cannot but continue to look, with the deepest interest, on those railroad projects, some of them in pro-

gress; others under charters now organizing for action; and all having for their object, the connecting the rich and valuable grain producing valleys of the west and of the interior, with our south Atlantic ports. If to the natural productions of our favored latitudes; short and sea island cottons and rice; there could be added, the flour, wheat, indian corn, the tobacco, the pork, bacon, and beef of not only the west, but of those interior districts of our own, and contiguous states, (hitherto excluded from a market,) for want of cheap and certain transportation; both Charleston and Savannah would realize in a career of commercial prosperity, all that the most sanguine have at times anticipated; while the interior counties and districts of the respective states as nearest to the *best markets of export and consumption*, would receive an impulse to their enterprize and energies which could not but operate most favorably, on all the *mineral, agricultural and manufacturing* resources which now lay dormant and concealed.— It was steam power subduing the angry floods and seemingly irresistible currents of the Mississippi, which gave that impetus to the rapidly improving states of the west: which no salubrity of climate or fertility of soil could before accomplish. Steam in the locomotive, and on railroads is destined to achieve a no less extraordinary triumph for the states of the Atlantic, whose interior, fertile and abundantly producing soils, embosomed in mountains, remain almost in their natural state, from their hitherto inaccessibility. To open avenues to these interior regions of fertility, to accomplish connections by railroads to the more remote valleys of the great father of rivers; South Carolina and Georgia have been for years most harmoniously co-operating, and while the attainment of these great objects are so near consummation; while your committee see in one direction but 85 miles of railroad, to be provided for, to perfect a connection with the navigable waters of the Alabama at Montgomery; but 17 to bring us to the Coosa at Rome, and which is navigable for 150 miles to the head of the 10 islands; but 120 miles to connect the Coosa with the Warrior at Tuscaloosa, and but 36 to extend the communication in that quarter to Gunter's landing on the Tennessee river. While in another direction they see the state of Georgia nobly pressing forward to the terminus of the Western and Atlantic road at Chattanooga, and about to advance within 40 miles of that place, by January next, and thus stimulate the citizens of Nashville on the Cumberland to a union with the Atlantic. Your committee are not otherwise than favorably impressed towards the projects for railways, to connect North and South Carolina in more intimate communion, which have so recently been brought to public notice. They see in those extending from Raleigh to Camden in Kershaw, and from Wilmington to Manchester in Sumpter district, advantages in promise, which have very naturally attracted the attention of the citizens of those sections of our state, which those roads will intersect, and on whom alone as most deeply interested, must

devolve the responsibilities and obligations of constructions. But in the railway from Charleston to Wilmington direct: in the earnest manifestations towards the project by the citizens of our sister city Wilmington, in the greater despatch, security and certainty which will be imparted to intelligence by mail from all portions of the east, and in the superior facilities and accommodations afforded to travellers passing to and from Charleston.— Your committee recognize the strongest motives for their fellow citizens as far as practicable, to contribute to and encourage the enterprize. While these appeals, it is confidently believed, must have their merited influence on the people of Charleston, and of the neck; there are other and imposing considerations which should operate on the inhabitants of those districts through which this road will pass. Your committee, though strongly impressed, are not prepared to enlarge on the certain influence which railroads may exercise, in the drainage, which in their construction becomes necessary; and in the smoke of the locomotive, breathing in its flights a purifying atmosphere on the health of what has been classed as the malaria sections of South Carolina.— Experience however, on the road to Hamburg, thus far seems encouraging; farms are opening, and habitations erecting on spots once believed fatal to life, confidence so far revived, that travellers pass daily without any apprehensions from station to station, and the hitherto imagined poisoned desert between Charleston and Augusta, as much frequented as any other portion of the state. The revolutions produced by steam are encouraging, and if the dread of unavoidable and fatal disease could be removed from the lower districts, it would in its results, be worth to Carolina all that the roads projected have or may cost.

On the practicability of a railroad from Charleston to Wilmington, there can be no doubt—with the exception of the impediments, which the harbor of Charleston, the Santee river and swamp, and the Winyaw bay may present; all of which, (as on the North river at Hoboken, at Camden on the Delaware, and Havre de Grace on the Susquehanna,) may be overcome by properly constructed steamers. Nature seems to have graded and prepared the ground for a railway. The principal expenditure will be on the wooden superstructure and iron rail, which may be enlarged or reduced according to the weight of the rail which may be found necessary, and adapted to the locomotives to be used. On this subject there is no speculation on the part of your committee; to most of them the intervening country is familiar, and with a view to the accomplishment of this object, was explored and examined at a former period by Col. White, whose report as revised and condensed, at the suggestion of your committee, is herewith appended.

In order to make an approximate estimate of the cost of a road to connect Charleston with Wilmington, it is necessary to assume some particular line of communication, and for this purpose we will consider the routes

work done in, but also with the courteous manner in which we were shown through, through their establishment.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

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Saturday, October 24, 1846.

The connection of undersigned with the editorial department of this Journal ceased at the date of the last number. GEORGE C. SCHAEFFER.

Engineers and railroad directors will find on the last page of this number of the Journal, the advertisement of Mr. James Herron, who has made important improvements in the superstructure of railroads.

Low Fares.

We cheerfully give place to the following letter from P. P. F. DE GRAND, Esq, in reply to our remarks in a recent number of the Journal, in relation to Mr. Derby's article on railroad management and railroad fares, in the Merchant's Magazine for September. It was not our intention, by any means, to detract from the just claims of Mr. Derby to great credit for his unwearied exertions in the cause of railroads. In a future number we propose to return to this subject.

Boston, October 5th, 1846.

To the Editor of the Railroad Journal:

DEAR SIR: On perceiving your remarks as to E. H. Derby's article on low fares, in Hunt's Magazine, it appeared to me that you did not appreciate the very high value of the services which this gentleman has rendered to this great cause. Of course I do not know who first suggested low fares; but I do know that E. H. Derby was the originator of them, both as to passengers and as to freight, in the case of the Western road, and that he did advocate and carry his point, by the most consummate skill and unwearied industry, to the very great benefit, in result, of the stockholders and the public. I do know that when he first suggested his low prices for the Western road, they struck the public as startling and even as dangerous novelties. I do know that, in the outset, and for some time afterwards, he could enlist very little aid: but he persevered, without being daunted, amid the buffetings of opposition and the shafts of ridicule. Relying on the good sense of his reasoning, he never despaired.

I do know that he was the father of low fares in the Fitchburg road, whose low prices have softened the views of the Worcester road.

I do know that E. H. Derby's indefatigable exertions have greatly contributed to the reduction of fare on the Providence road, Dedham branch, Newton branch, Eastern road, Lowell road, Boston and Maine road, and Nashua and Concord road.

And at a much earlier period than all this, while the stock of the steamboat navigation of the coast of Maine was at very low ebb, it was E. H. Derby

who discovered the true cause of their ruin, viz: their prices being high; and it was he who pointed out the remedy, viz: a reduction of fares; and it was he who caused the reduction and directed that reduction to a result giving life and animation and success to the steam navigation of the coast of Maine.

So far as my observation has gone, (and I have had a chance to see a good deal of it) I do not hesitate to say that I do know that the cause of low fares, with its innumerable benefits, owes much, very much, to E. H. Derby.

It was not until after the publication of E. H. Derby's "two months abroad"—with its valuable suggestions for the purse and for the comfort of the traveller—that the British government and the English great lines of railroads began to reduce their enormous charges, and began to treat the great masses of travellers as men should be treated, by giving them seats and placing them under cover, at a reasonable rate of fare. You will see in the two months abroad—marked out in bold relief by Derby's able hand—the identical evils and the identical remedies which, at a subsequent period, were successfully presented to parliament by Sir Robert Peel. Standing up, exposed to the inclemency of the weather, and to the annoyance of dangerous cinders, used to be quite a common practice in England, in the third class cars; for the avowed purpose of driving people to a dearer seat in the first and second class cars. What think you of an enlightened nation, packing masses of human beings in an uncovered stand-up car, as you would pigs? Yet, such was the fact, before E. H. Derby's two months abroad—which pointed out the evil and the remedy—reached England.

You are at entire liberty to publish this letter. I shall feel both pride and pleasure in finding my name sustaining the credit so justly due to E. H. Derby. The public owe him a debt of gratitude, which I am happy to perceive they begin to be inclined to pay; by availing of his sagacity, perseverance and peculiar knowledge, in almost all railroad cases, either as a counsellor, or at the bar, or before legislative committees.

Accept my friendly wishes for the success of your valuable Journal. P. P. F. DE GRAND.

Richmond and Ohio Railroad.

In the Railroad Journal of April 11, 1846, we made some extracts from the charter of the "Richmond and Ohio railroad company," passed Feb. 3, 1846, and after alluding to the matter briefly, promised to refer to it again. Having given this document an attentive perusal, we proceed to offer an opinion of its merits, and our views in relation to the advantages which appear to be identified with the proposed route. In our next number we shall publish an able article from "Hunt's Merchant's Magazine," to which the reader is especially referred, for some interesting statistical matter bearing upon the subject, and which contains information worthy of attention.

The route proposed by the line of the "Richmond and Ohio railroad," is one of the greatest importance not simply to the state of Virginia, but to the whole east and west. The natural advantages presented by this channel, as a means of speedy communication between the Ohio river and the Atlantic, are obvious to all who are conversant with the location of the country through which it is to pass, and the results to be gained by the successful establishment of this road, cannot now be calculated.

Many of the proudest names of which the history of old Virginia can boast, have been subscribed to

an opinion of the most favorable character, as regards the greater portion of the route now under consideration, and it is believed that had the people of the "old dominion" seconded the views of her prominent men on this subject many years ago, great improvements would long since have been established, which are now to be begun. The original plans for improving the line of country marked out mainly for this route, differed of course, (as did the times,) from the present proposal. The course recommended fifty years since, was to "render the James river navigable to as high a point as was practicable, and thence construct a good turnpike across the mountains," etc. The Richmond and Ohio railroad company is charged with the duty of "constructing a railroad from the city of Richmond on the south side of James river, to some point on the Ohio river, at or below the mouth of the Great Kanawha river, by the most eligible route, other than the immediate valley of the James river below Lynchburg, said route to be hereafter determined by actual survey, under the direction of the said company."

The provisions of the charter are such that it may without hesitation be pronounced the most liberal in the land, and the inducements held out by capitalists by this liberality are certainly very great. The most prominent features to be remembered are, 1st, the right of this company to construct a branch road 20 miles long, upon either side of the main line; 2d, the exemption of the stock from taxation, as well as the dividends also, unless they exceed six per cent. yearly; 3d, the right of the company to buy and hold real estate to the value of two millions of dollars, independent of the purposes of the road itself; 4th, its charter is given for thirty years from the time allowed to complete the work; and lastly, may be named, the great advantages given to the company, by the manufacturing privileges, which are also secured by this charter. These extraordinary provisions have been permitted for the purpose of encouraging a speedy subscription to the stock, by other than resident capitalists; a wise policy which cannot but be fully appreciated by monied men.

The spirit of rivalry, which has marked the course of the managers of all the great eastern routes, for the last year or two—with a view to securing each, for their individual channels, the immense trade of the great west—will find a formidable competitor in the Richmond and Ohio railroad. The valley through which it must pass, is in itself, rich and fertile beyond comparison; and must be peopled with a greatly enlarged population in a few years. Its communication—so easy with the west and northwest particularly—must naturally give to it a considerable portion of the enormous carrying trade, which is now distributed to the existing lines, through New York, Pennsylvania and Maryland. And in the ratio of increase of business which has been progressing throughout the west for ten years past, who can accurately estimate the benefits desirable from so direct a line of communication between the two existing extremes of our country? This is much easier to ask than to answer!

We would again refer the reader to the interesting article from Hunt's Magazine, which will be found in our next number. A vast amount of interesting statistics will be found there, which is evidently prepared with much care, and we presume with accuracy. We annex below, the substance of the provisions in the charter of this road, believing that they will prove interesting to all engaged in this sort of enterprize. After providing for its general character, the act to establish the Richmond and Ohio railroad provides,

That said company shall be authorized to lay out, and construct their road, on the south side of James river, to some point on the Ohio, at or below the mouth of the Great Kanawha, provided that the said route shall not interfere with the line which the "James River and Kanawha Co." shall have indicated as the line of their improvements, west of Lynchburg, and provided also, that this restriction shall not be so construed as to prevent the Richmond and Ohio railroad company from crossing to the north side of James river, at or above Lynchburgh, in such a manner as not to interfere with said "James River and Kanawha Co." or the James river canal.

It also provides that the company shall be authorized "from time to time to appropriate and expend such portion or portions of its capital stock as it may be deemed expedient, not exceeding at any time, one-third of the amount actually paid in, and not exceeding in the aggregate, the sum of two millions of dollars, in the purchase of property, other than such as may be necessary for the construction and preservation of said road, for the general purpose of buying, settling and improving unsettled and waste lands west of the Blue Ridge in this state, and for the establishment and carrying on of manufactories of iron wool, cotton, and other articles, and for the purpose of mining for coal, iron and lead, but the said company shall not exercise any banking privilege under penalty of forfeiting its charter; and it shall not appropriate, under pain of forfeiting its charter, any portion of its capital to mining or manufacturing purposes, until the western section of the road has been completed, as indicated in the fourth section of this act: provided, The privilege given to the company by this section shall not extend beyond twenty miles from the line of said road: And, provided, not more than six hundred thousand dollars shall be invested by said company in the purchase of land."

And also, that the company may have the power "to construct such lateral railroads or branches from the main line of the said road, not exceeding in length in any one instance twenty miles: provided, Such lateral railroads do not interfere with any existing line of improvement, railroad or canal of the state, or of any other person or company: And provided also, That such lateral roads be constructed solely as branches of the main road, and to facilitate the manufacturing or other operations of the said company."

The capital stock of said company—it is also provided—"shall be exempt from taxation, nor shall any tax be imposed upon the dividends of the said company, arising from the income of the said railroad, unless the net income of the said road shall exceed six per cent. per annum, in which case the dividends arising from the profits of the company may be subject to the same taxation as shall be, at the time, imposed on the dividends of other companies."

It is further provided that, "from and after the expiration of thirty years from the time allowed for the completion of the said road, the state, upon one year's notice to the said company, shall have the privilege of purchasing the capital stock of the said company, invested in the construction and preservation of the main line of the said road, at par, and such interest as shall make good to the said company six per cent. per annum upon its said stock, from the time of paying in the same, in the event of the stockholders having received a less sum in dividends; and from and after the expiration of the said thirty years, the state shall have the like option of purchasing said stock as aforesaid at the end of every three years, upon the like previous notice of one year as aforesaid."

And lastly, the charter provides that the maximum price for conveying passengers over the said road shall not exceed four cents per mile.

We repeat that the entire provisions of this charter are upon the most liberal scale, and we are happy that so important a link of communication as this will most assuredly prove—will by this charter possess all the requisite advantages for rendering it a profitable affair in the future, while it will enable the managers to build a good road, and eventually to furnish the travelling public with the very best accommodations. We hope to see the work prosecuted vigorously, and completed with all practicable despatch.

Central Pennsylvania Railroad.

We very cheerfully give place to the following article in relation to this important work, and shall hold the writer to his—almost a—promise to continue the subject. If the pages of the *Railroad Journal* have not shown as warm interest in the work as might, by some, have been expected, it has not been because we have taken no interest in its success—but because those who have it mainly in charge have never—we believe, in a single instance—communicated with us, nor to us anything for publication, in relation to the work, since we published the able report of Col. Schlatter several years ago.—When, therefore, we have taken any active part in the controversy, during the past year, as we have frequently done, we have always fought, like the old *Virginian*, at the battle of Yorktown, "upon our own hook." We are quite aware that this is not the most effective mode of accomplishing the desired and very important object in view, yet we are quite content to fight on, in the same manner, unless those who direct the plan of operations shall take the trouble to suggest some method by which the *Railroad Journal* may be put in early possession of the means to speak in relation to it in a more effective manner. As a resident of Philadelphia—though of recent date it is true—we are desirous to contribute, to the extent of our ability, to the success of a work in which not only every Philadelphian, but also every Pennsylvanian, and every western man, has a direct interest, and therefore we are much obliged to the writer for the following admirable introduction of the subject at this time.

For the American Railroad Journal.

I had hoped some one of your large and valuable corps of contributors would have brought to more general notice the advantages of the proposed connection of Philadelphia and Pittsburg by railroad, and with the desire of inciting a more able friend of said road to do justice to its claims, as a great public work, I now enter upon a short review of its character and pretensions.

The importance of a connection with the western country has always been a source of interest to the people of Pennsylvania, and the hope of attracting to Philadelphia, through her own borders, a full share of the trade of this country, early led her to expend millions in a great scheme of internal improvement. It is not my duty to inquire whether these anticipations have been realized, and if not, wherein lieth the cause. But it is evident they have not kept pace with the rapidly increasing business of the west. Other and rival lines have drawn from her a great proportion of trade and travel, geographically belonging to her works. The great western travel has long since mainly deserted her canal and railroad, now passing through New York and Maryland. The effect of such change is apparent in the decreased prosperity of the main line of canal and railroad, and in the evident declination of trade

in Philadelphia. So palpable was this, that in 1838 the legislature of Pennsylvania, confident that she possessed the keys of the west within her limits, authorized surveys for a railroad from Harrisburg to Pittsburg, passing through Franklin, Somerset and Westmoreland counties, the result being, a line of railroad with no grade exceeding 60 feet per mile. The legislatures of '39 and '40 continued the surveys, and two additional routes were discovered.—The three known as the Northern, Middle and Southern routes. These latter routes have no grade exceeding 45 feet per mile. The first survey was conducted by Hother Hagu, and the last by Charles L. Schlatter, Esq., engineers of well known ability. The great depression of the monetary affairs of the country, however, impeded the further progress of this great work.

But the citizens of Philadelphia could not remain quiet and observe the rapid advance of Boston and New York on the north, and Baltimore on the south, without another effort. They could not but know that these cities owed their great increase in business and wealth to their superior artificial connection with the west, and the continual decrease of western custom was an argument too essentially "ad hominum," to permit a doubt of the only course to be pursued by them. Impressed with this fact, they obtained during the last winter a very favorable charter from the legislature, and have secured subscriptions to the amount of one million of dollars, and will no doubt be able this fall to secure the charter by the required subscription of three millions of dollars.

It is generally supposed, from the facts elicited by the surveys already made, that the middle route will be adopted, (passing up the Juniata river, crossing the mountain at Sugar Run Gap, and thence in a very direct line by the Black Lick Creek or Conemaugh creek and Turtle creek, to Pittsburg.)

The object of this company is evidently to obtain the shortest and cheapest route to Pittsburg, and they are confined to no limits by their charter. This road is designed as a part of a line connecting Philadelphia with the great west, and a bold competitor for the western trade. Its friends believe that it can be successful in drawing the majority of the travel passing the mountains, and for the winter and spring monopolizing almost the entire trade. If the Erie canal, and the line of railroads adjacent, are valuable, if the Western and Baltimore and Ohio railroads are profitable investments, dependent as they are on this very trade and travel, how much more valuable must this line of railroad be, striking the very heart of the west, while its thousand branches penetrate every ravine of that great country?

These are strong assertions, but they are susceptible of proof. There is no axiom more true than that trade and travel will seek the shortest, cheapest and most certain route, ceteris paribus, and on the settlement of these premises the conclusion depends.

In the acquisition of the trade centreing on lake Erie, Cleveland and the cities west of her become the points of comparison. For the trade of the Ohio, Cincinnati is the point. Let us then compare these different lines, and we have the following table:

	To Cleveland. Max. grade,
From Boston, via Western railroad, and railroads from Albany to Buffalo, and thence by lake.....	731.....80
From New York, via N. York and Erie railroad and lake...	640.....60
From New York, via Philadelphia and Middle route.....	553.....45

From Philadelphia, via middle route467.....45.

By this it is evident that Philadelphia has the advantage of Boston of 264 measured miles, and over New York of 173 measured miles, while the grades are decidedly in favor of Philadelphia. An approximate estimate on this point has been made, giving this city the superiority of position by 480 equated miles over Boston, and by 290 equated miles over New York.

This advantage in distance will more than compensate for the low rates of lake freight, having the additional recommendation of saving of time and risk. Again, this line will be open at all seasons, and thus furnish a continuous and uninterrupted communication with the west. The winter business will be forced on this line, the great aggregated spring trade will be performed by this route ere the lake is open to Dunkirk, and the late fall business also secured to this road. For the balance of the trade, it will at least be a powerful competitor.

Have we not now proven the premises to our syllogism, and may we not infer that the trade and travel centering at Cleveland will seek the Ohio and Pennsylvania line of railroads, as the shortest, cheapest and most certain route. But considering Cincinnati as a point, the difference is more in favor of this city, and may be tabulated as follows:

	Cincinnati.	Max. grade.
Boston to Cleveland, thence to.....	991.....	80
New York " " " ".....	900.....	60
Philadelphia to Pittsburg " ".....	651.....	45

or a difference against Boston of 341 measured miles, and against New York of 249 measured miles. The same arguments apply here with even greater force than at Cleveland, for at Cincinnati will be taken the trade and vast southern travel ascending the Ohio river, and now passing to New York, Boston and Baltimore.

But this important line of railroad will not stop at Cleveland or Cincinnati. The time has come when experience enables us to foretell the construction of public works, and give them locality. Will you then take the map and travel with me.—We leave Philadelphia, pass the range of mountains, and soon meet the waters of the Ohio at Pittsburg, thence to Wellsville, at which point diverges the branch to Cleveland, again at Mansfield, on the line of the Cleveland and Cincinnati railroad, and the junction of the Sandusky road. Here you may proceed to Cincinnati, and penetrate any portion of the west, drained by the father of waters, or proceed to Sandusky, thence to Detroit, where we find the road to St. Josephs and Chicago, and thence to Galena or Iowa city, or from Mansfield we pass on the flats of Ohio and Indiana, and soon reach the great city of the west, St. Louis. Branches from these main lines would soon reach every section. Can you imagine the result of this great system of railroads? Can you predict or calculate the trade and travel that must be borne on their iron rails? Their location points to Philadelphia as the most natural and proper eastern port. How, then, with this great prospect before her, can Philadelphia hesitate to do her share? So much to the interests of the western people to so arrange their lines of railroads, that the most profitable connection may be made with this *Mississippi of railroads*. Let us look for a moment at the natural results of such a line. It is unnecessary to enter into any elaborate argument at this time, the great success and prosperity of New York and Boston are facts incontrovertible, so far as Philadelphia is concerned, and to the west the argument is forcible to adopt that course of action

which will result in conveying their produce to market at the least cost, in the shortest time, and by the most certain means. That course is plainly to direct their attention to the line emanating from this city. Another argument may here be adduced to the western merchants and producers. Produce will command as good prices here as in any other city, with less cost of freight and diminished expenses; and Philadelphia, even now the first manufacturing city in the union, is destined far to excel any other city or section from her great natural advantages. This will then be the point where goods can be purchased at the lowest price, and every possible inducement thus be offered to draw and retain the western trade. With these combined advantages can you doubt that the stock of such a road as that contemplated between Harrisburg and Pittsburg must be valuable as an investment? The length of road to be made is about 230 miles, and cannot cost at the highest estimate over eight millions of dollars. The extent of this article precludes an examination of the profitable business of such a road, or any comparison between cost of transportation on this and rival lines. Its already enumerated advantages are sufficient to satisfy almost every person. But if time permits, I may again trouble you with some remarks upon these points, and now close hoping for the influence of your Journal in calling the attention of the country interested to the claims of the proposed railroad. Yours very truly,

JOHN A. WRIGHT.

Railroads in the West.

At no period since the year 1837, has the feeling been so favorable towards railroad enterprises in the western country, as at the present time. A commendable disposition to compete with their neighbors in the Atlantic states, and a very laudable ambition to keep pace with the great improvements in other portions of the country, has created a feeling of spirited rivalry; and we are happy to learn that eastern capitalists are joining with western men of enterprise and means, in pushing forward new plans for railroad improvements. Since that period of disaster in 1837, which so seriously prostrated the business and commercial prospects of the western country, for the time being, resort has been had by the mercantile men of that region, to new means, and new expedients, in conducting their immense trade, the result of which has given a healthy tone to their operations, and they are now in condition to effect what has hitherto been found difficult to accomplish. Confidence is again restored amongst them at home and this will always give confidence to those abroad.

The Toledo Blade in an article upon this subject recently, remarks that "three striking evidences of the renewed confidence in western enterprises, at the east, (and in Europe,) have lately been exhibited."

"The first is shown in the action of the Indiana bondholders, in accepting the Wabash and Erie canal in part payment of their bonds, with the obligation to complete it to the Ohio river."

"The second is the loan said to have been obtained of three millions of dollars, of English capital, to enable the Baltimore and Ohio railroad company to carry their great work through to Pittsburg, and ultimately to Cleveland."

"The third is evinced in the late purchase of the Central, (Mich.,) railroad, by the bondholders of Michigan, to be extended westward to lake Michigan."

The Blade very truly adds that these are "strong evidences of a returning confidence in western enterprises—and are probably but the precursors of far more extensive investments in western railroads."

Estimates are now being completed for the construction of that portion of the route from Toledo to Chicago, which it is intended to connect with the proposed great railroad from Buffalo to the Mississippi river. This last mentioned route is one of vast consequence to the whole western and southern country, and without doubt, will within a period, be taken hold of, as it should be, in right good earnest. The Blade makes the calculation which follows below, and from which it will be seen that an immense field is already fairly opened for a profitable investment of capital, in the region we speak of. The enormous amount of produce which is annually exported from Ohio, Michigan, Illinois and Indiana, and the immense quantities of merchandize which are transported to those states from the east, for the consumption and comfort of their people, render the prospects we have spoken of, particularly interesting at this time; and we are highly gratified to know that so lively a feeling is now exhibited in relation to their importance,

The route from Buffalo to Chicago, says the Blade, "will exhibit more characteristics of a great trunk road than any other in the United States. More great works, made and being made, along the south shore of lake Erie terminate on the shore of that lake than any other 300 mile line in the United States. The connecting of these by a great trunk railroad will be of immense advantage to these works and to the owners of the railroad. The south shore of lake Michigan, every one must see, will also concentrate canals and railroads to a great extent.—There is—there can be no line in the United States, of the same length capable of concentrating so vast an amount of travel and trade as that between Buffalo and Chicago. Concentrated on the American shore of lake Erie there are now completed and in operation, of canal and railroad lines, more than 2,000 miles.

RAILROADS.

Boston to Buffalo.....	500
Sandusky and Mansfield.....	50
Sandusky and Cincinnati.....	225
Toledo, Monroe and Hillsdale.....	100
	<hr/>
	875

CANALS.

Albany to Buffalo.....	363
Pittsburg to Erie.....	130
Ohio—from Cleveland to Portsmouth, Athens, Marietta and Pittsburg.....	500
Toledo to Cincinnati.....	267
Completed and in operation.....	1,260
Add railroads.....	875
	<hr/>
	2,135

"Of the canals 70 miles from Toledo to Junction is a common trunk and is counted twice.

"Such is the extent of works brought to lake Erie for the benefits of its commerce.

"There are now being made in extension of these works, 160 miles of canal—from Covington to Evansville, Ia. The New York and Erie railroad—say 400 miles. The Baltimore and Ohio railroad—say to Cleveland 450 miles. The Cleveland and Cincinnati railroad—say 250 miles. In all 1,100 miles of railroad and 760 miles of canal."

Another Link in the Great Chain.

A laudable spirit of determination is now exhibiting itself in Ohio, towards the establishment of another link—and one of great importance, too—in the great iron chain which is to connect the Atlantic with the west. A movement has been for some time on foot, to establish a railroad from Pittsburg to

* To be finished next spring.

Cleveland, Ohio; and the object to be gained by this important plan, seems to be well appreciated by the citizens of the "buckeye" state, as well also as those of western Pennsylvania. The advantages to be derived from a connection, by railroad, between the city of Pittsburg, and Cleveland, thus opening an easy communication between the Lakes and the Ohio, are immense—and we are pleased to learn that a most commendable spirit is evinced by the people along the proposed line, in regard to this project. The Pittsburg Journal, speaking of the plan, has the following remarks:

"We had the pleasure yesterday of a brief interview with Messrs. James Farmer and Daniel T. Lawson, directors of the Cleveland and Pittsburg railroad company, who have visited Pittsburg with a view to making the preliminary arrangements for opening hereafter, books of subscription to their stock.

"Looking to its bearings upon the future prosperity of Pittsburg, this great work is scarcely inferior in importance to that which so thoroughly, we had almost said violently, absorbed the attention and excited the fears of our people during the last winter. We allude to the connection with the Baltimore and Ohio railroad. If this was then held to be indispensable to the preservation of our ascendancy over all rivals, in the means and facilities of communication with the Atlantic seaboard, the Cleveland and Pittsburg railroad, it is equally plain, is indispensable to the maintenance of our position, in the struggle for the trade with that vast region; without this connection with the lake by railroad, the vast benefit to business and property in Pittsburg, expected to flow from the connection by railroad with Baltimore, must remain but half developed. The Cleveland and Pittsburg railroad is a necessary link in the chain.

"We are glad to learn from the directors who are here, that the company and board are animated by a single resolute purpose to carry forward the work to completion. Their determination is settled. It is of the highest importance to Pittsburg that they shall be enabled to accomplish this purpose; and it is to be hoped they will have not only the good wishes, but the substantial aid of our citizens.

"To this end, and at a proper time, books will be opened at the banking house of J. W. Robertson & Co. for subscription to the capital stock of the company."

Nautical Invention.

The Philadelphia North American notices a valuable nautical invention, which is now attracting considerable attention, in the following terms:

"It is an invention of R. C. Holmes, agent for the underwriters, and is pronounced by the first seamen the greatest improvement ever accomplished in the machinery of steering vessels. The great difficulties under which the steering gear of ships labor, are completely obviated by it. The making of slack, the vibration of the tiller, and the change in the tiller rope are entirely prevented. By the fixed position of the machinery, the ropes always lead far through the blocks and wind regularly, thus avoiding all chafing of one part against the face of the other.—All danger of accident to the steersman, too,

in strong currents, from the slacking of the rope is rendered impossible. So taut and yet so simple is the machinery, that instead of the constant watching of the wheel heretofore required, and the frequently harrassing labor of the helmsman, a child almost could manage it in the heaviest sea; and in a gale of wind a vessel would almost lay to itself. The principle is two barrels or drums instead of one. As fast as the rope accumulates upon the upper one, it is carried off by the lower one. The invention is a new feature in mechanics, nothing like it having been discovered in the books at the patent office.

Railroad Sold.

The Central railroad, in Michigan, has been sold and possession was given last week. The Detroit Daily Advertiser of the 18th, says that Geo. F. Porter, Esq., the gentleman commissioned for the purpose has returned from the east, and brings the intelligence. The Advertiser adds:

"We should fail to do an act of common justice, did we not give to Mr. Porter a large share of the credit of this successful and most happy result. Mr. P. has spent several weeks at the east constantly employed among holders of our bonds and the capitalists of New York and New England, in spreading before them statistical information respecting the business and resources of our state, and revenue, present and prospective of the road, and in removing prejudices and false impressions created by the opponents of the sale.

But for these efforts, with the active co-operation of Mr. Brooks, agent of the company, and several gentlemen of this state, we believe the road would not have been taken under the charter—as, comparatively, but a small portion of the stock was subscribed by the original corporators. However, to whomsoever the credit is due, the event is more auspicious to the future prosperity of our state. The railroad will be completed and rebuilt in the best manner—a large portion of our state debt will be wiped out—we shall be saved, we hope, the stigma of repudiating, a second time, our public pledges—an extensive and powerful eastern influence will be secured for us—immigration, which, by a combination of interests, has been turned beyond us, will be re-directed into our beautiful peninsula—new facilities of transportation—new additions of capital and enterprise—new impulses to trade, commerce and agriculture, will give new vigor and life to every employment and every interest in the state.

Miscellaneous Items.

Steamboats on the Ohio.—Some of the most beautiful steamboats in this country, and of the largest class, run upon the waters of the Ohio and Mississippi rivers. The Cincinnati Gazette says that there have been built during the present year, at New Albany, Louisville, St. Louis, Cincinnati and Pittsburg, 108 steamboats, with an aggregate tonnage of 27,360 tons, at a cost of \$1,400,000.—The Cincinnati Advertiser says there are at this time no less than 750 steamboats on the western rivers, whose tonnage will not fall short of 160,000 tons, and which have cost in their construction and equipment, not less than \$12,000,000.

Lachine Canal.—A writer in the Albany Argus says that the Lachine canal, nine miles in length, commences at the head of the quay. This ship canal is one of those gigantic structures amid the rapids of the St. Lawrence—constructed ostensibly for commercial purposes, but not a little for the military defence of the Canadas. The stone locks are stupendous—in the chamber 200 feet in length, and 60 feet in width. The water line of the canal is 110 feet in width, with 10 feet of depth. These are all now finished, except the Lachine canal, which will be completed in the summer of 1847, and the navigation will be performed all the way by water from Ogdensburg to Montreal—a consummation not less agreeable to the traveller, than important to the commercial interests of Montreal and Quebec. The length of all the ship canals is 40 miles. The sail down the rapids of the St. Lawrence, particularly the Cedars, is so eminently attractive, that words cannot convey an idea of their romantic beauty.

The Philadelphia Sentinel informs us that an injunction has been issued against the commissioners of Harford county, for restraining the sale of property of the Philadelphia and Wilmington railroad for the non-payment of taxes. The object of the injunction is to take the case to the United States Supreme court, if necessary in order to try the question whether the land occupied as the bed of the railroad is subject to taxation.

An Experiment.—The Boston Journal says that an experiment was tried last week, at East Boston, by Capt. S. W. Taylor, the inventor of the submarine armor, in order to exhibit the power of his "rubber camels."—These camels consist of India rubber bags, strongly enclosed in canvass, and are intended to be used for the purpose of raising sunken vessels. Each bag will hold, when inflated, two hundred and eighty square feet of air. They are inflated, after being placed in proper position, by air pumps worked by steam. The hose through which the air is conveyed to the bags is of India rubber. From the result of the experiment to-day, on a loaded ballast lighter, we are led to believe that these "camels" will prove valuable for the purpose for which they were intended.

South Shore Railroad.—The Boston Times says that a meeting of the stockholders of this company was recently held at Scituate. Alfred C. Mersey, of Boston, and Ebenezer T. Fogg, of Scituate, were chosen directors, which completes the organization of the board. It was voted to proceed at once to locate the road, and the stockholders have confidence that it will be completed to Cohasset within eighteen months.

Railroads in Cuba.—By a late arrival from Havana, we learn from the Picayune, that public attention is directed earnestly towards measures for constructing railroads in various parts of the island, which Gen. O'Donnell is encouraging by his influence and personal contributions. A road had been nearly completed between Puerto Principe to Nuevitas, and another has been projected from

San Juan de los Remedios to the port of Caibarien, to which Gen. O'Donnell has subscribed \$20,000.

Cape Cod Branch Railroad.—We are authorized to state, says the Sandwich Observer of 3d inst., that the ground on which the depot of the Cape Cod branch railroad will be built, has been purchased. It is the same ground that we spoke of last week as having been selected for the purpose. We learn from the same authority that the stock is going off more briskly, and that the prospects are becoming brighter every day.

Railroad Convention.—The St. Louis New Era states that a great convention, consisting of representations from a large portion of western Virginia, was to assemble at Weston, Lewis county, Va., on the 25th inst. There were to be a hundred delegates from Ritchie county, fifty from Nicholas, and large numbers from other counties. The object of the convention was to concert measures for obtaining from the next legislature of Virginia a charter for the construction of a railroad whose eastern end shall unite with the Baltimore and Ohio railroad, and whose western terminus shall be at the Ohio river. One of the resolutions adopted by the Nicholas county meeting complains of "the injustice done to western Virginia by the legislature in not only withholding appropriations for the construction of works of internal improvement to aid in developing her resources, but also refusing to grant the people the 'right of way' to construct those works with their own means."

Good Business.—The Baltimore Sun learns from Mr. John S. Cash, the collector at that end of the Columbia railroad, that the receipts on this road, for this year, up to 1st October, were, in his office \$218,249 44. In 1845, up to the same time they were \$192,765 56. In 1844—\$186,545 28. This is a handsome improvement, notwithstanding the freshets, etc., in the river.

The Boston and Maine railroad, says the Eastern Argus, has gained \$30,000 during the last, over the previous quarter.

Macon and Western Road.—The Marietta Hellicon says this road is now completed, and the cars are running regularly the whole distance from Savannah to Oothcaloga, the present head of the state road, being no less than 371 miles in successful operation.

Increase of Tolls.—The Rochester Democrat informs us that the amount of canal tolls collected at Buffalo during the present season exceeds that of last season by upwards of one hundred and ninety thousand dollars. The amount of wheat which has already passed eastward is four hundred thousand bushels more than was shipped during the whole of last season; of flour, forty thousand barrels more.

Telegraphic Experiment.—The New Haven Courier states, the wires of the Boston and New York telegraph were connected one day last week, in New York city, with the line to Albany, and compliments were exchanged between the head of navigation on the Hudson, and Boston harbor, with all the

ease and promptness imaginable. The distance between Boston and Albany, is 418 miles, and yet the galvanic current passed over that space of country instantly, clearly recording the telegraphic characters at one extremity at the very moment they were made at the other! This is the longest distance probably ever travelled by the galvanic current, and yet its passage between the two cities was as instantaneous as if but a single mile! On Saturday the experiment of a continuous communication between Boston and Buffalo via New York was tried. The distance is 669 miles!

We learn with pleasure, that Mr. Septimus Norris, (of the celebrated firm of Norris Brothers, locomotive builders, Philadelphia,) a practical and theoretical engineer, and a gentleman of the highest scientific attainments has concluded a contract with the Atlantic and St. Lawrence railroad, for the supply of all the locomotive cars, castings, etc., and other machinery required for the full equipment of their road, the amount of contract not less than \$750,000, (seven hundred and fifty thousand.) This speaks volumes for American mechanics, and the enterprize of our railroad managers. The road is expected to be in successful operation through to Montreal by Jan. 1, 1849.—*N. Y. Herald.*

Pittsfield and North Adams Road.—The Pittsfield Sun says that "the laying of the rails for the main track of this road was completed at 11 o'clock a.m., yesterday, (Tuesday,) and at half past 11, a passenger car from this place, in which were several invited gentlemen, entered the village of North Adams, amid the ringing of bells and firing of cannon. After passing about two hours very pleasantly in that town, and partaking of a good dinner, at the house of A. Smith, Esq., an attentive and obliging host, the party accompanied by several gentlemen of North Adams, returned to Pittsfield, accomplishing the distance in less than one hour, running time.

This road is 20½ miles in length, is laid with a heavy T rail, and is constructed in a most faithful manner. The work reflects much credit on the chief engineer, Frederick Harbach, Esq., and his assistants. The cost of the road and fixtures will be about \$400,000.

A. & G. RALSTON & CO., NO. 4
A. South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ¼ inch Flat Punched Rails, 20 ft. long. 25 " 2½ x ¼ " Flange Iron Rails. 75 " 1 x ¼ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures.

SPRING STEEL FOR LOCOMOTIVES.
Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,
Albany Iron and Nail Works,

TO IRONMASTERS.—THE UNDERSIGNED is now prepared to sell or lease the valuable seat for Iron works, known as the "Horse Shoe Bend" of the Merrimac River, together with several hundred acres of Iron Ore of a superior quality, in the immediate vicinity. The Ore lies in inexhaustible beds on each side of the River, (based some on sandstone and some on limestone,) and is a brown Oxide, the principal beds known as "Pipe Ore."—The beds are from five to thirty feet in thickness, from one to three hundred yards in breadth, and from one quarter to one mile in length. The ore occurs in distinct masses of from one to five hundred cubic feet in size, is connected with Yellow Ochre, and in point of quantity and quality is believed to be not inferior to any in the state. The distance of the Ore from the Bend is from one-fourth to three miles, and the cost of mining and transporting it to the furnace from the farthest beds, will not exceed sixty or seventy cents per ton.

The lands are thickly timbered with Oak, Hickory, Ash, etc., and when cleared off are fine for agricultural purposes. The distance around the Bend of the River is four miles, and the amount of natural fall in that distance is nine feet, to be made available by cutting a race three hundred yards in length across the Narrows, through which, if wanted, the whole River may be drawn by increasing the size of the race. Its situation is three miles below the Virginia Mines in Franklin Co., Mo., sixteen miles south of "South Point," on the Missouri River, and thirty-two miles west of a good shipping point on the Mississippi, from which latter the Merrimac River is navigable to the Virginia mines, and above for keel boats, batteaux, and other light craft, for more months in the year than the Ohio.

This water power, from its great extent and cheapness over any other now in use, must necessarily draw to it the smelting of those rich Ores of Copper and Lead which recent discoveries have shown to be so abundant in this region.

The wants of the vicinity require the erection of good grist mills; also, a large and profitable business can be done with saw mills, the material for lumber being varied, rich and extensive.

Large forests of Yellow Pine exist on the head of the Merrimac River, which can be easily floated down to the Bend, and from that point the rafts of lumber, can pass out to the Mississippi in any season of the year. The property is offered very low, as will be apparent to any one examining the same. Titles amply guaranteed.

FERNANDO A. EVANS.
Virginia Mines, Franklin Co., Mo., Sept. 1846.

ATLANTIC AND ST. LAWRENCE RAILROAD. Notice to Contractors. Proposals will be received at the office of the Atlantic and St. Lawrence Railroad Company, in this city, from the 19th to the 24th October instant, inclusive, for the Grading, Masonry and Bridging of the second division of the road, extending from the termination of the first division, near the west bank of Royall's River, in North Yarmouth, to the Old Danville road, so called, a distance of about sixteen miles.

Also for the erection and completion of a pile bridge across the outlet of Back Cove, at Portland.

Plans, Profiles and Specifications will be exhibited, and the requisite information given at the engineer's office, in Portland, on and after the 20th of this month.

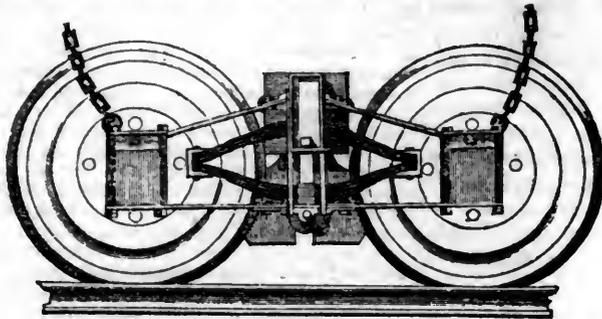
Persons offering to contract for the work, or any part thereof, who are unknown to the undersigned, or to the directors, will be required to accompany their proposals with references as to character and ability; and in all cases where any proposals shall be accepted, and a contract entered into, the Contractor will be required to give bonds for the faithful completion of his contract, according to the terms agreed on.

WM. P. PREBLE,
President Atlantic and St. Lawrence Railroad.
A. C. MORTON, Chief Engineer.

Portland, October 7, 1846. 242

RAILROAD IRON.—1000 TONS HEAVY RH Railroad Iron, 60 lbs. per lineal yard, expected to arrive within the next 30 days. Apply to DAVIS, BROOKS & CO., October 9. [1042] 68 Broad St.

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,
45 North Water St., Philadelphia,
or by their Agent, ROBT. NICHOLS,
79 Water St., New York

28tf

THE SUBSCRIBERS, AGENTS, FOR

the sale of
Codorus,
Glendon,
Spring Mill and
Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAMPL. KIMBER, & CO.,
59 North Wharves,

Jan. 14, 1846. [1y4] Philadelphia, Pa.

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee
G. A. NICOLLS,
Reading, Pa.

ja45

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,
Jamaica November 12, 1845.

[Signed,] JOHN LEACH,

Sup't Motive Power.

1y19

TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture: and for sale by

MORRIS TASKER & MORRIS,
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia.

PATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

28tf

J. BALL & CO.

TYLER'S PATENT SAFETY SWITCH.

The following decision of the Commissioners of Patents is respectfully submitted to Railroad Engineers, Superintendents, and all others interested in the subject.

(COPY.)

UNITED STATES PATENT OFFICE, }
Washington City, D. C., April 28th, 1846. }

Sir: You are hereby informed that in the case of the interference between your claims and those of Gustavus A. Nicolls, for improvements in safety switches—upon which a hearing was appointed to take place on the 3rd Monday in March, 1846, the question of priority of invention has been decided in your favor. Inclosed is a copy of the decision.—The testimony in the case, is now open to the inspection of those concerned. Yours Respectfully,
EDMUND BURK,
Commissioner of Patents.

To Philos B. Tyler.

Any further information may be obtained by addressing John Pendleton, Agent for the Proprietor
149 Hudson Street, New York.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.
THOMAS & EDMUND GEORGE,
a45 N. E. cor. 12th and Market sts., Philad., Pa.

RAILROAD SCALES.—THE ATTENTION

of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,
Philadelphia, Pa.

1y25

LAWRENCE'S ROSENDALE HYDRAULIC

Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by JOHN W. LAWRENCE,
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office.

32 1y

RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATAILLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CROKNHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

W. M. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138 1/2 Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.

The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston.

ja45

MACHINE WORKS OF ROGERS,

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

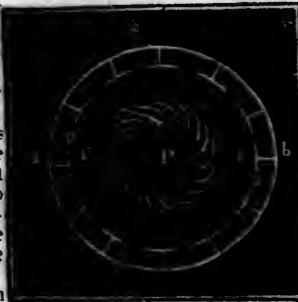
Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.



PATENT RAILROAD, SHIP AND BOAT Spikes.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

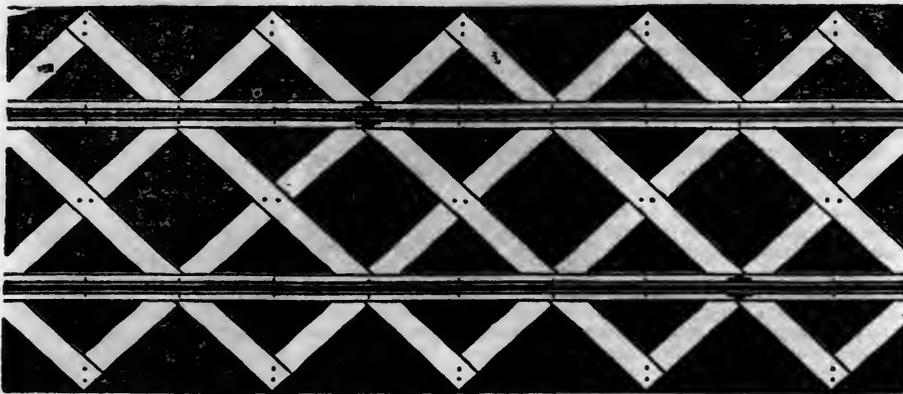
DAVENPORT & BRIDGES CONTINUE

to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

ly1

THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

THE UNDERSIGNED RESPECTFULLY invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =		101 25
Workmanship free of patent charge =		600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.
Civil Engineer and Patentee.
No. 277 South Tenth St., Philadelphia. 33tf

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.		
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4½	13 5	10	21 -	50	15-16	20	
13	3½	8 3	8½	16 -	27	11-16	13½	
14	3½	6 11	7½	12 8	17	9-16	10½	
15	2½	5 2	6½	9 4	13½	1-2	7½	
16	2½	4 3	6	8 8	10½	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY **EDMUND DRAPER,** Surviving partner of **STANCLIFFE & DRAPER.**



No 23 Pear street, below Walnut, Philadelphia. 1y10 near Third,

LAP—WELDED WROUGHT IRON TUBES

FOR **TUBULAR BOILERS,** FROM 1 1-4 TO 6 INCHES DIAMETER, and ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee.
28 Platt street, New York. 1y25

ENGINEERS and MACHINISTS.

- THOMAS PROSSER,** 28 Platt St. N. Y. (See Adv.)
- J. F. WINSLOW,** Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY,** H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM & GROSVENOR,** Paterson, N. J. (See Adv.)
- S. VAIL,** Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS,** Philadelphia Pa. (See adv.)
- FRENCH & BAIRD,** Philadelphia. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY,** Newcastle, Del. (See Adv.)
- ROSS WINANS,** Baltimore, Md.
- CYRUS ALGER & Co.,** South Boston Iron Co.
- SETH ADAMS,** Engineer, South Boston.
- STILLMAN, ALLEN & Co.,** N. Y.
- JAS. P. ALLAIRE,** N. Y.
- PHENIX FOUNDRY,** N. Y.
- ANDREW MENEELY,** West Troy.
- JOHN F. STARR,** Philadelphia, Pa.
- MERRICK & TOWNE,** do.
- HINCKLEY & DRURY,** Boston.
- C. C. ALGER,** Stockbridge Iron Works Stockbridge, Mass.

THE AMERICAN RAILROAD JOURNAL

is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

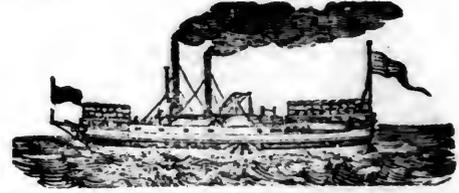
One page per annum.....	\$125 00
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One square ".....	15 00
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AMERICAN RAILROAD JOURNAL,

AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,

AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 44]

SATURDAY, OCTOBER 31, 1846.

{WHOLE No. 541, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD.

Passenger Notice. Summer Arrangement: On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.
Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m.; and Providence at 8 a.m. and 4½ p.m.
Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.
Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3½ p.m. All baggage at the risk of the owners thereof.
31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD AND STAGES CONNECTING WITH THE BOSTON AND PROVIDENCE RAILROAD.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD.

Summer Arrangement, commencing Monday, April 6, 1846.
Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD.

Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Winter Arrangement, 1846-7.

On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.
Boston for Great Falls at 7½ a.m., 2½ and 3-25 p.m.
Boston for Haverhill at 7½ and 11½ a.m., 2½, 3-25 and 5 p.m.
Boston for Reading at 7½, and 11½ a.m., 2½, 3-25 and 6½ p.m.
Portland for Boston at 7½ a.m., and 3 p.m.
Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.
Haverhill for Boston at 7½, 8½, and 11 a.m., and 3 and 6½ p.m.
Reading for Boston at 7, 8½ and 9½ a.m., 12 m., 1½, 4 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that *personal* Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.
1y31 CHAS. MINOT, *Super't.*

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3 30, 4 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, The kahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10 and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams Bridge trains will be regulated according to the state of the weather.
1y18

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A. M. and 4 P. M.
" Middletown at 6½ A. M. and 5½ P. M.
FARE REDUCED to \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P. M.
" Middletown at 12 M.
The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, *Sup't.*
March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board.
13 ff

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846.. Spring Arrangement.. 1846
Commencing April 1st.

Passenger trains leave daily, Sundays excepted—
Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6½ " and 2½ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.
JAMES BARNES,
Superintendent and Engineer.

Western Railroad Office,
Springfield, April 1, 1846. }

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming

a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/4 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail— which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/4 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/4 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

TROY AND SARATOGA RAILROAD.
THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/4 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 14 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug. 3, 1846. 1y 32

THE BEST RAILROAD ROUTE TO THE
Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00
" " Sandusky to Buffalo, Cabin..... 6 00
" " " " Steerage..... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.,] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, Sup't, etc.
M. & S. C. R. R. Co.

Sandusky, Ohio.

RAILROAD IRON.—THE "MONTOUR
Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,**

Agents.
Corner of Cedar and Greenwich Sts. 43 1y

NEW RAILROAD ROUTE FROM BUFFALO
to Cincinnati.

Passengers destined for Columbus and Cincinnati,

O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance.....230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy Iron,] to Mansfield, distance..... 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

TIME.
From Buffalo to Sandusky..... 24 hours.

Leave Sandusky 5 a.m. to Columbus.... 14 "
From Columbus to Cincinnati..... 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.
From Buffalo to Sandusky, Cabin.....\$6 00
" " " " Steerage..... 3 00
" Sandusky to Columbus..... 4 50
" " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Sup't, etc.
M. & S. C. R. R. Co.

Sandusky City, Ohio.

BALTIMORE AND OHIO RAILROAD.
MAIN STEM. The Train carrying the

Great Western Mail leaves Baltimore every morning at 7 1/2 and

Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

THE SUBSCRIBER IS PREPARED TO
execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER, 17 Burling Slip.
New York.

BALTIMORE AND SUSQUEHANNA
Railroad.—Reduction of Fare: Morning and

Afternoon Trains between Baltimore and York.—The Passenger

trains run daily, except Sunday, as follows:
Leaves Baltimore at.....9 a.m. and 3 1/2 p.m.
Arrives at.....9 a.m. and 6 1/2 p.m.
Leaves York at.....5 a.m. and 3 p.m.
Arrives at.....12 1/2 p.m. and 8 p.m.
Leaves York for Columbia at...1 1/2 p.m. and 8 a.m.
Leaves Columbia for York at...8 a.m. and 2 p.m.

FARE.

Fare to York.....\$1 50
" Wrightsville..... 2 00
" Columbia..... 2 12 1/2

Way points in proportion.
PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg..... \$9
Or via Lancaster by railroad..... 10

Through tickets to Harrisburg or Gettysburg... 3
In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owing's

Mill, arriving at the Mills at.....5 1/2 p.m.
Returning, leaves Owing's Mills at.....7 a.m.

D. C. H. BORDLEY, Sup't.
Ticket Office, 63 North st. 31 1y

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1.25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

35 1y

SOUTH CAROLINA RAILROAD.—A
Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C.; in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculmbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50
Fare through from Charleston to Huntsville, Decatur and Tusculmbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.
ly25 JOHN KING, Jr, Agent.

CENTRAL RAILROAD—FROM SAVANNAH
to Macon. Distance 100 miles.

This Road is open for the transportation of Passengers and Freight.

Rates of Passage, \$8 00. Freight—
On weight goods generally... 50 cts. per hundred.
On measurement goods..... 13 cts. per cubic ft.

On brls. wet (except molasses and oil)..... \$1 50 per barrel.
On brls. dry (except lime).... 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.

On hhd's. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.
On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE,
y40 Gen'l. Supt. Transportation.

MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer,
Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

CENTRAL AND MACON AND WESTERN RAILROADS, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad 190
 Macon to Atlanta—Macon and Western 101
 Atlanta to Oothcaloga—Western and Atlantic... 80
 Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20	pr. 100 lbs. 35
Crockery, per cubic foot.....	0 15	" " 35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.		

Goods consigned to the subscriber will be forwarded free of Commissions.
 Freight may be paid at Savannah, Atlanta or Oothcaloga.
 F. WINTER, Forwarding Agent, C. R. R.
 Savannah, Aug. 15th, 1846. 1y34

LITTLE MIAMI RAILROAD.—1846.—
 Summer Arrangement.
 Two passenger trains daily.
 On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1½ p. m. Returnings, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m.
 On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m.
 Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.
 Tickets may be procured at the depot on East Front street.
 The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount.
 W. H. CLEMENT,
 Superintendent.
 19

GREAT SOUTHERN MAIL LINE! VIA
 Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.
 Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.
 Fare from Baltimore to Charleston.....\$21 00
 " " " Richmond..... 6 60
 For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to
 STOCTON & FALLS, Agents.
 1y14

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.
 AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.
 This Road in connection with the South Carolina Railroad and the Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oosceaula River, in Cass Co., Georgia.

RATES OF FREIGHT.

	Between Augusta and Oothcaloga, 250 miles.	Between Charleston and Oothcaloga, 386 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 25
2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	0 90	1 40
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 55	0 75
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 37½	0 62½
Cotton, per 100 lbs.....	0 45	0 65
Molasses, per hoghead.....	8 50	13 50
" " barrel.....	2 00	3 25
Salt per bushel.....	0 17	
Salt per Liverpool sack.....		95
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows.....	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.
 Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.
 J. EDGAR THOMSON,
 Ch. Eng. and Gen. Agent.
 Augusta, Sept. 2d, 1846. *44 1y

THE WESTERN AND ATLANTIC
 Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.
 From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.
 On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.
 This is the most expeditious route from the east to any of these places.
 CHAS. F. M. GARNETT,
 Chief Engineer.
 Atlanta, Georgia, April 16th, 1846. 1y1

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.
 When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them on inside.
 THOMAS & EDMUND GEORGE,
 45 N. E. cor. 12th and Market sts., Philad., Pa.

ATLANTIC AND ST. LAWRENCE RAILROAD. Notice to Contractors. Proposals will be received at the office of the Atlantic and St. Lawrence Railroad Company, in this city, from the 19th to the 24th October instant, inclusive, for the Grading, Masonry and Bridging of the second division of the road, extending from the termination of the first division, near the west bank of Royall's River, in North Yarmouth, to the Old Danville road, so called, a distance of about sixteen miles.

Also for the erection and completion of a pile bridge across the outlet of Back Cove, at Portland.
 Plans, Profiles and Specifications will be exhibited, and the requisite information given at the engineer's office, in Portland, on and after the 20th of this month.
 Persons offering to contract for the work, or any part thereof, who are unknown to the undersigned, or to the directors, will be required to accompany their proposals with references as to character and ability; and in all cases where any proposals shall be accepted, and a contract entered into, the Contractor will be required to give bonds for the faithful completion of his contract, according to the terms agreed on.
 WM. P. PREBLE,
 President Atlantic and St. Lawrence Railroad.
 A. C. MORTON, Chief Engineer.
 Portland, October 7, 1846. 242

TO IRONMASTERS.—THE UNDERSIGNED is now prepared to sell or lease the valuable seat for Iron works, known as the "Horse Shoe Bend" of the Merrimac River, together with several hundred acres of Iron Ore of a superior quality, in the immediate vicinity. The Ore lies in inexhaustible beds on each side of the River, (based some on sandstone and some on limestone,) and is a brown Oxide, the principal beds known as "Pipe Ore."—The beds are from five to thirty feet in thickness, from one to three hundred yards in breadth, and from one quarter to one mile in length. The ore occurs in distinct masses of from one to five hundred cubic feet in size, is connected with Yellow Ochre, and in point of quantity and quality is believed to be not inferior to any in the state. The distance of the Ore from the Bend is from one-fourth to three miles, and the cost of mining and transporting it to the furnace from the farthest beds, will not exceed sixty or seventy cents per ton.

The lands are thickly timbered with Oak, Hickory, Ash, etc., and when cleared off are fine for agricultural purposes. The distance around the Bend of the River is four miles, and the amount of natural fall in that distance is nine feet, to be made available by cutting a race three hundred yards in length across the Narrows, through which, if wanted, the whole River may be drawn by increasing the size of the race. Its situation is three miles below the Virginia Mines in Franklin Co., Mo., sixteen miles south of "South Point," on the Missouri River, and thirty-two miles west of a good shipping point on the Mississippi, from which latter the Merrimac River is navigable to the Virginia mines, and above for keel boats, batteaux, and other light craft, for more months in the year than the Ohio.

This water power, from its great extent and cheapness over any other now in use, must necessarily draw to it the smelting of those rich Ores of Copper and Lead which recent discoveries have shown to be so abundant in this region.

The wants of the vicinity require the erection of good grist mills; also, a large and profitable business can be done with saw mills, the material for lumber being varied, rich and extensive.

Large forests of Yellow Pine exist on the head of the Merrimac River, which can be easily floated down to the Bend, and from that point the rafts of lumber, can pass out to the Mississippi in any season of the year. The property is offered very low, as will be apparent to any one examining the same. Titles amply guaranteed.

FERNANDO A. EVANS.
 Virginia Mines, Franklin Co., Mo., Sept. 1846.

RAILROAD IRON.—1000 TONS HEAVY
 R. H. Railroad Iron, 60 lbs. per lineal yard, expected to arrive within the next 30 days. Apply to
 DAVIS, BROOKS & CO.,
 October 9. [1042] 68 Broad St.

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. 1yl

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 feet, with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

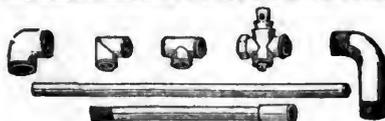
Blacksmith shop, 49 feet long by 20 feet wide. For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ½ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



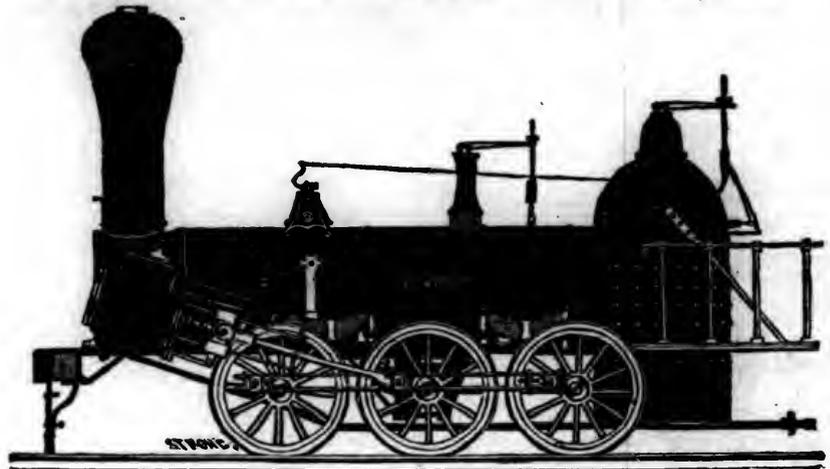
Manufactured and for sale by **MORRIS, TASKER & MORRIS.** Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

RAILROAD IRON.—THE NEW JERSEY Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to

FULLER & BROWN, Agent, No. 139 Greenwich, corner of Cedar street. September 18, 1846. 10:30

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of Cylinder,	× 20 inches	Stroke.
" 2,	14	"	"	"
" 3,	14½	"	"	"
" 4,	12½	"	"	"
" 5,	11½	"	"	"
" 6,	10½	"	"	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars

NORRIS, BROTHERS.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** 245 President of the Newcastle Manuf. Co.

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20th 4 South Front St., Philadelphia.

KEARNEY FIRE BRICK. **F. W. BRINLEY**, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Allaire, } New York.
- Peter Cooper, } New York.
- Murdock, Leavitt & Co. } New York.
- J. Triplett & Son, Richmond, Va.
- J. R. Anderson, Tredegar Iron Works, Richmond, Va.
- J. Patton, Jr. } Philadelphia, Pa.
- Colwell & Co. } Philadelphia, Pa.
- J. M. L. & W. H. Scovill, Waterbury, Con.
- N. E. Screw Co. } Providence, R. I.
- Eagle Screw Co. } Providence, R. I.
- William Parker, Supt. Bost. and Worc. R. R.
- New Jersey Malleable Iron Co., Newark, N. J.
- Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly. 35 1y

Mineral Lands of Lake Superior.
From the Montreal Herald.

We have been favored with the report of a geological survey of the mineral lands on lake Superior, belonging to the Boston and Pittsburgh copper mining company, by Professor Shepherd. As the present lake Superior is occupying a large share of the attention of many of our citizens, anything reliable pertaining to this important part of the country, will doubtless be acceptable and interesting to our readers. We are the more pleased with the report, as it is written by one whose scientific attainments and practical knowledge of the subject, as well as thorough integrity of character, enable us to place the utmost reliance upon his statements.

The document is ably written, and drawn up with a degree of accuracy and care seldom met with in productions of the kind; and, although it refers solely to the south shore, still Mr. Shepherd's remarks apply equally to the north or British side; in fact, the recent developments of the immense mineral wealth of the latter district, by the explorations of the Montreal mining company, prove it to be equal, if not superior, to the south side, while the fine harbors, rivers, etc., afford far superior facilities for obtaining the ore. We expect ere long to see this (to be) Cornwall of Canada, occupied with a thriving, busy population, and increased employment given to our shipping in transportation of ores and supplies. We give the following interesting extracts from this able report:—

It must be evident to the sagacious observer, that the period has already arrived when the mines of the United States are becoming to its present population, what the most select and fertile soil was to the first settlers, namely, the foundation of permanent wealth to the projectors and their children.

As an instance of this, men of middle age can well remember when the anthracite coal lands of Pennsylvania could all have been purchased for a trifle; and yet these same lands, so recently esteemed worthless, have sent two millions of tons of coal to market the present year, and have yet in store vast deposits of the same fuel, to give warmth, illumination, and motive power to generations yet unborn.

What is true of the coal, is also true respecting the iron banks of central and western Pennsylvania, which now enable the city of Pittsburg alone to manufacture more iron than all Great Britain at the close of the American revolution. The same remark will apply also to the great deposit of salt and lead west of the Alleghenies. Why should the land be worth one thousand dollars an acre in the valley of Kanawha, except for its mineral value? Such is the fact. Why may we not, then, in the length and breadth of our extensive country, including nearly every variety of rock formation, reasonably expect to find deposits of copper, which shall ere long become to the United States what Cornwall is to England, and what the Ural is to Russia—the centre of prodigious enterprise, and the source of individual and inexhaustible national wealth?

There is good evidence to believe that

such a region is now opening on the southern shore of lake Superior.

Among the notices of the principal copper mines throughout the world, the following of Serade Marao is interesting, as showing the extent of mining operations in the days of the Romans:

In the granite formations of the Serade Marao, in the northern part of Portugal, may be seen veins of copper pyrites, malachite and other metals, with immense excavations, supposed to have been made by the Romans; the largest cut through solid rock being a mile and a half in circumference, and upwards of five hundred feet deep; measuring at the bottom 2,400 feet by 1,400. All the works are on the grandest scale, and many subterranean passages pierce the mountain like a labyrinth.

For the last ten years, the Island of Cuba has been noted for copper. The rock formation, on penetrating the copper region, (as reported by Richard C. Taylor, Esq.,) consists of belts and beds of metamorphic rocks, having a magnesian base, comprising trap, greenstone, serpentine, diorite, hypersthene, porphyry and diallage. To these may be added ferruginous opal, jasper, chalcedony, quartz, and conglomerate, with occasional ridges of limestone. The copper beds or veins are found principally in stratified serpentine, lying between and running parallel with the rocky strata, and consequently of the same age as the rocks themselves. The lodes, says Mr. Taylor, have regular walks, containing much silicate and carbonate of magnesia, and having polished sides or surfaces. Their prevailing course is E. N. E., and the average dip to the south is 65 degrees. The most prominent ores are the silicates, the oxides and the sulphurets. Native copper is not unfrequent; but not lower than thirty yards from the outcrop. In the mine of San Fernando it occurs in masses from 10 to 200 lbs. weight.

The most important of the Cuba mines are said to be those of the Cobre association. The Royal Santiago, San Jose de Cobre, San Fernando, Socorro, Olivo, San Augustin, Prosperidad, Santa Isabel, San Nicholas, Perseverancia, Buena Isabela, Loma de los tibos, and Sahana Vieja. A new mineral district is beginning to be developed in Bayatavo, near Neuvitas, which is highly promising. From the above description, any one familiar with the copper region of lake Superior, will perceive at once the great resemblance, except that on lake Superior the veins or lodes cut the strata instead of running parallel with it.

It is reported by the New York proposed smelting company, that the value of copper ore received in England from the island of Cuba, from June, 1844, to June, 1845, will probably amount to about \$8,000,000, and that the product of the mines is steadily increasing. Similar to the island of Cuba is the famous island of Mednoi, or copper island of the Russians; so remarkable for having native copper washed up upon its shores. But notwithstanding the valuable deposits of copper in Sumatra and Borneo, the Altai and

Ural chains of Asiatic Russia is surpassed by no portion of the globe, except Cornwall, in affording supplies of this useful metal. A bed of copper ore is described by Wilson, in his history of the Russian mountains, vol. iii, p. 518, as extending from the river Kiren to the river Lena, a distance of nearly 700 miles, through a sandy and calcareous gang.

In 1779, the 229 foundries established there produced 7,750,000 pounds of copper.

Notwithstanding this astonishing production of copper in the Urals, more than sixty years ago, and its annual increase, with the addition of the splendid discoveries of gold and platinum, in the district of Zlatoust; still it falls far below the mines of Great Britain and of Ireland.

With respect to the general produce of the mines of the various countries of Europe, M. Verlet has formed the following comparative table, (general and statistical review of metallurgy, 1837,) taking Great Britain for unity: Great Britain 1; Russia and Poland, 2.7; France, 1.4; Austria, 2.13; Spain, 1.8; Prussia, 1.9; Sweden, 2.19; Hartz, 1.12; Tuscany, 1.31; Bavaria, 1.33; Saxony, 1.34; Piedmont and Savoy, 1.38; Denmark, 1.49; Norway, 1.55.

The price paid for the raw ores of copper in Cornwall and Wales, by seven companies alone, for the year commencing June, 1843, and ending June, 1844, is reported to be upwards of 1,697,000 pounds sterling, or more than \$8,220,000.

Many have denied, and even some intelligent Cornishmen, that there is any resemblance between lake Superior formation and that of Devon and Cornwall. But if they will give themselves a little more time for careful inspection, and patiently penetrate the interior, in my opinion they will not fail to discover the killas, gossan and elvan of Cornwall and Devon, the granite of Godolphin, Tregoning, North Downs and Treskerby, the trap of Buckjustleigh, the green stone of Beerah and Comb Hill, the ash altered slates of Dartmoor, and the ash trappean conglomerate of Tavistock and Brent Tor. There, too, may they find the serpentine and diabase of Cuba, the chlorite, diorite, serpentine, trap and sand stone of the Ural, and lastly, on location No. 5, the predite of Orange river, richly stored with silver and copper, together with the dysclasis, so rare, and interesting to Sir David Brewster, from its polarizing light in all directions.

It appears, then, from the above facts, that the lake Superior copper region does not suffer in comparison with the best mines yet discovered on the globe. On the other hand, it is clothed with such strong characteristic, exhibits such surprising magnetic intensity, and such positive improvement whenever mining is judiciously prosecuted, that, from an honest conviction, we are obliged to believe it altogether equal, if not superior, to either Cuba, Cornwall or the Ural. If so, it will serve as the foundation of permanent wealth for ourselves and our children. And all we have to do is to see that the mines are worked with skill and economy. For be assured, the

lake Superior mines, as a general thing, are not going to fail for want of copper, or for the want of silver in the veins. If they fail, it will be only for the want of *capital*, or from *capital misapplied*. Let no one, however, suppose that he can purchase a few shares of stock in a company, and in a few weeks, or a few months, rush into a fortune. He must in the exercise of good common sense, expect to sow before he can reap; and to allow time for the seed to germinate; and then time for the blade; and then for the ear; before he obtains a harvest of full corn in the ear. He must recollect that the country on lake Superior is yet covered with a multitude of Indians, and a vast primeval forest; so that every substantial article of provision must be transported hither; that the entrance to this great inland sea is blocked up by a cataract, one mile in length: so that it will be one or two years before this construction, (which affords available water power nearly equal to Niagara,) will be obviated by a broad and deep ship canal; that the same length of time will be required to open roads, and bring into requisition hydraulic, steam, as well as horse power, as additional facilities for working the mines. When cargoes of provisions and all needful supplies can be cheaply freighted from Buffalo, Cleveland and Detroit without transshipment; and in return take copper, fish, lumber, etc., to Buffalo, or tide waters, by adopting the route of the Welland canal. Then may he be able to reap a plentiful harvest, from a comparative small amount of seed, or by being the owner of a few shares of stock, judiciously managed by some responsible and enterprising mining company.

When American ingenuity shall have been fully directed to the working of mines, the present high price of labor will be overcome by the skilful application of machinery; just as it is in ginning cotton, and making pins and making clocks. Not long since, fifty tons of iron were purchased at once in New York, and all to make clock weights, for clocks to be sent to England. So in pin making; one woman in Connecticut performs the labor of sixty persons in England. Thus will it be found in mining, that, in all open excavations and proving of veins, etc., Scovill's drilling machine, with the aid of two or three horses, will do the work of one hundred men. And even in running adits and levels under ground, the same machine may be so adapted, that a blind horse, upon a single inclined plane, or endless chain, will execute the work of twelve or twenty industrious German miners. So also in regard to the reduction of the ores of copper. Notwithstanding the experience of centuries at Swansea and in Cornwall, the total ignorance of almost everything relating to the sciences of geology, and above all of chemistry, in the conductors of mines, and their agents, (remarks of Wm. Phillips on veins of Cornwall geological transactions, vol. ii.) it is not only matter of regret, but it can scarcely be doubted is also the cause of much loss to the adventurers in mines, to the lords of the soil, and the buyers of the ore; if a spirit of in-

quiry had existed, which some knowledge of the sciences could not have failed to produce, much cobalt would not have been thrown away on the heaps of Dolcouth, and some other mines, nor would bismuth, in Huel Sparron, have been mistaken for cobalt, nor would the roads have been mended with copper ore, nor would the ponderous ore, which contained silver in the Herland mine, have been left to the chance that discovered its value. H. T. De La Beche remarks, in his *Economic Geology*, p. 595, that "chemistry has as yet made little progress among the assayers of Cornwall; the mode of assaying frequently being the same with that given by Price, sixty years since." And, according to M. Strom, state officer of mines in Norway, the slags thrown away at the copper mines at Swansea, and taken indiscriminately for examination, contain 30 per cent. more copper than the average slag at Roros in Norway. This goes to show that there is yet room for improvement in this most important branch.

The remainder of the report is occupied with a particular description of the mines and lands, belonging to the company. The latter are described as being covered with a heavy forest of pines, firs, hemlocks, oaks, maples and cedars, and as being excellent for cultivation. Villages appear to have sprung up on each of the several locations with an astonishing rapidity.

Native copper is found in the conglomerate along the shore of the harbor at Fort William. In the course of last summer, a mass was dug up within the walls of the garrison weighing, as I was informed, several pounds. This was in conglomerate, cemented with carbonic of lime. In what is called the "Wallace vein," eleven inches and upwards in diameter, I found native copper associated with lanmonite and beautiful crystals of analcime. The specimens which I subjected to careful washing, yielded at different times upwards of 30 per cent. of pure metallic copper. This vein has not been explored, except by two slight cuts to the depth of ten or fifteen feet, yet it is deserving of great attention. Near the native copper last named, is found also the red oxide of copper, finely crystalized in octohedral crystals, imbedded in a soft aluminous earth of a dull white color. This is the richest of all ores of copper yielding from 85 to 90 per cent. The whole appearance of the vein is favorable, and should be investigated without delay. More or less of black oxide is found in the above vein, but its main deposit is a few yards eastward, in a vein running nearly north and south, and varying from a few inches to more than one foot in thickness. This is certainly the most interesting of all the ores of copper, both on account of its richness and easy reduction. Its specific gravity is 5.50, it is easily mined, and yields readily about 70 per cent. of fine copper. So far as history goes, this ore is peculiar to this location. No other deposit of any importance having been, as yet, discovered on lake Superior, or even throughout the whole range of the mineral kingdom. Two shafts have been sunk, five feet by seven, on the last mentioned vein.—

One to the depth of about 45 feet, the other to the depth of about 60 feet. Upwards of 20,000 pounds of this excellent ore were raised from the former shaft during the month of August last. The vein, as seen beneath the surface consisting *entirely* of this compact peroxide of copper, was about one foot in diameter, and descending from the bottom of the shaft to an unknown depth. The latter shaft, which slightly yielded black oxide on the surface, had every appearance of opening into a rich vein of this excellent ore, when I last saw it, in the month of October. There are two or three parallel veins, eastward of the above, as yet unexplored.

Many bowlders of black oxide have been discovered in the immediate vicinity of these veins, and also within the walls of the fort, and even traced so far in the garrison lake as to leave little doubt that this extraordinary ore extends into the high hill on the opposite side. In order to ascertain so desirable a fact, an adit was driven into the hill, by the advice of Capt. Matthew Staples, conductor of the mining operations at Copper Harbor, and I had the unspeakable satisfaction of seeing the black oxide make its appearance in this opening before I left Copper Harbor. In a recent letter from the vigilant superintendent, Dr. Wm. Pettit, I am informed that the vein, which is very similar to the "Wallace vein," and about the same magnitude, "shows better daily." It is almost impossible to estimate the quantity of black oxide of copper already obtained here. One soldier alone, confessed to me that he had collected and sold 3,500 lbs., at 25 and even 50 cts. per lb., in the form of bowlders.

When we reflect that no small number were following the same profitable business, and also that there were about 4,000 visitors at Copper Harbor during the past summer, who, as a matter of course, took with them one or two pounds each, I do not deem it an extravagant estimate to suppose that this locality has already furnished 60,000 pounds weight; although only about 40,000 appeared on the shipping list in September last. The extent of ground from which this amount has been taken, will not probably cover a surface of five acres, including bowlders and all.— Now as there are more than 5,000 acres in location No. 4, it follows that not one-thousandth part of the tract has been properly tested for the discovery of this most valuable ore. And as this ore is found to exist in a well defined vein in the hill south of the garrison lake, I would respectfully recommend a careful, but economical exploration of that range through the entire tract.

According to H. T. De La Beche, the annual produce of the mines of Great Britain and Ireland amounts to £20,000,000 sterling, or nearly \$97,000,000; yet there is previously no positive evidence of this product, as before remarked, beyond the "point of the pick and gad." It is all based on probability. And so of the coal, that enables the steam engines of Great Britain to perform the labor of more than one-third of the human race. M. Fournet has well remarked, that "the metals having become objects of

LONDON, OCTOBER 2 1846.

	£.	s.	£.	s.	d.
Bar a Wales—ton	8	15	9	0	0
“ London	9	15	10	0	0
Nail rods	0	0	10	10	0
Hoop (staf.)	11	5	11	10	0
Sheet	0	0	13	0	0
Bars	0	0	11	10	0
Welsh cold blast foundry pig	0	0	5	5	0
Scotch pig b Clyde	3	12	6	3	15
Rails, average	9	15	10	0	0
Russian, CCND c	0	0	0	0	0
“ PSI	0	0	0	0	0
“ Gourieff	0	0	0	0	0
“ Archangel	0	0	13	10	0
Swedish d, on the spot	11	0	11	10	0
“ Steel, fagt	0	0	16	0	0
“ “ kegs e	13	15	14	0	0

a, discount 2½ per cent.; b, net cash; c, discount 2½ per cent.; d, ditto; e, in kegs ½ and ¾ inch.

From our Correspondent.

MONTHLY REPORT.—IRON.—Welsh and Staffordshire continue in fair demand, and we quote the former at 5s. per ton higher than on the 1st ultimo. A good business was done in Scotch pig during the past month, but the price is a shade lower. Mixed nos. can be purchased at 72s. 6d.; but for no. 1, according to brands, 75s. to 77s. 6d. is asked—at the present time the demand is languid. Swedish iron and steel were in a little better demand last month—several parcels of the former were sold at £11 5s. to £11 10s., and some arrivals of the latter were sold ex-ship at £13 5s.—since then it has been sold at £13 10s. from the warehouse, and holders now demand £14.

Communicated by Messrs. Whitcomb & Barton.

The demand for English bar iron continues exceedingly good, and the late advance fully maintained. Extensive contracts for rails have been entered into this week, and high prices paid both for present and future delivery.

To the Editor of the Mining Journal.

Glasgow Pig Iron Trade.—Sir: We have had a quiet market this week, and have little business to report. No. 3 is in demand, and is the therefore higher in proportion than No. 1. We quote the price to-day at 72s. for No. 3, and 74s. to 75s. for No. 1—cash, free on board. DOUGLAS & HILL. Glasgow, Sept. 30, 1846.

A City of Railroads.

The editor of a journal published at Atlanta, Ga., describes the peculiar centrality of that place as follows. Atlanta is located in the midst of a net of railroads, it seems. It is situated about six miles southwest from Decatur, the country seat of De Kalb. The editor says:

Within some two hundred yards of our office, stand the three fine depots of the Western and Atlantic, the Georgia, and the Macon and Western railroads—the whole three roads terminating at this point, and the cars of each both arriving and departing every day. The first, the Western and Atlantic, stretches away up into the Cherokee country, eighty miles to Oothcaloga, and when completed, will connect with Chattanooga, in Tennessee, whence another road will be soon laid, we trust, to Nashville. The second extends from this city to that of Augusta, 171 miles, whence we may travel by steamboat to Savannah, or by railroad to Charleston, 136 miles further. The third reaches from here to Macon, 101 miles, whence we may take the Central railroad to Savannah, 190 miles. Besides all this, our Virginia friends want to form a connection between Richmond and Atlanta; and before very long we expect another railroad to connect us with West Point, whence, on the Alabama road, we may easily visit Montgomery, Mobile and New Orleans.

the first necessity to man, he would, during all times, and in all places, attach great importance to their receptacles, and that it is to the study of their mode of concurrence, their connection with adjoining substances, and their relation to the phenomenon observable in the neighboring country, that geology owes its birth.”

Yet these gifts of the Creator, like every other blessing, may be easily perverted, and the business of worthy and honest mining, changed to disastrous and ruinous speculation. Such a state of things is to be regretted, and as far as possible to be avoided. * *

Notwithstanding the latitude is about 47½° the thermometer rarely sinks below zero, and the ground does not freeze in winter. No country can excel it in growing potatoes and other esculent roots, or in yielding a greater amount of grass. I planted potatoes near the Necomenon river on the 3d of July, and had a good crop from them in October, when the tops had not been touched by frost. * *

The following is an extract from a letter, dated January 6th, written by a practical Cornish miner of great experience—the captain of the mines in the neighborhood of Eagle river, belonging to the *Pittsburg and Boston Copper Harbor mining company*, addressed to the treasurer of that company, residing in this city:

“Since I last wrote to you, the most astonishing prospect has opened upon us suddenly here, that perhaps ever cheered the most romantic adventurer after mineral wealth! If present qualities and quantities of ore continue, we may have here fallen in with the richest *silver mine perhaps in the world!* and in copper never exceeded. It now so far surpasses anything that perhaps you or I ever saw or heard of in the legends of mining, that for curiosity's sake alone, I should think it worth a journey to witness what nature has done so near the surface, particularly in the silver line. Yesterday I barreled up 1772 lbs., and to-day 1400 lbs., of silver ore, with the help of one man, and got it out likewise. Last month got out 55 tons of raw ore, making in all, 145 tons.”

Railways.

The Cincinnati Gazette, in an article upon the railways of this country, has the following remarks:

In every part of the United States, the desire is to extend her railroads. New England takes the lead just now; but wherever any improvement is talked of, preference is given to the railway.

We care not how far this kind of improvement is pushed, if the parties interested will only act judiciously, and have permanent works erected. They enlarge the domestic market, they increase the value of every kind of property, and they bind the states together by the strongest of human ties. Massachusetts is becoming one neighborhood by this instrumentality, and Boston is made thereby the very heart of it.

New York is just beginning to feel this railroad influence. The great Erie railroad is under way. That, when finished, will connect the city with the lake, and insure a line from Buffalo to Toledo, Detroit, thence

to St. Joseph's and Chicago. And this will quickly lead to a full traversing of the great state of New York by iron tracks, connecting that great state with its commercial heart as Boston is connected with Massachusetts.

And then will come our turn. We have or will soon have, a main branch extending directly though Ohio. A few months more, and Sandusky and Cincinnati will be neighbors. And then branches will go out, and other tracks will be built, all, or nearly all, centreing here: We must not, however, be in too great haste. We have erred already in this way, if we look as the character of the work done, and its ultimate cost. No railroad ought to be undertaken until ample means are provided to make it substantial and thorough. And that state will profit the most in the long run, that acts upon this principle, even though it seems to get along slower than some of its neighbors.

English Iron Trade.

FROM THE LONDON MINING JOURNAL, SEPT. 18, 1846.

From our correspondent.

Iron is still in fair demand at quotations. Scotch pigs gave way a little in the early part of the week, but have recovered. In Swedish iron and steel, and Russian iron, there is nothing doing.

To the Editor of the Mining Journal.

Glasgow Pig Iron Trade.—A limited business has been done this week; yet, through the firmness of holders, prices have given way but little. We quote the price to-day at 72s. d. for No. 3; 74s. for mixed Nos.; and 75s. to 76s. for No. 1—cash, free on board. Glasgow, Sept. 16. DOUGLAS & HILL.

LONDON, SEPT. 25, 1846.

	£.	s.	£.	s.	d.
Bar a Wales—ton	0	0	8	15	0
“ London	0	0	9	15	0
Nail rods	0	0	10	10	0
Hoop (staf.)	0	0	11	10	0
Sheet	0	0	13	0	0
Bars	0	0	11	0	0
Welsh cold blast foundry pig	0	0	5	5	0
Scotch pig b Clyde	3	13	6	3	15
Rails, average	9	15	10	0	0
Russian, CCND c	0	0	0	0	0
“ PSI	0	0	0	0	0
“ Gourieff	0	0	0	0	0
“ Archangel	0	0	13	10	0
Swedish d, on the spot	11	0	11	10	0
“ Steel, fagt	0	0	16	5	0
“ “ kegs e	0	0	13	10	0

a, discount 2½ per cent.; b, net cash; c, discount 2½ per cent.; d, ditto; e, in kegs ½ and ¾ inch.

From our correspondent.

IRON.—Welsh and Staffordshire firm at quotations of last week's Mining Journal. Scotch pig a shade lower, with a rather heavy appearance. Several large purchases of rails this week by railway companies at £9 15s. to £10. A few sales this week of Swedish iron and steel.

Communicated by Messrs. Whitcomb & Barton.

There has been no change in the price of English bar iron this week, which may be quoted firm at £9 in Wales. Welsh and Staffordshire pig iron are in fair demand, particularly the latter, for which higher rates have been paid. In Scotch, the business done this week has been rather more limited; we quote the price firm at 74s. cash, for mixed Nos.

To the Editor of the Mining Journal.

Glasgow Pig Iron Trade.—Sir, Prices within these few days, have somewhat declined, which has occasioned a brisker demand than we have had for some time. We quote the price to-day at 71s. to 72s. for No. 3; 73s. 6d. for mixed Nos.; and 75s. to 76s. for No. 1—cash in 14 days, free on board here. For immediate cash, something less than our quotations has been accepted for No. 1. Glasgow, Sept. 23. DOUGLAS & HILL.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.

Saturday, October 31, 1846.

English Railway Capital.

The Railway Record says, the total amount of capital authorized to be raised by the railway acts of last session is—for England, about £70,000,000; for Scotland, £13,500,000; and for Ireland, £9,000,000. The deposits prepaid in respect of these undertakings, amount in round numbers, to £5,000,000.

A calculation of the cost of French railways gives the following results: The total expense, 2,109,114,782*fr.*; total dependent on the companies, 1,659,674,782*fr.*; on the state, 449,440,000*fr.* Out of the above obligations on the companies, there has been already deposited the sum of 437,750,000*fr.* The state has devoted the sum of 182,500,000*fr.*

Result of Railroads.

The Wilmington, (N. C.,) Journal says that "the present population of that town amounts to 9,000, an increase of 6,000 since the railroad was built, six years ago, when it was only 3,000!"

This is but a single case from a long catalogue which might be quoted, when the influences which attach to railroads, and the effect which is produced by their establishment, is apparent. All experience shows that wherever a track is laid, and the route is afterwards judiciously and properly managed, *new* towns and villages arise along its line, and an immediate and healthy impetus is given to the business and general prosperity of *old* ones. This will apply especially to the roads upon our Atlantic borders, and those who take the pains to watch the progress of passing events, are aware of the correctness of this statement.

It must be a source of high gratification to those interested in railroads, directly or indirectly, to know that at the present time, a deep public interest is being manifested, in all directions. There are now more than 10,000 miles of railroad in use, and in course of construction, in this country, and we have constantly, the most flattering accounts in relation to their existing and *prospective* success. In England the disposition to encourage and foster these enterprises, is a growing feeling. All parties unite in pushing forward this great modern improvement, and all join their means or influences to augment the number of railroads, wherever there is fitting opportunity.

Sylvanus, in his "Pedestrian Reminiscences," grieves over the downfall of *coaching* in England, and hopes that "the day will come when their fate shall be avenged, and when railways shall be voted *slow*." In mourning the absence of the "old mail coach," he says, "how short sighted were we poor mortals when we imagined the 'London and Devonport,' or 'Halifax and London,' fast mails were sufficient for getting along. These and many more got over the ground at the rate of 10 or 12 miles an hour, and were, to my notion, the very beau-ideal of travelling. The make of the old mail was exceedingly handsome, strong, and perfectly unique. The

exquisite color, royal arms, with the scarlet uniform of both guard and coachman, gave the equipage quite a distinguished air as you saw it opening on your sight far over the distant hill, as you sat on the 'down mail' that was so rapidly giving it the meeting. Who does not recollect the thrilling interest of the scene? Well might the greatest bard and most exquisite judge of life exclaim, 'what a delightful thing's a turnpike road!' for so it is, or, alas! that I should be obliged to say it—*was*."

But the days for coaching are past, and the "crawling age" of "twelve miles the hour" teams, must give place to the days of steam. Few men are now-a-days satisfied with a speed of less than double the best time ever made by the "fast mail." Such is the march of improvement!

The interest felt in railroad movements in America is progressive, and we observe with much satisfaction, that the press throughout the country is alive to the important benefits connected with this subject. A New England paper remarks very truly, that the feeling in favor of railroads in the United States has by no means reached its maximum; it has arrived to nothing like the pitch it has reached in England. To that point, or near it, it certainly will arrive, when not only all, or nearly all the railroad enterprises now projected, will be built—but many others, some of them now thought to be absurd, and others scarcely dreamed of, will be established."

The New Hampshire Gazette remarks that "if the various railroad routes are executed, which are now *proposed*, (and most of them will be,) the seaboard of New England will have a much more direct available connection with the interior than has hitherto been the case." New England has already realized a vast amount of benefit from her internal improvements—and the Western and Eastern roads can be pointed to as evidence of the fact. Within the past five years, the city of Boston has increased her population in a ratio almost or quite double that of any previous five years in her history, and for much, very much of this augmentation to her population and local wealth, is she indebted to the railroads which terminate at that point. In this business, the eastern states are decidedly in the advance; and Massachusetts more especially, in the matter of railroad enterprises, has set an example worthy to be followed.

The following from the Concord Gazette, will be found appropriate, in connection with the other remarks, and we take pleasure in pointing it to the attention of the readers of the Journal:

"The route from Portland to Montreal is urged on with great vigor by its friends, and operations have been commenced at both extremities of the line. It will most probably be carried on to completion in spite of its great cost, and the lack of capital which it would command were it a Boston or New York enterprise. Salem, (Mass.) is soon to be connected with the new city of Andover by a railroad, and thence to Manchester, in this state, a road will be built in the course of a few years. Portsmouth also cannot fail at no very distant time to have a direct road to this place. This will enlarge the market for domestic produce to the great advantage of our farmers. In other parts of the country great progress is now making in furnishing the inhabitants with railroad facilities. The great New York and Erie railroad, from New York city to lake Erie, is again put in course of construction, being now in operation over

60 miles. It is also contemplated to build a railroad from New York city to Albany, a distance of 150 miles, which it is intended to run over in five hours, the fastest steamboat not being able to go it in less than eight.—In winter, of course, it will command the whole traffic. The only railroad communication in winter now is by means of the Housatonic railroad—a very round about and inconvenient route. It is stated that the Western railroad is likely to be benefitted by the new free trade system of the English, as much of the produce which was formerly shipped by way of Montreal will now come over the Western road to Boston. This stock is now nearly up to par, and the prospect is that in a short time it will pay a dividend of more than 6 per cent. A railroad is now constructed some distance above Springfield, (Mass.,) on the Connecticut, and is said to do an immense business. This road will no doubt be extended up the valley of the Connecticut as far as Wells river, at which point the proposed Passumpsic road will touch the river.

"Of the southern states, Georgia seems to have taken the lead in railroad matters, there being in that state over 500 miles of railroad in successful operation. In Ohio considerable has been done within the last year, but the western states in general are doing but little."

Richmond and Ohio Railroad.

In our last, we alluded to the excellent article which follows below, and to which we direct the especial attention of the reader, at this time. It will be found highly interesting—and contains much valuable information in reference to the rich valley of the James river, through which the Richmond and Ohio railroad is destined to pass. The statistical matter contained in this article will be found valuable, and we give place to the article entire, believing that it will be useful for reference hereafter.

Virginia and her Great Central Improvement.—(From Hunt's Merchants' Magazine for September 1846.)

In the magazine of November last, an article appeared entitled 'The Railroad Movement in Virginia,' presenting some general views upon the importance of constructing a continuous railroad from the city of Richmond to the Ohio, at the mouth of the Guyandotte river, in Cabell county.

The project of connecting the valley of the James river with that of the great Kanawha, in order to open a thoroughfare from the Atlantic to the Mississippi valley, through the heart of Virginia, is one of the most important schemes of internal improvement in the United States, whether regarded as a great national work, or considered only in relation to its bearing upon the interests of Virginia.

More than half a century ago Washington pointed out this great route as one of paramount importance to Virginia, as a channel of intercommunication between the eastern and western sections of that great state. He actually reconnoitered the country, found the route perfectly feasible, and manifested his usual sagacity and foresight in locating several tracts of land along the line, which have since become estates of immense value, and some of them sites of flourishing villages.

In 1812, chief justice Marshall, Gen. Brackenridge, Col. Lewis, with other distinguished citizens of Virginia, actually surveyed the route, and the result of their labors confirmed the views of Washington. Had the state of Virginia followed the lead of these great men in opening this central route, she would have maintained her relative position amongst her sister states, and been at this time the first commercial, manufacturing and agricultural state in the Union.

At the early period referred to, however, railroads were unknown, and the plan of improvement was to render the James river navigable to as high a point as practicable, and thence construct a good turnpike, across the mountainous region of the state, to the navigable waters of the Great Falls, and thence to improve the navigation of this river to its junction with the Ohio.

This magnificent plan was suffered to remain unattempted, with the exception of some improvement by means of locks and dams, in the James river, and the construction of a canal through the gorge of the Blue Ridge.—For many years nothing besides was done in furtherance of this grand design.

In March, 1832, 'the James River and Kanawha company' was incorporated by the legislature of Virginia, with a capital of \$5,000,000. This company was aided by a subscription on the part of the state, of two-fifths of the capital stock, and was 'charged with the duty of connecting the tide waters of the Ohio, by one of three plans, that is to say either by a continuation of the lower James river canal, to some suitable point on the river not lower than Lynchburg, a continued railroad from the western termination of that canal, to some convenient point on the great Kanawha river, below the great falls thereof and an improvement of the Kanawha river, from thence to the Ohio, so as to make it suitable for steamboat navigation, or secondly, by the continuation of the James river canal as aforesaid, and a continued railroad from its western termination to the Ohio river; or thirdly, by a continued railroad from Richmond to the Ohio river.'

The second plan above mentioned, was adopted by this company in 1835. Several surveys made under its auspices across the country between the James and Great Kanawha rivers, have removed every doubt of the feasibility of the work and established the important fact, that the Alleghenies can be passed on this line at an easier grade than at any point to the north of it. Indeed it was the favorite plan of the late able and excellent president of the James River and Kanawha company, to extend a continuous water line from one river to the other. Reports of competent engineers have shown that such a work would be practicable, and that by means of a tunnel through the Allegheny ridge, the waters of the New river could be made to flow into the James river.

From causes however, which it is not proper here to discuss, this company have been obliged to discontinue their operations. They succeeded in constructing a canal along the valley of the James river, from Richmond to

Lynchburg, a distance of about one hundred and forty-seven miles, and in making improvements in the rapids and shoals of the Great Kanawha river in the west.

The failure of this company to complete the work with which they were charged has been greatly prejudicial to the cause of internal improvement in Virginia. Their operations subjected the state as well as private stockholders to heavy losses, and occasioned so much dissatisfaction that further aid from the legislature in the prosecution of this great central improvement under the auspices of the James River and Kanawha company cannot be expected, except perhaps to enable them to extend the canal from Lynchburg to Buchanan in the valley of Virginia, a distance of 45 miles. The extension of the canal thus far would undoubtedly advance the best interests of the state and render the whole capital expended upon it much more productive; and yet so strong was the prejudice against this company that an application to the legislature at its last session for aid for this purpose, was unsuccessful.

The mode of executing this great work by means of a canal, a railroad, and the slack water navigation of the Great Kanawha which was adopted by the company in 1836, was undoubtedly unfortunate for the common wealth and will never be consummated. The experience of the last fifteen years has settled the question that such a mixed mode of communication could not compete with a continuous railroad through the whole line, and would never enable Virginia to contend successfully with the powerful competition of the northern states, for the trade and travel of the great valley world of the west. It is however the obvious good policy of the state to extend the James river canal as far as Buchanan, or to some point in the great valley of Virginia.—The time is not far distant when the Winchester road will be extended up the valley of the Shenandoah to this point, and besides from Lynchburg to Buchanan, the great southwestern railroad will be constructed, thus pouring into this central channel, the immense iron, lumber, and coal trade of middle Virginia, from this point to the tide waters would afford profitable business for the canal, while the railroad from this point eastward, would be mainly employed in the conveyance of passengers and light valuable merchandize.

The third mode of prosecuting this great work, by means of a continuous railroad, was never favorably entertained by the said company, although it is unquestionably the best and only one which will restore Virginia to former prosperity.

This important measure was brought before the public last year, and a bill for a charter, authorizing the construction of a railroad from the city of Richmond to the Ohio river, was introduced into the legislature of Virginia, at the last session of the general assembly. After able and elaborate debates, upon the bill in its passage through both branches of the legislature, an act was finally passed on the 3d of February, 1846, entitled, 'An Act to Incorporate the Richmond and Ohio Railroad Company.'

This company is charged with the duty of constructing 'a railroad from the city of Richmond on the south side of James river, to some point on the Ohio river, at or below the mouth of the Great Kanawha river, by the most eligible route, other than the immediate valley of the James river below Lynchburg, said route to be hereafter determined by actual survey, under the direction of the said company.'

The company have thus an open charter for locating their road, subject to the single restriction, of laying the route on the south side of James river, below Lynchburg. This restriction was imposed, to avoid conflict with the canal on the north side of the river. It is however no objection in the charter, since the route from Richmond to Lynchburg, as prescribed in the act, is some 40 miles nearer, and more feasible for the road, than it would be along the immediate valley of the James river.

The charter thus obtained is extremely liberal in its provisions, and offers great inducements to capitalists to invest their funds, independent of the main consideration, that this great work will yield a large dividend upon the capital expended in its construction.

Among the provisions may be mentioned, the ample manufacturing privileges secured by the charter; the right of constructing lateral roads, twenty miles in length on each side, the exemption of the capital stock from taxation, and the dividends also, unless they exceed six per cent. per annum; the right of the company to control its dividends; its freedom from legislative interference, with the charter for thirty years from the time allowed for the completion of the work, and the right of the company to purchase and hold real estate to a large amount, for purposes other than such as may be necessary for the construction and preservation of the road. These provisions were engrafted upon the charter, to render it acceptable to non-resident capitalists, and it is believed that no charter with grants more liberal, was ever given in the United States.

Having thus presented an outline of the origin, progress and character of this grand project, it is designed to present some further considerations going to show its great importance, not only as a grand national work, but also as one indispensable to the happiness and prosperity of Virginia.

In the article already alluded to, several general views were given, illustrating its national character, and among them was its importance to the union, as a great military road, in the event of a war with any maritime power. This view has been sanctioned by the opinions of the first military men of the country. No other line of intercommunication could be so secure and central between the Atlantic cities and the Mississippi valley. Lying wholly within our own territory, and passing through the geographical centre of the states east of the Mississippi, its eastern terminus would connect with the Chesapeake, the safest and best harbor for our fleets. Its western terminus would open into the great agricultural regions of the

west, whence abundant naval and military stores, could be obtained at all seasons of the year, and our armies and munitions of war transported each way with perfect security.

It would facilitate intercourse with the federal capital from all parts of the union, south and southwest of Washington, more than any other similar work projected, and band together the Atlantic and trans-allegheeny states like an adamant chain. In this view all the great works of internal improvement, crossing the Appalachian chain of mountains, have an important national bearing. In spite of the virulence of party spirit and the corruption of unprincipled demagogues, these iron bands will do much to maintain the integrity of the union. The interests of the states on the eastern slope of the Alleghenies will become more and more assimilated and merge more and more in commerce and manufactures, while the leading interest of the great west will continue to be agriculture. Hence the importance to the whole country of uniting these great divisions by means of iron bands across the Alleghenies as great cordons of national strength and union.

Looking forward to the rapidly increasing intercourse between America and Europe, and to the establishment of new lines of steam ships across the Atlantic, this great central thoroughfare through the heart of the republic, will become the most important channel of intercourse between the east and the west.

The Portland and Montreal railroad; the Vermont and Massachusetts road; the Western railroad, in conjunction with the Central railroad, through New York; the N. York and Erie railroad; the Pennsylvania works, and the Baltimore and Ohio railroad, all have the same great object in view, to secure the trade of the mighty west, and in this respect they have all a national character; but none so worthy to be regarded a great national work as the Richmond and Ohio railroad.

Extending three hundred or perhaps four hundred miles, through the centre of the Atlantic states, this magnificent railway would more than any other become the great outlet for the agricultural products of the Mississippi valley. The imagination labors in contemplation of the immense productiveness of this most fertile and extensive valley on the face of the earth, when it shall be filled, as it soon will be, with tens of millions of intelligent and industrious freemen. For the exportation of its productions and the importation of merchandize, the great works already constructed or in contemplation, will be taxed to their utmost capacity. It is a noble spectacle that should make an American feel proud of his country, to witness the generous rivalry of the Atlantic cities, in pushing forward their great lines of intercommunication with this wonderful region, and no man of soul capacious enough to contemplate the resources of this magnificent valley, can do otherwise than bid them all God-speed in this noble enterprise.

That portion of the immense plain lying between the Gulf of Mexico and the Arctic ocean and the Rocky and Apalachian mountains, which constitutes the valley proper of

the "father of waters," contains an area of something more than one million square miles of the most fertile land on the face of the globe, and is capable of containing an agricultural population of more than 100,000,000 inhabitants.

In 1780 the whole population of this immense region did not exceed 20,000. At the present time it cannot fall short of 9,000,000. It is increasing in an accelerating ratio, and unless some great national calamity befall us it will soon reach the amazing number of 30,000,000 of inhabitants.

From the able report of Mr. Calhoun in the senate June 20th, on the subject of the Memphis convention, it appears that the increase of the commerce of this valley has exceeded that of its population. In 1817, the whole commerce of New Orleans with the upper country, was transacted upon 20 barges of 100 tons each, making but one yearly trip. And that on the upper Ohio, not more than 150 keel boats of 30 tons each, were required to transact the business of that beautiful river. From the same report it also appears, that in 1817, the whole tonnage of the lower Mississippi and the Ohio, was only 6500, and that in 1843, the tonnage of the Mississippi and its branches was about 90,000. The aggregate value of the products of this vast valley at the same time amounted to the enormous sum of \$220,000,000. From these data, as well as from the last treasury report, it is probable that the present annual value of the products of this valley cannot be less than \$300,000,000. Indeed there can scarcely be any danger of over-estimating its amazing resources, and yet all this is but a beginning of what will be its trade and commerce in a few short years. In the natural course of events, the population of this region in 20 years will be at least 27,000,000, and if its productions keep pace with its population, their annual value at that time, will amount to \$1,000,000,000. A vast proportion of this immense and rapidly increasing business, will flow through artificial channels of trade across the Alleghenies to the Atlantic cities. From what has already been advanced, it must be evident that the Richmond and Ohio railroad will come in for a large portion of this business. Suppose the expense of freight and tolls be equal to 20 per cent. upon this vast amount of produce in getting it to market at New Orleans and the Atlantic cities, it would reach the sum of \$200,000,000. Add to this immense sum the cost of importing merchandize to meet the wants of this same region, and the annual expense of the freight of its exports and imports will probably not fall short of \$300,000,000.

It is impossible to estimate how large a portion of this vast trade will pass down the Mississippi. We should consider that by means of railroads the whole upper valley of that river will be more nearly connected with the mouth of the Chesapeake than the Gulf of Mexico, and when at the former place will be much nearer the great markets of the northern Atlantic cities and of Europe. In point of time and expense, the current of trade

and travel will naturally flow even from the lower valley of the Mississippi eastward and northeastward. Hence it is reasonable to conclude, that a majority of this vast business will be transacted through these artificial channels across the mountains. In this view of the case the Old Dominion with her great central improvement completed, will occupy a vantage ground in contending for this splendid prize, the trade and commerce of this wonderful valley.

The implications of business between New York and Richmond would also in a short period be increased tenfold by the completion of this work. Its western terminus at Guyandotte or at the mouth of the Big Sandy river on the Ohio, would strongly invite a connection of the railroad already built from Louisville to Frankfort, and thus give to Kentucky the shortest outlet to the Atlantic board, and the speediest intercourse with the northern cities. It would in fact bring New York and Louisville within three days of each other, and the falls of the Ohio, the future site of immense manufacturing establishments, within thirty hours of the Atlantic.

Another argument of the national character of this contemplated road is, that it will become a common trunk for the great southwestern improvements, which will be ere long constructed, from the eastern sections of Kentucky and Tennessee, and the northern parts of Alabama and Georgia, and course up the valley of the Holstein or Clinch river into the southwestern part of Virginia, and thence to this great central improvement.—From this source Virginia will ultimately derive an immense business, without even the fear of a rival. To accomplish this important southwestern connection, has long been an object of solicitude with some of the most enlightened men of Virginia. The extension of the Virginia works southwesterly in this direction, would force a continuation of them to Memphis, crossing several great lines of communication between South Carolina and Georgia and the Ohio river, and thus pour into the lap of the Old Dominion an immense trade and travel from the whole southwestern section of the union.

The western terminus of the work under consideration, would be favorably situated to concentrate a large foreign trade. It would naturally draw the business of the state of Ohio, and through her great works already constructed and in contemplation, derive much of the trade of the lakes, especially in the early and latter part of the business seasons. The Erie and Ohio canal, the Xenia and Cincinnati railroad and the Mad river improvements will all be feeders to a greater or less extent of the Richmond and Ohio railroad. With one terminus at Guyandotte, and another at the mouth of the Great Kanawha, at Point Pleasant, this road would accommodate the business of the Ohio valley, from Cincinnati upwards, 250 miles, better than any other route. While the more northern routes were obstructed with ice and snow, the great arteries of trade and commerce in Ohio could pour their wealth through no other channel.

In this connection it is proper to consider more fully the advantages of this route, by reason of its southern location, and its consequent exemption from the obstructions of ice and snow.

In consequence of these difficulties on the great northern routes, and the dangers of lake navigation in the fall and winter seasons, the trade and travel between the east and the west are subjected not only to vexatious and uncertain interruptions, but to serious damage and pecuniary embarrassments. Many a merchant can trace his total failure to this single cause, and many a western farmer is also subjected to a ruinous depreciation in the price of his produce.

These very serious evils would to a great extent be removed by the completion of this great central trunk through Virginia, and the proceeds of the west would find through it an open passage to the Atlantic cities during all seasons of the year. Hence, late in the fall, through the winter, and early in the spring, immense quantities of merchandize and produce would be transported over this route, while its great rival thoroughfares would be obstructed. The chief cities of the west being south and west of the western termini of these great arteries of business, it is evident from a moment's reflection, that there would be an accumulation of trade and travel upon the more southerly routes, from those more northerly.

For instance, none of the Atlantic cities would trade with the west, through a channel more northerly than its own, while much of the business of each, would flow through a more southerly line. Boston would carry on her rapidly increasing trade with the west as much as possible through her own works, and yet at those seasons of the year, when they were even liable to obstructions, she would transact much of her business through the New York and Virginia routes. The same remarks will apply with greater or less force to Philadelphia and Baltimore. But to none of the Atlantic cities does this view apply with so much force as to New York.— Having through this great central railroad, the most direct communication with the queen city of the west, open at all seasons of the year; who does not see that the construction of this work will introduce a new era in the trade and commerce of the great emporium. While her own great works are obstructed, and the noble Hudson itself is frozen over, New York can still through the Richmond and Ohio railroad, carry on an active trade with Cincinnati and other cities in the west, and thus extend her business through the entire year, instead of crowding it into eight or nine months as at present.

On reference to proper authorities, it will be found, that the average time the business of the Erie canal has been obstructed by ice, during the last 20 years, is 124 days per annum, and that of the Hudson river from the same cause, is something over 91 days; now then, considering the hurry and confusion incident to the closing of navigation, and the delay and uncertainty upon its opening before business assumes its regular course, and

the time of the interruption of business from this cause, may be safely stated at four months and a half in each year. But the mere suspension of business is not all the disadvantage attending this interruption. Immense quantities of merchandize and produce are stopped *in transitu* occasioning great disappointment and heavy losses. How different would be the case if the course of trade could flow smoothly through the year. An immense saving would be made to New York merchants, in avoiding bad debts, which are in many cases made during the hurry and excitement of the business season. During this exciting period, when there seems to be a sort of mania for swelling the amount of business, many a shrewd country merchant understands the philosophy of obtaining an extended credit, who, if his New York creditor had taken time to act with more deliberation, would have found it difficult to impose upon his credulity.

New York then has a direct and most important interest in the construction of this great central improvement of Virginia. By means of her own canals and railroads she can with one hand grasp the trade of the west in successful competition with her eastern rival, Boston, while through this Virginia line, she could control with the other hand a majority of the same trade as against Philadelphia and Baltimore, her powerful competitors on this south.

From these general considerations, it is certain that the accumulation of trade and travel upon this great central railroad through Virginia will be immense, and that it will to a great extent participate in the business of all parts of the union. If constructed in a manner suited to its importance it cannot fail to be highly productive, and yield a large dividend upon the capital expended upon it. A majority of the business transacted upon this and the other great rival routes, originates beyond their western termini. This route tapping the Ohio at the lowest point, and affording the easiest transit thence to tide waters, will have a decided advantage over all the others, and will draw more or less of the trade and travel which would otherwise pass over them. These views are all strengthened by the fact, that the navigation of the upper Ohio is during the warm season, when travel is the greatest, interrupted by shoals and low water. In passing up the Ohio above Cincinnati, the first difficult shoals occur at the mouth of the Guyandotte, and boats can ply between the former place and Guyandotte, when they cannot ascend higher, or at farthest above the mouth of the Gt. Kanawha.

These considerations then show the character of this improvement, as a great national work, and place the productiveness of its stock beyond a doubt. But there are other reasons which should more strongly commend it to Virginia as a state work, inseparably connected with her best interests.

If the Old Dominion were a barren waste and no business originated within her borders along the line of this improvement, it would still be evident from the arguments already presented, that it would yield the state

a large revenue arising from freight and tolls upon foreign trade and travel, and yet the converse of this can also be made to appear, that if no business arising beyond the limits of the state were done upon this road, it would still net a very large revenue.

And yet with all these arguments in its favor, the people of Virginia remain indifferent to its construction, and while similar works are advancing rapidly the wealth and population of other states, the Old Dominion with her credit unimpaired and out of debt, still seems reluctant to lend her aid in constructing this most important railroad, though by its completion, the enhancement of her real estate, would exceed in amount more than four times its whole expense.

In this connection it may not be improper to glance at the former commercial state of Virginia and compare it with her present condition, that we may be able to form an estimate of what would probably have been her present position, had she pursued a different policy.

From the most reliable authorities it appears that in 1769, the imports of Virginia were about \$4,085,472, while that of New York was only \$907,200!

The exports of these two states were about in the same proportion, so that at that early period the commerce of Virginia was nearly five times that of New York.

At the time of the adoption of the federal constitution in 1791, the imports were as follows: from Virginia, \$2,486,000; from New York, \$3,012,000. Their exports for the same year were, from Virginia, \$3,131,000; from New York, \$2,505,000. The commerce of these two great states therefore about 50 years ago, was nearly equal. In 1796, Virginia exported \$5,268,000; New York, \$12,208,000.

From this period it may be truly remarked that the illustrious men of Virginia became politicians, rather than devoted to the commercial and agricultural interest of the commonwealth, and from this point of time this state rapidly declines, while her powerful competitor advances still more rapidly in commerce and wealth. From 1821 to 1842, the import trade of these states were in round numbers, as follows:

1821, New York,	\$23,000,000	Virginia,	\$1,078,000
1822, "	25,000,000	"	864,000
1823, "	27,000,000	"	681,000
1824, "	36,000,000	"	639,000
1825, "	49,000,000	"	553,000
1827, "	39,000,000	"	431,000
1829, "	43,000,000	"	375,000
1832, "	57,000,000	"	550,000

From these facts it will be seen that the import trade of Virginia fell from \$4,085,472 in 1769, to \$550,000 in 1832! While that of New York increased from \$907,000 in 1769, to \$57,000,000 in 1832!

That the import trade of New York in 1832 was about 70 times greater than it was in 1769, while that of Virginia was 11 times less!!

Their comparative exports and imports in 1838 and 1840 were as follows:

1838, Virginia exp.,	\$3,985,228	Imp.,	\$377,142
" New York do.	23,000,471	"	68,453,206
1840, Virginia do.	4,778,320	"	545,086
" New York do.	34,264,080	"	50,440,740

Their tonnage was as follows:

1821, Virginia....63,326..New York.....241,338
1842, Virginia....47,535..New York.....518,133

With these astounding facts before them, let the people of Virginia determine how long this retrograde movement shall continue. In her position in the Union, her soil, productions, climate and natural resources there is nothing which justifies this humiliating comparison. On the contrary Virginia possesses within herself all the natural elements of wealth and prosperity in greater abundance than her great powerful rival at the north.

Her noble Chesapeake is one of the most extraordinary geographical features of the North American continent. Midway between the gulfs of Mexico and St. Lawrence it indents the country with deep and broad estuaries, and affords a safer and more extensive inland navigation than any bay of its size in the world. It would seem on looking at the map to be the place designed by nature as the safest harbor of our ships, inviting and concentrating the commerce of the whole country. On the west the Potomac, the Rappahannock, the York and James rivers are large navigable streams which open up into the whole of eastern Virginia, affording the most abundant facilities for commerce; and yet with all these natural advantages, Virginia from being as she ought still to be the first commercial state in the Union, has fallen to a medium rank among the states of the republic.

From this comparison of Virginia with New York, let us consider briefly the immediate advantages which would result to her from opening her central improvement, and it will be apparent that her honor, her wealth, and prosperity demand its immediate construction. Indeed these advantages are so obvious that it would almost seem superfluous to advert to them. Many of these were briefly noticed in the number of November last already alluded to, but they should be presented again and again until the people of Virginia can be brought to act upon this subject so vital to their interest.

The cost of this central improvement would probably be ten millions of dollars. It could be built for less, but not in a style corresponding to its importance as a great national and state work. In reference to the vast trade and travel which beyond all question would pass over it, how insignificant does this amount appear.

In a political point of view its construction is indispensable to the very existence of the commonwealth. Causes are at work which have rendered antagonistical the interests of the eastern and western portions of this great state. Indeed the changes which have already been rung upon the disunion and dismemberment of the old dominion, may in an evil hour prevail, and produce results which every true Virginian would deplore. This great work once constructed would forever remove all these angry and exciting causes of discontent, and give to the whole state the practical lesson that their true glory and prosperity consisted in union and a generous regard for the welfare of the whole.

As a source of revenue to the state there

can be no question. Estimating its cost as before at ten millions of dollars, the interest on that sum would be at six per cent., \$600,000 per annum. Probable cost of repairs, salaries of officers, including all expenses of working the road would be \$700,000. This estimate is based chiefly on the data furnished by the last report of the Baltimore and Ohio railroad company of the income and disbursements of the main stem of their road, for the year ending September 30th, 1845. The income from the same data in the ratio of the length of the two roads, would be about \$1,500,000. This allowing the large sum of \$700,000 for expenses would leave still \$800,000 or 8 per cent. on the capital stock. But this estimate is based upon the productiveness of the Baltimore and Ohio road in its present unfinished state are but 'the small dust of the balance, compared with those which may be expected when the work is completed to the Ohio river.'

From the same report it appears that the whole number of passengers upon the main stem of their road for the year 1845, was 202,450, and the aggregate passage money was \$369,200 30. Now when it is considered that this work is still incomplete, and that the travel will be immensely increased when once it is extended to the Ohio, and that the Richmond and Ohio railroad from its more favorable location would command even more travel than the Baltimore road, it cannot be extravagant to estimate the travel on the Richmond road to be equal at least to 150,000 through passengers annually.

Assuming this as a basis and estimating the fare through at only \$10, the annual income from this source alone would be \$1,500,000.

The income from freight on the Baltimore road for the year ending Sept. 30th, 1845, was \$360,720 00 or nearly the same as its income from passengers. On this basis the aggregate income on the Richmond and Ohio railroad could hardly fall short of \$3,000,000. Large as this may appear, it will be found on reflection to be moderate in view of the rapidly increasing trade and travel of the west. In this view of the case where is the wisdom of that policy which shrinks from the expenditure of \$10,000,000 to accomplish results like these?

But again, from the experience of the past we have abundant evidence that the increased value of real estate in Virginia should alone stimulate the legislature to the speedy accomplishment of this noble enterprise. In this point of view this road will most favorably compare with any road in the United States. Crossing the great valleys of Virginia at right angles it at once opens an immense and fertile territory which is now secluded and shut up between her mountain ranges.

Looking at the statistics of New York, it appears that in 1825, the year when the Erie canal was finished the value of her improved lands was \$174,024,175, and that in 1835, 10 years afterwards, that valuation had risen to \$241,385,050, showing an enhanced value equal to \$72,361,475!

Now then there can be no reason why the

enhancement of real estate in Virginia will not be in a greater ratio on the completion of her great work than it was in New York, for its present value is at its lowest depression and although no data are at hand from which to estimate the present value of her real estate, it will certainly be safe to estimate the increased value of the same in ten years resulting from the construction of this work at \$30,000,000. Another view of this matter will demonstrate the propriety as a financial measure, of the construction of this great railway entirely on state account. There are in Virginia at least 41,600,000 acres of land.— Now when we consider that lands are extremely depressed in price in this state when compared with lands in New York, Pennsylvania and Ohio, and that this great central railroad when completed would infuse life and activity throughout the commonwealth, removing in a great degree the causes which have so long and so low depressed the price of lands, and introducing thousands of enterprising citizens from other states and millions of active capital, no sane mind can doubt that its effects would raise the price of lands throughout the state on an average 75 cents per acre. This would produce \$31,200,000, in the enhanced value of real estate alone, without reference to the value of real estate in cities, towns, and villages. The consequent enhancement of property in the city of Richmond alone, would in ten years be more than half that amount.

It would undoubtedly be safe to predict that the taxable property, real and personal, would be increased within ten years from the completion of this great work, as its immediate consequence at least \$100,000,000.— Vast as this sum may appear, it will be found far less than the ratio of increase of property in New York within ten years from the completion of the Erie canal—and it should be considered too in making this comparison that in 1825 the price of lands in New York were comparatively high, and the state in a highly prosperous condition—while lands at the west were very cheap, and the influence of the canal was to equalize the price of lands in New York and the west, by affording greater facilities for the market of western products. But the case is far different with Virginia. She is pressed on the north, the east, and west with a denser population than her own. The surrounding lands of Maryland, Pennsylvania, and Ohio, are of no better quality, but command a price from 100 to 300 per cent. higher. And the tendency of opening this great thoroughfare and giving free course to trade and travel through Virginia, will be to elevate the price of her lands more than 100 per cent.

From the statistics accompanying the last census it appears that while the sheep of New York produce 1-92 lbs. of wool per head, the sheep of Virginia with little or no care yield 2-25 lbs. per head. Their wool is also of a superior quality and has gained the premium at several of the last annual fairs held at Lowell, Mass. These facts are important, going to show the superiority of Virginia over New York as a wool growing country.

In the counties along the line of the Richmond and Ohio railroad, there was in 1840, a population, in round numbers, of 300,000, and these counties in 1840 produced about 5,500,000 bushels of corn, 1,500,000 do. of wheat, and about 300,000 pounds of wool.—The great resources of iron, lead, salt, and lumber are along this same line and would originate a vast and rapidly augmenting business. Indeed it may be affirmed without fear of contradiction, that no section of country in the Union of equal extent would furnish in the quantity and variety of its mineral, agricultural and manufacturing products, more business for a railroad than this same central portion of Virginia.

No state of the Union should at this time be more densely inhabited than Virginia, and yet a few facts will show how far short of her rank the Old Dominion falls in this respect. As compared with New York and the country north and west of the Ohio, the following shows the census at different periods, viz :

	Virginia.	New York.	The west.
1790.....	747,610	340,120	110,368
1800.....	886,149	586,050	280,855
1810.....	974,622	959,059	694,073
1820.....	1,065,366	1,372,812	1,423,627
1830.....	1,211,405	1,918,608	2,286,301
1840.....	1,237,797	2,428,921	4,144,136

Thus it will be seen that while Virginia during 50 years from 1790 to 1840, did not double her population, New York increased her population more than 8 times, and the west more than 37 times!

Had the ratio of increase been the same between New York and Virginia, the latter in 1840 would have contained more than 5,000,000 inhabitants, or more than four times her present number!

These are startling facts, and when it is considered that a large portion of the state lies west of the mountains, and in 1790 was mostly an unbroken wilderness, and to a great extent still remains so, and that still farther west in what was then a wilderness, have arisen new states teeming with their millions of inhabitants and more densely inhabited than this oldest state in the union, it becomes matter of sober inquiry why Virginia falls so far behind her goal. New York since she entered upon her great works of internal improvements, has nearly tripled her population, and it is highly probable that had the Old Dominion entered upon the same policy with equal zeal, she would at this time number at least 3,000,000 inhabitants. Nor should the facilities of Virginia for manufacturing purposes be here overlooked. The fall of the James river at Richmond, and of the Great Kanawha and Cole rivers in the west along the line of this improvement, as well as the Grand Falls of the Potomac and many others of less note, give to Virginia a pre-eminence in her natural advantages for a great manufacturing state.

Her immense mineral wealth is almost boundless. Gold, copper, lead, iron, coal, salt, limestone, marble, granite, aluminous earths, soapstone, freestones, etc., abound within the state. These treasures of wealth would all be developed by the construction of the great works under consideration, but now mostly buried in the bowels of the earth.

From the valuable statistics collected in Professor Tucker's excellent work, it is shown that Virginia holds a high rank as an agricultural state. Her agricultural products amounted in

1840 to.....	\$59,085,821
Those of New York were estimated at.....	108,275,241
Those of Pennsylvania " ".....	68,480,924
Showing that Virginia holds the third rank among the states of the union in the aggregate amount of agricultural products.	

In reference to some of the great staples of agriculture, her rank is as follows:

Of tobacco, Virginia gathered.....	75,347,106 lbs.
" Kentucky ".....	53,436,909 "
" Tennessee ".....	29,550,432 "
" Maryland ".....	21,846,020 "

Of flax and hemp Virginia produced.....	25,594 tons.
" Missouri ".....	18,010 "
Of Indian corn, Virginia ".....	34,577,591 bush.
" Tennessee ".....	44,987,188 "
" Kentucky ".....	39,847,120 "
Of wheat, Virginia ".....	10,109,716 "
" Ohio ".....	16,571,661 "
" Pennsylvania ".....	13,213,077 "
" New York ".....	12,286,418 "

Thus it appears Virginia sustains the first rank in the union in the production of tobacco, flax and hemp. The third in relation to Indian corn, and the fourth in relation to wheat.

Virginia, in 1840, raised 10,622,345 bushels of bituminous coal, and Pennsylvania 11,620,654 bushels. Of salt, Virginia produced 1,745,618 bushels, and New York 2,867,884 bushels, thus holding the second rank in the production of coal and salt.

In the production of wool the order of the states is this: New York, Vermont, Ohio, Pennsylvania and Virginia. In the products of the orchard, they rank thus: New York, Maine, Virginia.

Of wine, there was made in Virginia more than twice as much as in any other state, and there is no doubt that for wine and silk her climate and soil are equal if not superior to any portion of the union.

These statistics are given to show not only the quantity but also the variety of the productions of this great state, and as some earnest of what would be the wealth of Virginia when once aroused to the development of her immense resources.

In the interior and western portions of the state are extensive forests of pine, oak, whitewood, cherry, walnut and other valuable timber, which would also find a ready market and add greatly to the wealth of the commonwealth.

Nor should the famous and unrivalled thermal, chalybeate and sulphurated springs of Virginia be overlooked in this connection. These delightful watering places, with their sublime and beautiful scenery, would all be thrown open to hundreds of thousands of visitors, and become sources of an immense income to the railroad, and of wealth and refinement to the interior of the state.

There is one other point of view in which the advantages of this work will most favorably compare with other lines of transportation from the west.—From the most reliable sources of information it appears that the present cost of transportation of a barrel of flour from Cincinnati to New York via the Ohio and Erie canal, lake Erie and the New York canal, is \$1 35. From the same place via the Ohio river, Pittsburg and the Pennsylvania works, \$1 40, and via New Orleans \$1 38, besides this there is usually an allowance of some ten or twelve cents to be made per barrel, for extra risk, and for soiling the barrel at New Orleans, which will make the cost in fact by this route about \$1 50.

The cost of transporting via Richmond and Ohio railroad and the Delaware and Hudson canal would not exceed one dollar per barrel, and when the lines of transportation were fully established between N. York and Richmond, the expense would be still less. This consideration is of very great importance when we consider the vast quantities of flour, beef, pork, wool, hemp, and tobacco, which will pass over this road from the west, and particularly in view of the exportation of American produce to foreign markets. As it is now, it actually costs the planter, residing within fifty miles of Richmond more to get a hog-head of tobacco to that market, than it does the planter on the banks of the Ohio, in western Virginia, who ships his tobacco via New Orleans, or sends it up the Ohio via Pittsburg and Baltimore.

Richmond and Norfolk will both become great commercial cities, and the centres of a large foreign trade. This is the true view which a Virginian, proud of the ancient renown of the Old Dominion, should take of this grand work. Disdaining a condition of commercial dependence upon the northern cities it should be his pride to contemplate the unbounded resources of his native state, and his grand aim to build up on the waters of the noble Chesapeake marts of commerce worthy of the commonwealth.

If Virginia would be true to herself, Richmond and Norfolk would soon become powerful rivals to the other Atlantic cities, for the trade and commerce of the Mississippi valley. As a convenient market for the products of that vast region and an entrepot for its foreign merchandize, Norfolk would pos-

sess greater advantages than any other Atlantic city. A Virginian should calculate the distance from Cincinnati the city of the west, not to New York, but to Norfolk and Richmond. Assuming for the present Cincinnati and New York as the great centres of trade in the east and west, the distance between them by the great lines of communication already opened or in contemplation, will be seen by the following statement: Miles.

From Cincinnati to Guyandotte.....	170
thence by Richmond and Ohio railroad to Richmond.....	400
Richmond to Washington.....	120
Washington to Baltimore.....	38
Baltimore to Philadelphia.....	96
Philadelphia to New York.....	86— 910
From Cincinnati to Wheeling.....	386
Wheeling to Baltimore by Baltimore and Ohio railroad.....	371
Baltimore to New York.....	182— 939
From Cincinnati to Pittsburg.....	482
Pittsburg by Pennsylvania line to Philadelphia.....	395
Philadelphia to New York.....	86— 963
From Cincinnati to Portsmouth.....	115
thence by Ohio and Erie canal to Cleveland.....	309
Cleveland to Buffalo.....	191
thence to Albany by Erie canal.....	363
thence to New York.....	148—1126
From Cincinnati to Cleveland.....	424
thence to Dunkirk.....	136
thence by New York and Erie railroad to New York.....	470—1050
From Cincinnati to Richmond.....	570
thence to Norfolk.....	130— 700

So that the Richmond and Ohio railroad will open the shortest route between Cincinnati and New York. Besides it has the preference in being the most southerly route and free from obstructions of ice and snow—avoids the risk of lake navigation—and taps the Ohio so low as to obviate the difficulties of shoals and low water in that river.

But the importance of this great thoroughfare as an outlet for the products of the Mississippi valley will appear in a stronger light when we compare the distance from Cincinnati to Norfolk with that from the former place to the other Atlantic cities.

By the above statement it will be seen that the distance from Cincinnati to New York upon the different routes is as follows:

By Guyandotte and Richmond.....	910
By Wheeling and Baltimore.....	939
By Pittsburg and Philadelphia.....	963
By Cleveland and New York, Erie railroad.....	1050
By Cleveland and New York, Erie canal.....	1126
Showing a difference between Richmond route and the others of from 29 to 216 miles.	

From Cincinnati to Philadelphia, the difference is by the Pittsburg route.....	877
By the Wheeling route.....	853
From Cincinnati to Baltimore.....	757
From Cincinnati to Norfolk.....	700

Thus it will be seen that the shortest outlet from Cincinnati to the Atlantic cities, is to Norfolk. That this distance is shorter than to New York by 210 to 426 miles, say..... 318 Less than to Philadelphia by 153 to 177 miles, say..... 165 Less than to Baltimore by..... 57

Now if we add the distance from the two last cities to the capes, Norfolk will have the advantage over Philadelphia by 357 miles, and over Baltimore by 257 miles.

But we may fairly institute a comparison between Richmond and the other cities in reference to their distance from Cincinnati, and we shall find that Richmond has the advantage over New York by 340 to 556 miles, say 448 miles; over Philadelphia by 253 to 307 miles, say 295 miles; and Baltimore by 187 miles.

From this hasty survey of Virginia as connected with her great central improvement, the mind can hardly comprehend the future greatness and prosperity of the Old Dominion.

With the experience of the last twenty years in which the other states have been schooled, she can construct this great work at a far less expense than works of a similar kind have cost. All the materials for the road are found in abundance along the

contemplated route, and as has been before remarked the grade over the Alleghenies will be easier than at any more northerly point.

In view of all this, it is difficult to suppress a feeling of astonishment that the leading men of Virginia delay the construction of this great work. It is impossible however that it should much longer be delayed. An empire in territory in the very heart of the republic, Virginia must soon yield to the pressure of causes from within and without, and enter upon a liberal system of internal improvement.

The unsettled state of our foreign relations, and the excitement of the public mind in relation to the Mexican war and the tariff policy, have hitherto retarded action under the late charter granted for the Richmond and Ohio railroad. Yet the work will go forward, and then, and not till then, will Virginia assume her former rank among the states of the Union.

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by **JOHN W. LAWRENCE,** 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 17

SPRING STEEL FOR LOCOMOTIVES. Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/4 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

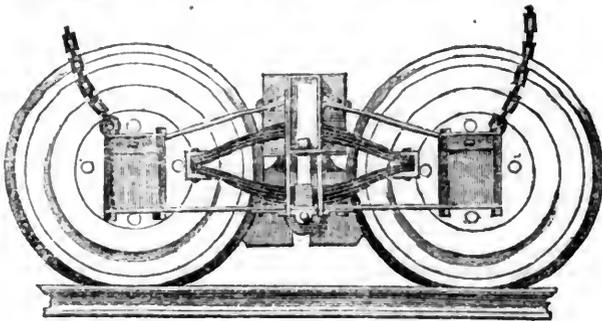
JOAN F. WINSLOW, Agent, Albany Iron and Nail Works, 17

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/4 x 1/2 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/4 x 1/2 " Flange Iron Rails.

75 " 1 x 1/2 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures.

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons. **ELLICOTT & ABBOTT.** Factory, 9th street, near Coates, cor. Melon st. Office, No. 3 North 5th street, Philadelphia, Pa. 1y25

PATENT INDESTRUCTIBLE WATER PIPES. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 29tf

TWO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS, Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 1tf

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee **G. A. NICOLLS,** Reading, Pa. ja45

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO, 45 North Water St., Philadelphia, or by their Agent, **ROBT. NICHOLS,** 79 Water St., New York. 28tf

THE SUBSCRIBERS, AGENTS, FOR the sale of Codorus, Glendon, Spring Mill and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAML. KIMBER & CO., 59 North Wharves, Philadelphia, Pa. Jan. 14, 1846. [1y4]

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] **G. A. NICOLL,**

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] **T. L. SMITH,**

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, } [Signed,]

JOHN LEACH,

Jamaica November 12, 1845. } 1y19

Sup't Motive Power.

RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATTAILLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138 1/2 Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabeth-town and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; C. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

** The letters in the figures refer to the article given in the Journal of June, 1844.

ja45



PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, 445 Paterson, N. J., or 60 Wall street, N. York.

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

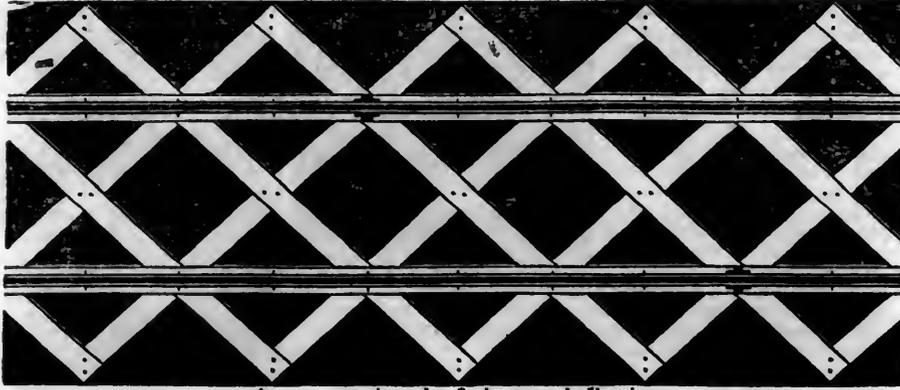
ja45

DAVENPORT & BRIDGES CONTINUE to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

1y1

THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

THE UNDERSIGNED RESPECTFULLY invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes =	2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge =		600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.
Civil Engineer and Patentee.
No. 277 South Tenth St., Philadelphia. 33tf

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.		
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4½	13 5	10	24 -	50	15-16	20	
13	3½	8 3	8½	16 -	27	11-16	13½	
14	3½	6 11	7½	12 8	17	9-16	10½	
15	2½	5 2	6½	9 4	13½	1-2	7½	
16	2½	4 3	6	8 8	10½	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY **EDMUND DRAPER,** Surviving partner of **STANCLIFFE & DRAPER.**



No 23 Pear street, below Walnut, Philadelphia. 1y10 near Third,

LAP—WELDED WROUGHT IRON TUBES

FOR **TUBULAR BOILERS,** FROM 1 1-4 TO 6 INCHES DIAMETER, and ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee. 1y25 28 Platt street, New York.

ENGINEERS and MACHINISTS.

- THOMAS PROSSER,** 28 Platt St. N. Y. (See Adv.)
- J. F. WINSLOW,** Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY,** H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM & GROSVENOR,** Paterson, N. J. (See Adv.)
- S. VAIL,** Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS,** Philadelphia Pa. (See Adv.)
- FRENCH & BAIRD,** Philadelphia. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY,** Newcastle, Del. (See Adv.)
- ROSS WINANS,** Baltimore, Md.
- CYRUS ALGER & Co.,** South Boston Iron Co.
- SETH ADAMS,** Engineer, South Boston.
- STILLMAN, ALLEN & Co.,** N. Y.
- JAS. P. ALLAIRE,** N. Y.
- PHENIX FOUNDRY,** N. Y.
- ANDREW MENEELY,** West Troy.
- JOHN F. STARR,** Philadelphia, Pa.
- MERRICK & TOWNE,** do.
- HINCKLEY & DRURY,** Boston.
- C. C. ALGER,** Stockbridge Iron Works Stockbridge, Mass.

THE AMERICAN RAILROAD JOURNAL

is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

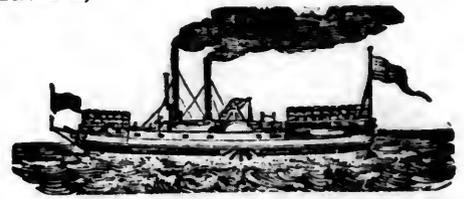
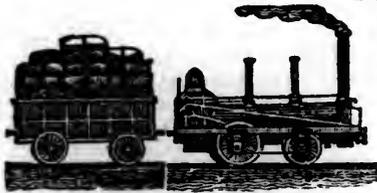
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AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

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SATURDAY, NOVEMBER 7, 1846.

[WHOLE No. 542, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m. 12½ m., 3¼ p.m., and 6¼ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3¼ p.m.

All baggage at the risk of the owners thereof. 31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD and STAGES Connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 31 ly

J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Winter Arrangement, 1846-7.

On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.

Boston for Great Falls at 7½ a.m., 2½ and 3-25 p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 3-25 and 5 p.m.

Boston for Reading at 7½, and 11½ a.m., 2½, 3-25 and 6¼ p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 7½, 8½, and 11 a.m., and 3 and 6¼ p.m.

Reading for Boston at 7, 8½ and 9½ a.m., 12 m., 1½, 4 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1y31 CHAS. MINOT, *Sup't.*

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4, 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7, 10, 8, 10, 9, 10, 11, 10 a. m., and at 12, 40, 2, 3, 10, 5, 10, 5, 30, 6, 10 and 7 p. m.

Leave Williams' Bridge and Fordham, at 6, 45, 7, 45, and 10, 45 a. m., and at 12, 15, 2, 45, 4, 45, and 5, 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams Bridge trains will be regulated according to the state of the weather.

1y18

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.

" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, *Sup't.*

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board.

13 ff

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846.. Spring Arrangement.. 1846

Commencing April 1st.

Passenger trains leave daily, Sundays excepted—

Boston 7½ p. m. and 4 p. m. for Albany.

Albany 6½ " and 2½ " for Boston.

Springfield 7 " and 1 " for Albany.

Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:

Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12¼ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6¼ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 3¼ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES, Superintendent and Engineer.

Western Railroad Office, }
Springfield, April 1, 1846.

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail— which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

TROY AND SARATOGA RAILROAD.

THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug. 3, 1846.

1y 32

THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00
 " " Sandusky to Buffalo, Cabin..... 6 00
 " " " " Steerage.... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, Sup'l, etc.
 M. & S. C. R. R. Co.

Sandusky, Ohio.

RAILROAD IRON.—THE "MONTOUR

Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sts. 43 1y

NEW RAILROAD ROUTE FROM BUFFALO to Cincinnati.

Passengers destined for Columbus and Cincinnati, O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance.....230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy Iron,] to Mansfield, distance..... 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

TIME.
 From Buffalo to Sandusky..... 24 hours.
 Leave Sandusky 5 a.m. to Columbus.... 14 "
 From Columbus to Cincinnati..... 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.
 From Buffalo to Sandusky, Cabin.....\$6 00
 " " " " Steerage..... 3 00
 " Sandusky to Columbus..... 4 50
 " " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Sup'l, etc.
 M. & S. C. R. R. Co.

Sandusky City, Ohio.

BALTIMORE AND OHIO RAILROAD.

MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7 1/2 and

Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore: 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER, 17 Burling Slip.
 New York.

BALTIMORE AND SUSQUEHANNA

Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger

trains run daily, except Sunday, as follows:
 Leaves Baltimore at.....9 a.m. and 3 1/2 p.m.
 Arrives at.....9 a.m. and 6 1/2 p.m.
 Leaves York at.....5 a.m. and 3 p.m.
 Arrives at.....12 1/2 p.m. and 8 p.m.
 Leaves York for Columbia at...1 1/2 p.m. and 8 a.m.
 Leaves Columbia for York at...8 a.m. and 2 p.m.

FARE.
 Fare to York.....\$1 50
 " Wrightsville..... 2 00
 " Columbia..... 2 12 1/2
 Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg..... \$9
 Or via Lancaster by railroad..... 10
 Through tickets to Harrisburg or Gettysburg.. 3
 In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5 1/2 p.m.
 Returning, leaves Owing's Mills at.....7 a.m.
 D. C. H. BORDLEY, Sup'l.
 Ticket Office, 63 North st.

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.
 Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

SOUTH CAROLINA RAILROAD.—A

Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculumbia Railroad in N. Alabama. Fare through from Charleston to Montgomery daily.....\$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent.

CENTRAL RAILROAD-FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods..... 13 cts. per cubic ft. On brls. wet (except molasses and oil).....\$1 50 per barrel. On brls. dry (except lime)... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred. On hhds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd. On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, Gen'l. Sup'l. Transportation.

MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburg, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons; and is still in good condition.

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. 1y1

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 fe. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 51x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

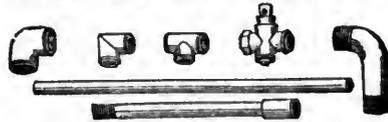
For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ½ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.

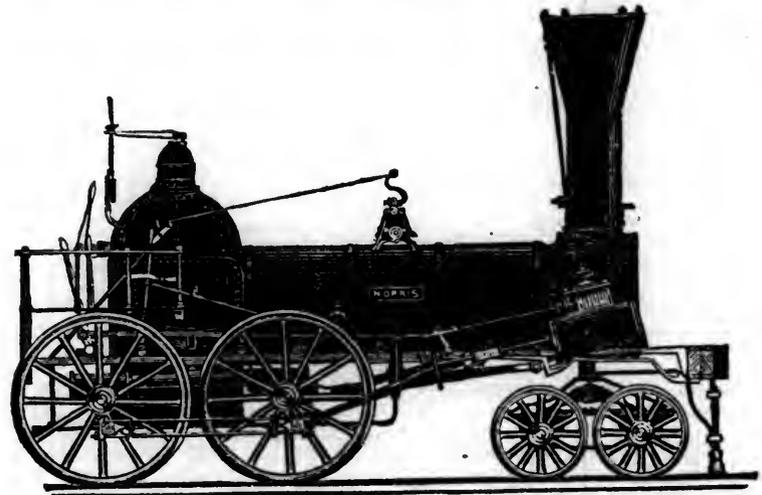
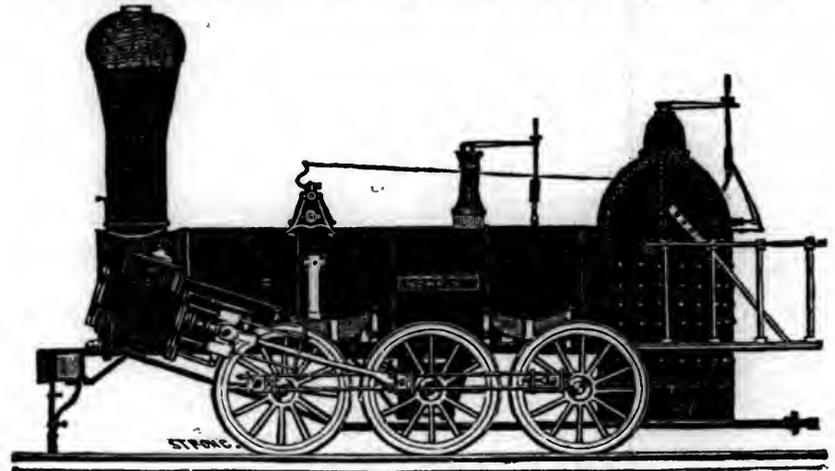


Manufactured and for sale by MORRIS, TASKER & MORRIS. Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

RAILROAD IRON.—THE NEW JERSEY Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to FULLER & BROWN, Agent, No. 139 Greenwich, corner of Cedar street. September 18, 1846. 10:39

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	15 inches Diameter of Cylinder,	× 20 inches Stroke.
" 2,	14	" " " × 24 " "
" 3,	14½	" " " × 20 " "
" 4,	12½	" " " × 20 " "
" 5,	11½	" " " × 20 " "
" 6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del. Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY, President of the Newcastle Manuf. Co. 245

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON Mar. 20th 4 South Front St., Philadelphia.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Allaire, } New York.
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- J. R. Anderson, Tredegar Iron Works, Richmond, Va.
- J. Patton, Jr. } Philadelphia, Pa.
- Colwell & Co. } Philadelphia, Pa.
- J. M. L. & W. H. Scovill, Waterbury, Con.
- N. E. Screw Co. } Providence, R. I.
- Eagle Screw Co. } Providence, R. I.
- William Parker, Supt. Bost. and Wore. R. R.
- New Jersey Malleable Iron Co., Newark, N. J.
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25,000 to 30,000 made weekly. 35 1y

The Anthracite Coal Trade.
Continued from page 651.

Buck Mountain Coal Mine, Luzerne Co., Pa.—In continuation of the description of the geological position of the coal mine on the estate of the Buck Mountain coal company, I shall conclude my remarks thereon, by endeavoring to prove by geological data, (as promised in my last communication on the subject) first that the vein of coal worked by the Buck Mountain coal company is not (as has been represented) the same vein as that worked by the Hazleton coal company; nor is it any part of the vein; and secondly, I shall, from notes of a personal examination, (made expressly for that purpose,) show that the mine is *not* in the Hazleton basin; and that it is in the coal basin south of the Hazleton.

First, the slope or entrance to the mine on the estate of the Buck Mountain coal company is situated on the *south* side of the mountain, on the *north* dip of the coal vein. The vein from which the coal is mined, is from its south to its north outcrop, between 700 and 800 feet. This measurement is made across the basin opposite the slope, and appears, from present developments, to be its general width.

In the coal vein an upper and a lower gangway have been driven. The upper gangway is driven from the out-crop of the coal vein at the top of the slope, and continued along the *north* dip of the vein 600 feet, to the west end of the basin is found—at this place the coal vein is nearly flat;—rising from the gangway towards the surface, at about 6 degrees. This gangway has not been continued round the west end of the basin, in consequence of its not draining a sufficient depth to give a workable breast of coal between it and the surface, or outcrop of the vein.

The coal vein at the commencement of the upper gangway dips to the north 26 deg. Down this incline, the slope has been made a distance of 100 feet from the surface; at its foot the lower gangway commences, which is driven east and west in the coal vein. In the west gangway, at about 500 feet from the foot or bottom of the slope, the coal vein rises towards the surface, south, 18 degrees. From this point the general course of the gangway, in rounding the basin, is north-west about 500 feet, to the western point of the basin, where the coal vein rises to the west at only 6 deg. The course of the gangway from this is north-east for about 300 feet further; here the rise of the vein is northward, and is increased to 9 degrees; at 300 feet further, the vein rises to the north 18 degrees; passing this, the gangway continues eastward along the *south* dip of the coal vein, which increases to 26 degrees, for say 500 feet further, making a distance of gangway from the commencement at the foot of the slope of about 1700 feet—the extreme end of which is on the *opposite side of the coal basin, in the south dip of the coal vein, to where it commences at the slope, in the north dip.*

The lower gangway has been driven eastward from the foot of the slope along the

north dip of the coal vein about 1500 to 1600 feet. The rise of the vein towards the surface continues about the same from the slope throughout, viz.: about 26 degrees. At present no indications of the eastern end of the coal basin is observable in the workings.

In driving an air shaft from the lower western gangway up to the incline of the coal vein at the western point of the basin, it was discovered that it saddled over,—that is, the coal which in this place rose to the west turned over before it cropped out, or reached the surface, and formed a western dip or eastern end of another basin. After this discovery was made, the upper gangway in the first or east basin was continued, and driven through the stratum underlying the coal vein, which has to be cut down from four to five feet, to continue the gangway on the same level course; and the second or western coal basin was thus opened, and the gangway was continued in the *same coal vein* as that in the eastern basin; but it had only been driven a short distance, and sufficient explorations had not been made when I visited the mine to ascertain the shape or extent of this coal basin.

The coal vein worked at the Buck mountain mine consists of one bench, averaging about 1½ feet in thickness of marketable coal, with from 6 inches to 1 foot of bone coal overlying it. Over this is said to be another bench, 4 feet in thickness, separated from the bone coal by 2 feet of slate, and underlying the vein in work, is said to be first 4 feet of slate, then 7 feet of coal, then 1 foot of slate, and under this 4 feet of coal.*

On a lithograph map of the Buck Mountain coal company's mines, appears a diagram representing a section of their coal basin, where the coal vein in work is described as being 22 feet in thickness, divided as follows: "1st, bottom vein of coal 3½ feet thick, covered with 6 inches slate; 2d, vein of coal 7½ feet thick, covered with slate 5 feet thick; 3d, vein of coal 9½ feet thick, covered with slate 6 feet thick; 4th or top vein 2 feet thick,"—making 22½ feet of coal, and overlying this vein. In the same basin is represented three others, viz.: "1st, a vein containing 10 feet of coal on crop, divided by 6 inches of slate; 2d, vein of coal, thickness not proved; 3d, a small top vein of coal."

In the diagram, the length of tunnel required to be driven, to cut the bottom, or lower vein of the basin, is estimated at 460 feet; in another plan of the mine, it is estimated at 628 feet.

When I visited the Buck Mountain mine, I was informed that the tunnel was then driven in about 205 yards or 615 feet. The face of the tunnel was then in the conglomerate rock, the bed of the coal formation. Since my visit, the tunnel has been driven 75 feet further, making a total distance of 690 feet. It is now through the conglomerate and in the sandstone that underlies the

* The strata of coal and slate said to underlie the vein in work, was, I am informed, proved by boring in the lower gangway east of the slope.

coal vein. The tunnels calculated to be driven 90 feet further, before it reaches the centre of the coal basin. Its point of termination is intended to be five feet below the coal and slate above described.

To prove that the vein of coal worked at the Buck Mountain coal company's mine is *not* the same vein as that worked by the Hazleton coal company, we have the character, the thickness, and the geological situation of these two veins, as corroboration. The character and fracture of the coal are different, the alternations of coal and slate differ in the thickness, as will be perceived by a comparison of the sections, as their geological position (the greatest and most convincing proof of their being different veins,) is not the same. In the Hazleton coal basin, there is developed three other coal veins which underlie the one worked by the company; separated from each other by strata of shales and sand stones, forming a perpendicular distance between it rock of, say 200 feet. At Buck Mountain the bench of coal in work is part of the bottom vein of the basin, lying immediately over the conglomerate rock. At Hazleton, where the coal strata dips at an angle of 30 degrees, we have between the vein in work and the conglomerate rock, an horizontal distance of from 1500 to 2000 feet. At Buck Mountain, where the dip is only 26 degrees, (which makes the horizontal distance between the strata greater than it is at Hazleton, where the dip is thirty degrees) we have, as shown by the measurement of the tunnel not more than 100 feet horizontal measurement from the conglomerate to the vein in the work; thus satisfactorily proving, by accurate developments, that the coal vein worked at Buck Mountain is not the same as the coal vein worked at Hazleton, nor any part of that vein.

I shall now conclude this subject, by endeavoring to show, by geological facts familiar to all who are acquainted with coal formations, that the vein of coal worked by the Buck Mountain coal company is not the Hazleton coal basin. The conglomerate rock is not displaced, but is continuous, and its range well marked from the point at Buck Mountain slope, where it forms the *south boundary* of that coal basin, to where it crosses the Hazleton railroad at the saw mill, north of Indian house swamp, and Dreck creek, and from thence still further west. And the conglomerate rock, which forms the *north boundary* of the coal basin at Buck Mountain, is continuous from thence to where it crosses the Hazleton railroad, north of the Dreck creek, and north of the former range. The former or southern range of conglomerate is, at the Hazleton railroad, the south boundary of what is there called the Dreck creek coal basin. The latter, or northern range, where it crosses the Hazleton railroad, forms the north boundary of the Dreck creek, and the south boundary of the Hazleton coal basins. Its strata is anticlinal, having, at this place, a south dip under Dreck creek, and a north dip under and towards the centre of Hazleton coal basin. These facts are something more than

suppositions; they evidently and abundantly testify that the Buck Mountain coal company's mine is in the continuation, and the eastern end of the Dreck creek coal basin.

At the Hazleton railroad, where the south and north ranges of conglomerate before described crosses, the south range has a north dip, but in a short distance rises again, thus forming a shallow basin; this rise saddles over, and again dips north, under Dreck creek; it then rises again, making the south dip of the north range, forming a second basin. These undulations of the strata in the Dreck creek coal basin, as seen in the Hazleton railroad, developed by the transverse cut through the ridge by the stream of Hazle cree, may continue with the basin, and be found in the prosecution of the workings at Buck Mountain mine.

Finally, the foregoing fact must be understood as written, to give the true position of the basin; and not in any way to depreciate the value of the Buck Mountain coal company's estate. The coal of that estate, from its advantageous position, may be mined at low rates; it is of unquestionable good quality, and, although the basins are of small area, a supply of coal may be calculated upon to meet all reasonable demands for many years to come.

Further, I take this opportunity to remark, before I close this communication, that, from personal explanations, I have been led to consider this section of country, as regards its mineral wealth, of much greater value than I had anticipated. Tracts of land, from the undulating nature of the strata, will hereafter be found to contain valuable veins of coal, which are now generally considered and known as timber, and not coal lands. I have now under preparation, a map of this part of the anthracite formation, which will show, when complete, the boundaries of the various coal basins, with sections of the coal strata, and exhibiting the course of the coal veins which may be expected to be found therein:

W. F. ROBERTS,
Engineer of mines.

Second Annual Report of the Vermont Central Railroad Company]

To the General Assembly of the State of Vermont :

In compliance with the 19th section of the Vermont Central railroad company, the directors of said company submit the second annual report of the proceedings, receipts, and expenditures up to the 9th of October, 1846.

According to the notice publicly given the board of directors commenced the location of the road on the 16th October, 1845, and have located so much of the line authorized by the charter as lies in the vallies of Connecticut, White and Onion rivers, and between a point opposite Chase's island in Windsor, and the eastern shore of lake Champlain in Burlington.

An application having been made to two judges of the Supreme court, A. Anderson, S. Adams, and J. Curtis, Esqs., were appointed commissioners to appraise damages for all lands and other real estate entered upon and used by the company, in cases of disagree-

ment between the owners and the company; and by mutual agreement of the parties, or by the award of the commissioners, the company has been enabled to enter upon the portions best adapted for the prosecution of the work of grading during the past season.

In November last, a contract was entered into with Sewall F. Belknap, an experienced contractor, to construct and finish the road in every respect in the most substantial manner; and on the 15th day of December last, the ground was first broken, at a point near the village of Windsor, and the work of grading has been vigorously and successfully maintained, with but occasional interruptions, and those on the line between Montpelier and Burlington, which have occurred without any fault on the part of the company.

The amount of work done has been large, and fully warrants the expectation that the whole can be completed in the most substantial manner, at the earliest time, and within the cost anticipated by the company.

Prior to the 1st October, 1846, the amount of work done on the road was as follows :

1,764,000 cubic yards of earth removed.
47,100 " " rock "
14,200 " " masonry done.

About 22 miles of the road is graded, or nearly so—being about one-fifth of the entire line. A large portion of the light work is yet untouched, attention thus far, having been generally bestowed on the heavier parts of the work.

There would be no difficulty in having the line graded from Windsor to the Onion river before the closing in of the winter of 1847.—By a little extra exertion, this might be accomplished in October, and the superstructure laid before frost. The Onion river portion could not be readily prepared before another season, though it may be practicable to reach Richmond as early as the winter of 1847-8.

The account of receipts and expenditures has been as follows; on the next page, as signed by the treasurer.

Vermont Central Railroad Co., in Account with S. H. Walley, Jr. Treasurer.—October 9, 1846.

	Dr.
To engineering.....	\$30,317 04
" exchange.....	4 88
" grading.....	186,345 91
" incidental expenses.....	15,126 07
" land taxes.....	46,457 62
" bridging and masonry.....	17,654 09
" superstructure.....	223 30
" Wmooski turnpike.....	18,000 00
" C. Paine, president, for grading and land damages not included above.....	18,507 67
" Vermont and Canada railroad.....	989 92
" notes receivable.....	16,863 11
" bank of Montpelier.....	3,977 06
" bank of Woodstock.....	10,730 00
" Farmer's and Mechanic's bank.....	180 04
" Merchant's bank.....	9,781 90
" cash on hand.....	3,243 44
	\$378,422 05

	Cr.
By amount received for assessments.....	\$377,460 50
" interest.....	961 54
	\$378,422 05

Chas. Paine, Jacob Forster, Sam'l S. Lewis, Daniel White, Robert G. Shaw, and John Peck, directors.

Nashville and Chattanooga Railroad.

We take pleasure in laying before our readers the following extract of a letter from J. Edgar Thomson, Esq., to our fellow townsman, Col. Jas. A. Whiteside. The information it embodies will be of interest to all who are looking with anxiety to the building of a road from this point to Nashville:—*Chattanooga, (Tenn.,) Gazette.*

NASHVILLE, Tenn., Sept. 14, 1846.

DEAR SIR: Having finished a reconnoissance of the country between Chattanooga and Nashville, I have the pleasure to inform you, that I consider it not only practicable to construct a railroad between these places, but that it can be executed upon terms, both as regards cost, and gradients, that are more favorable than can be obtained upon any other route in the Union, connecting or proposed to connect the Atlantic and western states, by crossing the intervening mountain ranges.—The greatest elevation at which the road will be carried over the mountain, will scarcely exceed 1200 feet above the ocean, or about 500 feet above Chattanooga.

The instrumental examinations, now in progress, have not advanced sufficiently to enable me to give a very accurate estimate of the cost of the work. But I have no hesitation in saying that it will fall greatly below a sum, which the important objects to be attained by the completion of the road, would justify its expenditure to secure.

The region of country that will be tributary to this work, is unrivalled for the richness of its soil, variety of its agricultural products, and extent of contiguous first quality of lands by any section of the Union. It not only embraces middle Tennessee and a part of north Alabama, but a very large area of the best part of Kentucky. In fact, the products of the country are ample for the support of such a work, and the ability of the citizens—if they will put forward their strength—is more than competent to its execution without a great exertion.

Profitable Increase in Traffic on Railways, As produced by great reduction in the charges.

BY MR. B. WILLIAMS.

The carriage of goods, the original object in the construction of railways, has been kept out of view until lately by the increase in passenger traffic calling for all the energies of the managers, and the entire revenues of the companies, except on the old established lines, where it has been proved, Mr. Williams states, that the increase of net profits from goods is greater than the increase of net profits from passengers. Goods of small bulk, compared with their value, may be sent by railway, but not agricultural or mineral produce, generally goods of great weight and bulk in proportion to their value at the present high charges, although a railway is the construction of all others calculated to meet this demand by its mechanical power. It is a great and costly machine or engine, the produce of which is cheap if it be fully employed; if the machine be idle, or work with incomplete action, a loss of interest on the great outlay must be the result. The cost of conveyance on all

railways, in Mr. Williams' opinion, admits of being separated into two elements; first, interest on capital, together with certain fixed charges, which are independent of the greater or less use made of the railway; second, the actual working expenses that result directly from the work done. In Belgium, in order to provide interest at the rate of 5 per cent. on the original cost of the railways, with a goods traffic per mile per annum of 40,000 tons (the actual traffic to the year 1844 on the Belgium railways) the charges would consist of 3*d.* for interest and other fixed demands, and 1*d.* for working expenses, making a total charge of 3½*d.* required, with that amount of tonnage, to pay 5 per cent. on the capital. The actual charge was 2½*d.* per ton per mile, and the railways were then working at a loss, the government having borrowed the capital for their construction at 5 per cent., and having in net return, after defraying the expenses, only 2½ per cent. Yet at the very time the railways with their superior advantages in economy of time and regularity of delivery, were carrying only 40,000 tons per mile per annum, the canals were carrying 400,000 tons. The charge on the latter was 1½*d.* per ton per mile, or half of the charge on the railways. Had the railways but carried one-half of the tonnage of the canal company, at the canal charges, instead of an annual loss to the revenue of £60,000, there would have been an annual gain of £52,500. Mr. Williams illustrated his paper with various tables and returns, calculated upon data embracing the average cost of railways in England, and funding for interest at the rate of 5 and of 10 per cent. on the capital. The tables showed of how much importance it is for the benefit of the public, consistently with the pecuniary interest of the capitalists, that large quantities of goods should be carried; that, for example, while, with an average traffic of 100,000 tons per mile per annum, the charge required to produce 10 per cent. on the capital, after paying the working expenses, should be about 4½*d.*, with an annual traffic per mile of 500,000 tons, a charge of 1½*d.* per ton on the average of all goods would produce an equal return after paying the expenses. This subject was pursued, illustrated by tables, with reference to the conveyance of passengers, of various classes of goods, cattle, etc. The applicability of these tables to test the substantial character of new schemes was made apparent. A necessary conclusion of Mr. Williams' investigation is, that expansibility in the railway system (both as regards the mechanical power and the mode of management) is required; and that it is the interest of the companies to increase, in a great degree, both the goods and the passenger traffic by a system of low charges. It is to the interest of the public that as much traffic as possible should belong to each line, and thus competing lines are highly injurious to the public, by preventing the reduction in charges that can only be the result of the conveyance of numbers of persons and quantities of goods; in other words, the machine should be kept fully employed.—*Athenæum*.

Blasting Shoals in the River Severn.

At the institution of civil engineers, on Wednesday night, the paper read was by Mr. G. Edwards, member of the institution of civil engineers. It describes the method employed for breaking up the shoals in the river Severn, between Stourport and Gloucester. These shoals consist of marl rock, so compact and tough as to resist all attempts to break it up with the stream dredger, or by prize bars, or with a powerful species of subsoil plough. Recourse was therefore had to blasting with gunpowder, and the process of these operations formed the subject of the paper. Messrs. Grissell & Peto were the contractors for the work, and for them Mr. Edwards designed and executed the blasting operations. A series of rafts were moored in a line over the shoal, parallel with the bank of the river. Along the centre of each raft there was an opening, through which wrought iron tubes, 3½ inches diameter, were driven down, at intervals of six feet apart, through the gravel down to the marl; within these tubes the workmen used the chisel-pointed jumper to make the shot holes, to a depth of six feet below the surface. The loose stuff was extracted by an auger. A tool cartridge of canvas well pitched and tallowed, containing three pounds of powder, was lowered through the tube into the hole, which was well rammed with loose marl.—The charge was then fired by means of Bickford's fuse. There was generally but little apparent external effect from the shot, except lifting the pipe a few inches. But sometimes a column of water would be driven up through the water to a height of forty or fifty feet. It was found that each shot had loosened a mass of marl of conical or parabolic form, of which the bore hole was the centre, and its bottom the apex, so that four adjoining shots of two parallel lines would leave between them a pyramidal piece of marl, which was removed by the dredging machine with the loose stuff. This operation of blasting was repeated in parallel lines along all the shoals, and the stuff was dredged up at the rate of 200 to 300 tons per day. The cost of blasting was about 1*s.* 9*d.* per cubic yard. It was stated that the six principal shoals had all been successfully operated upon, and great credit was given not only to the design, but also to Mr. Edwards for the systematic and complete manner in which he had arranged and conducted the operations.

The society showed their approbation of Mr. Edward's abilities by awarding him the Telford medal for 1845. We may add that many thousand tons of matter have been thus already broken up and raised; that two dredging machines are now regularly employed, and that the works are progressing in the most satisfactory manner. As the tolls empowered by the act cannot be imposed until there is six feet water from Stourport to Gloucester, every possible exertion is being used by the contractors, Messrs. Grissell & Peto, to expedite the completion of the work; two dredging machines have lately been working from 3 a.m. to 9 p.m., indeed, we are informed, one of them, No. 1, absolutely raised the surprising quantity of 900 tons one day last

week! A third dredging machine, built by Mr. Rebel, of Gloucester, under the direction of Mr. Edwards, was launched last week, and will very shortly be ready for work.—Viewing the magnitude and difficulties of the works, we consider it fortunate for the commissioners that they have been entrusted to such responsible parties as Messrs. Grissell & Peto, who have at their command the talent and the means necessary for anything that may be required to be executed. We are told it is no uncommon circumstance for this firm to have in their employment at one time, on different works, as many of 10,000 men.—*Naut. Mag.*

The City of Boston.

It can be a matter of no question that the "city of notions" is highly indebted to the railroads which centre there for her present and her prospective prosperity. Within the last few years, no city on our Atlantic coast has increased in wealth and population like this—and none are now making greater progress than Boston. The following article from the New York Journal of Commerce contains much truth, and the remarks are those of an attentive observer of passing events. We commend it to the notice of our readers.

"Any man who visits this centre of eastern enterprise, will be astonished at its growth. The last three years, especially, have made it almost to burst with its swelling greatness. Such a people, so intelligent, enterprising and industrious, where everybody works, will be rich, and will accomplish whatever they undertake. But Boston has been more than successful. Her railroads and other plans of improvement have surpassed the expectations of their projectors, in their favorable results. The number of her merchants has been immensely increased, while everybody does a much larger business than formerly, especially among the dry goods dealers. He was a respectable jobber a few years ago who sold \$100,000 worth of goods; but now 300 to 500 thousand is a common thing. The stores of the dry goods jobbers are built like palaces, with an exuberance of cost, which is almost in bad taste. The renowned peninsula is all built over snug and tight, and thousands of business men live out of town, conveyed by omnibuses and railroad cars. Hundred thousand dollar men are plenty now all about, and millionaires are to be found here and there.

The Bostonians attribute their very great prosperity to their railroads, especially that to Albany. This road has opened to them the western trade more fully than they had it before, and has made Boston more accessible to the west, at some seasons of the year, than New York. Boston deserves whatever prosperity she gains from this noble enterprise. It was not built by her capitalists and retired men. They never do such things. The men in active business, who had less personal interest in it, but more enterprise and public spirit, did it, as they must ever do such things. They could do it; for in Boston there is a concentration of the public mind, which brings out and directs its mighty force to great achievements. We have no jealousy of Boston's prosperity, and no fear that it is to un-

dernine that of New York. But we should be glad to see New York acting with as much good sense and concentrated enterprize. Our want of concentration of sentiment—anything like a New York spirit—is perhaps the result, in a great measure, of our prosperity. Yet prosperity so treated is enfeebling and in the end may cost more than it is worth. Nature had made New York great, but art sometimes overcomes nature. Nothing is more plain than that we ought to have a railroad to Albany, and ought to have had one before Boston built hers. It is a reproach to our sagacity, and to the character of our noble city, that we have it not. In the effort to do it we were singularly unfortunate. In Boston there never could have been the mismanagement which it took us so long to overcome in the Erie road, and which we have yet to overcome in that to Albany."

(Official) Reading Railroad.

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending—

	Oct. 12, 1844.	Oct. 11, 1845.	Oct. 10, 1846.
Travel.....	\$1,642 30	\$2,059 77	\$3,099 52
Freight on goods.....	724 39	1,044 21	2,638 56
" coal.....	13,192 72	25,827 75	47,873 56
	\$15,559 14	\$28,931 73	\$53,611 64
Coal trans.—tons.....	11,532	20,519	32,695

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending—

	Oct. 19, 1844.	Oct. 18, 1845.	Oct. 17, 1846.
Travel.....	\$2,107 06	\$1,812 47	\$2,499 82
Freight on goods.....	992 74	1,012 75	2,450 69
Do. do. coal.....	12,429 13	24,714 46	41,623 57
	\$15,528 93	\$27,539 68	\$46,572 08
Coal trans., tons.....	11,209	19,584	28,920

Erie Railroad.—The earnings of the eastern division of the Erie railroad for the year ending Sept., 30th, 1846, were as follows:

From freight.....	\$113,832 05
Passengers and mail.....	66,607 08
Total.....	180,439 13

The earnings for year ending Sept. 30, 1845, were..... 161,545 08

Increase..... \$18,893 05

Erie Railroad.—The earnings of the eastern division of the Erie railroad for October, were,

From passengers and mail.....	\$7,020 27
" freight.....	12,369 96
Total.....	19,390 23

Same month last year..... 15,740 20
Increase \$3,650 03.

Another section has been opened for travel on the above road between Middletown and Otisville, a distance of nine miles; making a total distance, including ferry to Piermont, of eighty-seven miles.

Mohawk and Hudson Railroad.—The following are the earnings of the road for the week ending October 14th:

Passengers.....	\$2,403 61
Freight.....	102 91
	2,506 52

Same period in 1845..... 2,169 83

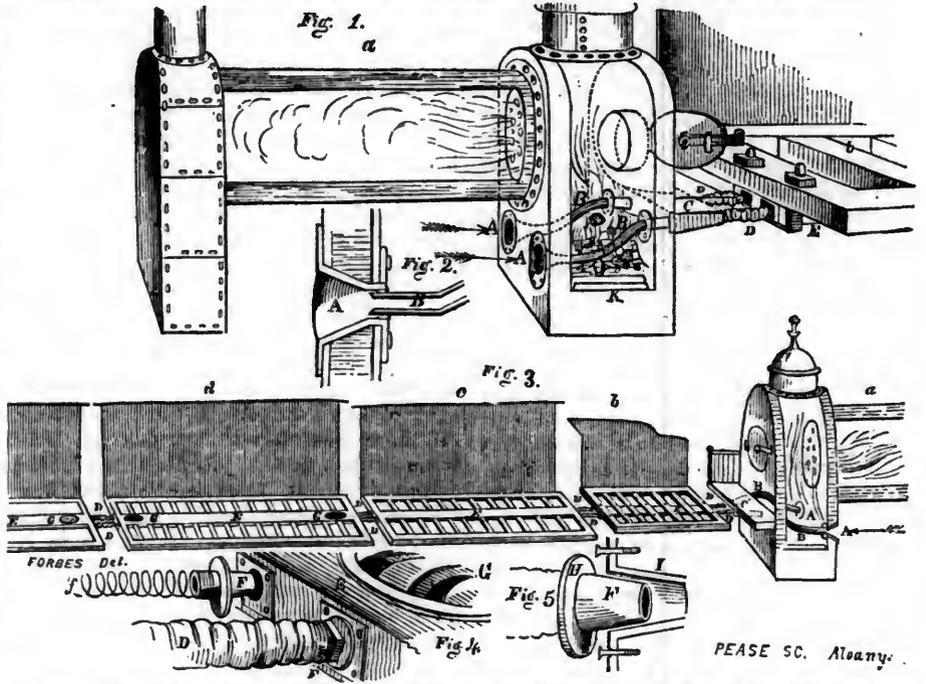
Increase upwards of 15 per cent., being.. 336 69

The earnings of the road during the same week for the last five years have been as follows:

1841.....	\$2,003 63
1842.....	1,917 48
1843.....	1,341 28
1844.....	2,313 63
1845.....	2,169 83

Toppan Townsend, of Albany, N. Y., has patented an apparatus for warming a train of railroad cars. The following communication, and its accompanying diagrams, pretty clearly illustrate the plan.

Townsend's Patent Apparatus for Warming and Ventilating Railroad Cars.



Through the furnace of the locomotive are passed two cast iron pipes, which presenting enlarged orifices in front as seen at A, pass and if necessary re-pass and pass again through the furnace in the midst of the fuel as seen at B, and thence communicate backwards with the reservoir situated in the platform C, upon which the fireman stands. From thence the heated air is conducted by means of elastic and flexible hose D, into continuous air chambers E, which are let into the sleepers of each car, and from these the warm air is received into the cars by register G, in such quantity as is required to render the atmosphere comfortable and pleasant. The elastic and flexible hose are constructed from such materials as to render them durable. These are connected to the cars by beveled metallic pipes F, with flanges,

and are attached to both ends of the hose, which are kept in place by the strength of the spiral spring f. Fig. 4 represents an enlarged view of the hose, and end of the air chamber E, with a portion of the register G, with a part of a complete hose D, fully connected to the air chamber at E, and f represents the spiral coil of wire within. Each car is furnished with two registers to accommodate the running of the cars either backwards or forwards. Cap screws H, are screwed on to the two orifices in the ends of the air chambers in summer, and also on to the two orifices on the end of the chamber in the last car of a train in winter, to prevent the escape of the warm air. a, in the above cut, represents the furnace and pipes in the locomotive; b, the tender; c, a baggage car; and d, a passenger car.

Uses for Iron.—By the recent change of style of new buildings, and in modernizing old ones, this important article is coming into very common use for store fronts, pillars, doorways, window sills, capstones, door frames, etc., etc., and even rafters and shingles, (roofing,) are very common. Iron boats are of every day growth, and iron buildings are now not a very uncommon thing. Mr. Wm. Beach, of Troy, N. Y., has just patented a mode of using cast iron for covering roofs of houses. They are cast about a foot square, says the Albany Journal, and are made to fit one into another, so as to render the roof water tight by applying white lead to the joints. It can be afforded at 16 cents the square foot, and comes about half the cost of copper. They weigh 3 1/2 pounds a square foot. Slate costs 8 cents per square foot.

Railroad from Albany to New York.

The Albany Knickerbocker says, there is an evident determination on the part of capitalists in that city, and along the proposed line between New York and Albany, in the counties of Columbia, Putnam, and Westchester, to connect the island of Manhattan

by means of a railroad, with this city and the west. The Hudson river railroad not having met with that success anticipated, the project is about to be abandoned, we hear, and of course, the only road to be depended on, is the Harlem road. In less than thirty days, 52 miles of the Harlem road will be completed and in running condition. In six months more, it is supposed it will be connected with the Albany and West Stockbridge road, which will open a direct communication between Albany and the great metropolis. Men of enterprize and wealth in this city, and in the different counties through which it is to pass, are determined on completing it immediately. The right kind of men are busy, and we have no hesitation in saying that they will succeed.

As we remarked before, the road will be completed to Dover, the centre of Dutchess county, before many months. This will open a new trade with the rich and flourishing counties through which it is to pass, and will give a new impetus to the business prospects of the road. We are not aware of a railroad in the country, that has a more flattering prospect before it than the Albany and Harlem. It is impossible to form an idea of the immense amount of freight and travel which passes from New York

and Albany, from the 1st of December to the middle of April. It is increasing every year, and if a direct road was once in operation, business would more than double.

The Knickerbocker thinks this will prove one of the best paying roads in the country, and believes that in a year from this time, the work will be completed through from Albany to New York city.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N.Y.

Saturday, November 7, 1846.

CLEVELAND, COLUMBUS AND CINCINNATI Railroad. In pursuance of a resolution adopted by the Board of Directors, on the 21st October, notice is hereby given, that proposals will be received up to the 1st day of December next, for the Grading, Timbering, Bridges and Culverts on forty miles of the road, commencing at Cleveland. Profiles, Specifications, Terms of Payment, and all other information pertaining to the matter, to be furnished on application at the office of the Company, Merwin Block, Cleveland.

JOHN W. ALLEN, President.

A. G. LAWRENCE, Secretary.

CYRUS WILLIAMS, Engineer.

Cleveland, October 23, 1846.

45*1m

RAILROAD IRON.—100 TONS RAILROAD IRON [Bridge pattern] for sale low to close a consignment by

JOHN F. MACKIE,

189 Water street.

November 7th, 1846.

1m45

Central Pennsylvania Railroad.

We are free to say that the gentleman who introduced this subject to the readers of the Journal, in a recent number, has complied with our request for its continuance in a manner that shows him to be thoroughly acquainted with it, in all its bearings; and also that he appreciates justly its importance to the city of Philadelphia.

We agree with him entirely in his closing remark, that "the property holders of Philadelphia could build the road, and, though they sunk every dollar invested, would be gainers;" and we now call upon them to put their shoulders to the wheel—and by a united effort secure, beyond a question, the early completion of a work from which advantages now incalculable would result to, not only the property holders, but also to the laboring and industrious classes of the city.

The communication of Mr. Wright ought to be read by every property holder in the city—by city, we mean, not only the city proper, but also the districts adjoining it—as they are all equally interested in it. His apology, in closing, is quite uncalled for—and we will simply say, that if he has any apology to make on the subject, it should rather be for having so long delayed his communications to the Journal; and we will excuse the past omission, on

condition that he will continue the subject in the same efficient manner.

For the American Railroad Journal.

MR. EDITOR: In a former article a half promise was made to give some estimate of the value of the western trade, as connected with the Pennsylvania railroad, the relative expense of transportation when compared with other lines, and the probable business of such a road. Though deprived of some expected statistics, yet the probable employment of my time for some months to come, is an inducement to contribute at this time my mite in advancing the welfare of Philadelphia and the state of Pennsylvania.

Free use has been made of all authorities within reach, and though in many respects this article may be but a compilation, yet perhaps for that reason the more reliable.

Half a century has scarcely passed since the country west of the Allegheny was one vast wilderness, extending through eighteen degrees of latitude, drained by 12,000 miles of navigable waters, with a lake coast of 5,000 miles, and covering an area of 450,000 square miles—possessing a soil unequalled for richness, and for productiveness surpassing that of any other country.

While the region east of the mountains requires continued artificial aid to support its life and vigor, the western valleys have a depth of alluvial soil sufficient for ages to come.

This great difference insures to the west the part of producer, while the east is left to manufacture and consume the produce of the west, and in this exchange a valuable and rapidly increasing trade consists.

The trade lines designate the points at which the produce of the west collects, and which in turn become points of distribution for merchandize. These are now Cleveland, Toledo, Detroit and Chicago on the lakes. Cincinnati, Louisville, St. Louis, Memphis and New Orleans on the Ohio and Mississippi rivers.

There is great difficulty in arriving at the trade of these points, but from present data we may derive an approximate estimate. Three natural divisions may be made in western business, each of which we will endeavor to compute.

- 1st. The lake trade.
- 2d. The up river trade.
- 3d. The down river trade.

The able letter of James L. Barton, Esq., of Buffalo, to Hon. Robert McClelland, furnishes the most complete history of lake commerce, and I am indebted to him for many facts.

The lake region comprises an area of 280,000 square miles, being five times as large as the whole of England and Wales. Her commerce has wonderfully increased within a few years. Prior to '32 but little was known of northern Illinois, Indiana, and of Wisconsin, but the close of the Black Hawk war brought thousands of adventurers into that country, and now the whole region is prosperous, and rapidly becoming rich. It has not been long since Ohio supplied the region west of her with provisions, but the tables are almost turned, and she can be supplied by her younger sisters. The energies of the western people are now directed to opening lines of communication with the lakes and great rivers, and to form an estimate of the capabilities and future prospects of the west, a reference to these improvements is necessary, and an able description is at hand in the National Magazine for Sept., 1846.

"Lakes Erie, Huron, Michigan, and their connecting waters, are every where bounded by a most productive soil. They are bordered by more than two thousand miles of country, stretching out to an un-

known extent. The upper Mississippi and the Ohio rivers, which will lead into lake Erie, and thence to the canal, (New York and Erie) are bounded by countries equally extensive and fertile.

The states of Ohio, Indiana, Illinois, the best portion of Missouri, the whole of Iowa and Wisconsin, so soon as the constructing works are completed, and the Erie canal is enlarged, must all bring hither their abundant productions. The area of this territory consists of about 190 millions of acres, yielding when cultivated the most bountiful returns.

The state of Ohio has a canal leading from lake Erie 300 miles to Portsmouth on the Ohio river, and is connected with the Pittsburg canal and 200 miles of lateral navigation on the way. Another canal, called the Erie and Wabash canal, passes through about 90 miles of Ohio, along the rich valley of the Maumee, to the Indiana line; and then passes on through Indiana to the navigable waters of the Wabash. Connected with this line are the Dayton and Miami extension canals, 200 miles in length, passing through the more settled parts of the state, from the Ohio river at Cincinnati, and intersecting the Erie and Wabash canal at fort Defiance.

From the waters of the Wabash, another canal is in the course of construction, to connect with the Ohio river at Evansville, through Terre Haut; thus forming a third connection between lake Erie and that river, and conducting into that lake the products of nearly the entire states of Ohio and Indiana, and opening a channel to the state of Kentucky.

If we turn from these great channels further west, and look out upon lake Michigan, we find it bordered about 100 miles by the rich prairies of the state of Illinois, and 300 miles of the territory of Wisconsin, and 250 miles of the state of Michigan. Illinois ranks in size with the first states in the union, and has a soil not exceeded in fertility by any. It presents facilities for settlement nowhere surpassed.—Bounded 100 miles on lake Michigan, and washed, on its west and southwest border 600 miles by the Mississippi, and on its southeast by 200 miles of the Wabash. A canal of large dimensions from the waters of lake Michigan, extending 100 miles to the navigable waters of the Illinois river, is now in a state of forwardness, and will be completed the ensuing season. The Illinois river is navigable for large sized steamboats, and cuts the state diagonally from the intersection of the canal to the waters of the Mississippi, just above the mouth of the Missouri, its course is 350 miles to St. Louis. It thus draws to lake Michigan the whole of the upper Mississippi and the river Missouri, the whole of the state of Iowa, and the entire trade of Illinois."

The different lines of railroad have been designated before. Here then is presented a view of the main outlets for their produce, and a few years only will elapse, ere they will make rich returns on the investments. The following table of tonnage and of tolls, and value of all articles reaching tide water on the Erie canal of New York, for the last 12 years, forcibly illustrates the rapid increase in the surplus productions of the west.

Years.	Tons.	Value.	Am't. of tolls.
1834	553,596	\$13,405,022	....
1835	753,191	20,525,446	....
1836	696,347	26,932,470	....
1837	611,781	21,822,354	....
1838	640,481	23,038,510	....
1839	602,128	20,163,199	\$1,599,038
1840	669,012	23,213,573	1,773,583
1841	774,334	27,225,322	2,033,262
1842	666,626	22,751,013	1,748,870
1843	836,861	28,453,408	2,082,146
1844	1,019,094	34,183,167	2,446,838
1845	1,204,943	45,452,301	2,646,118

An interesting comparison is also made by Mr. Barton between the following description of property coming from the state of Ohio in 1835, then the only exporting state on the lakes, and the amount sent from Ohio and other states through the same channel for 1845.

Years.	Bbls. flour.	Bush. wheat.	Lbs. staves.
1835	86,233	98,071	2,565,272
1845	717,466	1,354,990	88,296,431
Years.	Bbls. provisions.	Bbls. ashes.	Lbs. wool.
1835	6,562	4,410	149,911
1845	68,000	34,602	2,957,761

"The total amount of flour and wheat exported from the same states in 1845, and which passed over the lakes, exceeded 1,500,000 barrels of flour."

Mr. Barton furnishes two very valuable tables, exhibiting the commerce of the lakes passing through Buffalo, for the years 1843, 1844 and 1845, up and down on the Erie canal, and adopts the following plan to arrive at the aggregate value of lake commerce. "The amount, as shown by the tables appended hereto, and what is done from the extensive mills at Black Rock, which joins this city, (Buffalo) in 1845, by an estimate made by the canal board of this state, from a system long adopted, and from experience found to give very near the true amount, is \$28,000,000, add the commerce to and from this city (Buffalo), which never reaches the canal, and it will increase the sum \$5,000,000 more, which amount is further to be increased by all the business delivered on and taken from the lakes by the various other canals and railroads named in this communication, and the very large amount of what may be termed intermediate commerce, between different ports of the lakes, which I put with great confidence, at an amount equal with that done at Buffalo; and to this must be added the amount done on lake Ontario, which I place at \$15,000,000, and I arrive, without the fear of being refuted, at an amount of \$81,000,000, without including one dollar of the immense sums of money carried over these lakes." Another view is in reference to tonnage. In 1843, the tonnage on the lakes was 60,000 tons, while in 1845, it numbered 80,000, a large increase for two years, and the opening of the Illinois canal will greatly increase that amount for many years.

The value of the up river trade is difficult to ascertain. A large proportion seeks the lakes by the various routes mentioned, and New Orleans by the rivers, and its value is thus commingled in the value of those trades. However, from the data we have, an approximate estimate may be made. The steamboat tonnage of the west, according to the official returns on the last day of September, 1842, was 126,278 tons, being divided as follows:

New Orleans	80,993
St. Louis	14,725
Cincinnati	12,025
Pittsburg	10,107
Louisville	4,618
Nashville	3,810

If we suppose this trade carried on by 630 steamboats, and an average of 20 trips per year, we have an amount of 2,525,560 tons, and add for flat boats, 500,000, making an aggregate of 3,000,000 tons.—Such might be the estimate for 1842, since which date the amount has been largely increased. By analyzing the amounts shipped on the canals to lake Erie, and the amounts received at New Orleans, the value of the up river trade will be shown to be near \$65,000,000, of which \$32,000,000 are sent to New Orleans, \$23,000,000 to the lakes and \$10,000,000 through Pennsylvania, Maryland and Virginia.

The down river trade may be estimated by the va-

lue of produce received at New Orleans, and our statistics are well prepared at this point. Taking the annual statement for the year ending August 31, 1845, prepared by the New Orleans price current, and we have the value of

Cotton estimated at	\$33,716,256
Molasses	1,710,000
Sugar	10,265,750

Making an aggregate of \$45,692,000 and summing up the estimated value of the different divisions, we have for the

Lake trade	\$25,000,000
Up river trade	65,000,000
Down river trade	45,700,000

On a total amount of \$135,700,000 or the above calculation may be shown in another manner. Value of

New Orleans trade	\$80,000,000
New York and Erie canal	45,000,000
Pennsylvania, Maryland and Virginia	10,000,000
	\$135,000,000

It will be observed that the above estimate is but the value of produce shipped, and this is exchanged for nearly an equal amount of merchandize, thus making the entire value of the western trade at least \$270,000,000. If such be even in the vicinity of truth at this time, how great will be its value in ten, twenty, thirty or fifty years? The western country now contains some ten millions of inhabitants, and the progress of population indicates the increase as follows:

Years.	East.	West.
1845	10,000,000	10,000,000
1855	11,630,000	17,360,000
1865	13,374,500	26,040,000
1875	14,711,950	36,456,000
1885	16,183,140	51,038,400
1895	17,801,454	71,453,760

I have now taken as concise a view as possible of the value of the western trade, and present it to the consideration of the people of Pennsylvania and the citizens of Philadelphia.

But connected with these calculations are presented some thoughts, partly noticed in my former article.

It is very evident that the city, or cities, which can secure a large portion of the western trade must prosper beyond their peers; and that cities unfavorably situated, must decrease. Trade is gregarious in its nature, and in the grand contest for superiority among the Atlantic cities, that city will be the empire that furnishes the best connection with the western country, considering facility of access from the whole west, time, expense and safety.

An interesting proof of this was given in an article I prepared for the Philadelphia Price Current some months since, in which a comparison was made of the value of the real and personal estate of New York and Boston, from the year 1825 to 1845, inclusive. From this table, it was evident that the valuation of real and personal estate was a sure index of the western facilities for each period, and furnished this fact, that from 1825 to 1841, New York increased at the rate of 9½ per cent. per annum; and from 1841 to 1845, decreased at the rate of 1½ per cent. per annum; while Boston, from 1841 to 1845, increased at the rate of 8 per cent. per annum; making a total gain of Boston over New York in four years of \$50,000,000. Many causes operated to produce this result; but the main cause was the opening of the Western railroad, thus bringing western produce direct to Boston, and then

making the exchange for merchandize. Thus will it operate with Philadelphia. The attraction of business is no longer a matter of speculation. It can be calculated with certainty. The American people have, to a great extent, placed their *ban* upon the construction of new canals. Railroads are now, and must be, the preferred carriers of freight. So evident is this, that though New York possesses the noblest line of canals, yet the many drawbacks connected therewith, have convinced her citizens of the importance of another continuous line of railroad to the lake. She is pushing forward the New York and Erie railroad to Dunkirk, expecting a continuation from thence to Detroit, and a connection with the great lines of railroads that will reticulate the great west.

Boston, by the Fitchburg, Rutland and Ogdensburg, and Champlain railroads, evinces the same feeling: likewise Baltimore, Richmond, and Charleston on the south. It is too evident that the Pennsylvania canal will not secure the trade of the west; and the *only* course left for Philadelphia, if she has any disposition to retain her present trade, or to increase it, is to secure a continuous railroad connection with Ohio.

We have already stated that Philadelphia possesses superior advantages, in manufacturing, over any other city. These advantages consist in

- 1st. Minimum cost of material.
- 2d. Minimum cost of subsistence.
- 3d. Minimum cost of power used, and
- 4th. Best connection with the consumers of her merchandize.

She is now in the position of Boston, prior to the construction of the Western railroad. Her goods are principally sent to New York for sale; and she is but the transit town. Bring produce here, and the exchange for merchandize will be made here. Commerce will follow, as commerce never leads.

The question now recurs, can Philadelphia, by building the Pennsylvania railroad, successfully compete with rival lines? When the cost of transportation is equal on any two lines between similar points, but one possessing the advantage of certainty of transit, saving of time, and available at all seasons, that line so located, must draw the greater amount of trade and travel.

To make the necessary comparison, we take three main points, viz.: Cleveland, Toledo, and Cincinnati; and the rival lines may be considered as

- 1st. Boston, Albany, Buffalo, and any point above named.
- 2d. New York, Albany, Buffalo, and any point above named.
- 3d. New York, Dunkirk, and any point above named.

I regret being unable to give as full an account of the charges between the different points as is desirable; but the items, as given, are sufficiently accurate to form a reliable basis of estimation. For the charges on the railroads, the rates of freight on the Western railroad, from Boston to Albany, 200 miles, have been adopted.

For the canal charges, I am indebted to an extensive forwarding house in Albany; and the rates, as given, are the low summer, and merely living rates. The charges fluctuate greatly on the canal and lakes: but the only safe basis, is the rate at which the business will secure responsible shippers.

The average rate of freight on the Western railroad is \$2 75 per 2000 lbs. per 100 miles, or say 14 cts. per 100 lbs. per 100 miles; and the table will be as follows:

	Per 100 lbs.	Per ton.
From Boston to Cleveland.....	94 cts.	\$18 80
" New York to Cleveland, (by canal and lake).....	66.....	13 20
" New York to Cleveland, (by railroad and lake).....	81.....	16 20
" Philadelphia to Cleveland, (by railroad).....	64.....	12 80
" Boston to Toledo.....	97.....	19 40
" New York to Toledo (canal and lake).....	69.....	13 80
" New York to Toledo, (N. Y. & Erie railroad and lake).....	81.....	16 20
" Philadelphia to Toledo, (via Cleveland).....	79.....	15 80
" Boston to Cincinnati, (via Toledo).....	\$1 63.....	32 60
" New York to Cincinnati, (via Toledo).....	1 35.....	27 00
" New York to Cincinnati, (railroad and Toledo).....	1 41.....	28 20
" Philadelphia to Cincinnati, (Pittsburg and river).....	76.....	15 20

In the calculation, freight from Philadelphia to Toledo, 15 cts. per 100 lbs. is added from Cleveland to Toledo, which is undoubtedly high; but is the usual freight from Buffalo to any point on the lake.

With reference to Pittsburg, the rates are more in our favor, and likewise with Louisville and St. Louis, and intermediate points. The above table must be sufficient proof that the proposed line of railroad can compete with other lines, were they in all respects similar.

But here the still greater advantage is evident in favor of the Pennsylvania and Ohio line. If the Western railroad can carry at the above named freight with profit, which is proven by her great increase of business and large returns of profit, with grades of 85 feet, and the New York and Erie railroad with grades of 66 feet, the Pennsylvania railroad can certainly carry for the same rates, with no grade over 45 feet. Other reasons still favor this great line. It will be remembered, that there will be no transshipment between here and the lakes, while by either of the other routes, there must be two or more. The time on the Pennsylvania and Ohio line would be but 3 or 4 days for freight, while on the other lines it will be nearer two weeks, and in the spring and fall seasons much longer. The insurance will be saved, which now amounts to 1 per cent. on the lake. Mr. Barton, in urging the necessity of good harbors on the lakes, writes, "The storms and tempests on these lakes are as violent as on the Atlantic; and the danger of navigating them is known and acknowledged by those who have tried both, to be equally as great, if not greater." Again, "The extremely boisterous weather last fall was very destructive to lives and vessels, amounting to, as nearly as a careful account can make it, sixty lives lost, and thirty-six vessels driven ashore, twenty of which became total wrecks; four foundered at sea, with entire loss of crews and cargoes; and producing a loss, in the aggregate, of property over two hundred thousand dollars. And it has suffered in losses, within the last five years, more than four hundred lives; and destruction and damage to steamboats, vessels, and cargoes, more than one million of dollars."

All this danger and expense will be avoided, and the merchant will be assured that his produce will reach the market, and that he will receive his merchandise as purchased.

This line will be available at all seasons; and the producer can take advantage of any rise in the

eastern markets. By the aid of the magnetic telegraph, can dispose of his stock, through his factors east, on as favorable terms as those nearer the market, and can promise the delivery within 3 days. The effect will be exceedingly beneficial in a financial view: and had these lines been in operation last fall, would have saved factors in New York and Boston the heavy losses endured last spring.

We have already alluded to the fact, that the ports of Cleveland, Toledo, and Detroit, are open several weeks earlier than Dunkirk or Buffalo. The earliest spring markets are generally the best; and the effect would be, the forwarding of all the produce that could be collected, on this line, and to this market, where their spring purchases would be made; also relieving the western merchant from forcing every nerve, to forward his produce, prior to the closing of the New York canals in the fall, or at the first opening in the spring, and from the exorbitant charges for freight.

In comparing Cleveland and Toledo, or Cincinnati, as points, an undue advantage is given rival lines in this, that the location of the lines of railroad already mentioned, is through the heart of the producing country, being nearer the eastern market, thus saving the producers the expense of shipment to Cleveland, Toledo, or Cincinnati, and the freight on return merchandize. Along these lines of railroads, will be the true depots of produce; the other cities, the depots of trade coming from a distance.

All that trade now passing from the Ohio and Mississippi rivers, will thus be prevented from reaching the lakes, and will be brought direct to this city.

The winter trade of New Orleans is derived principally from the upper country, owing to the closing of northern canals, rivers, and lakes. This current of trade will be turned from on its present course. The injury to produce, in passing to and from New Orleans, is well known. Twenty per cent. will hardly cover losses from insurance, climate, damages, etc., and the higher prices east will certainly secure that trade. To secure this trade, the great efforts of New York and Boston are now mainly directed.

After this hasty review, will you not confess, with me, our incapacity to make an estimate for the trade of the Pennsylvania railroad sufficiently large and yet retaining some outward plausibility in its favor; but, for our present purpose, if we suppose the very low mark of 200,000 tons, we cannot err in being too high.

Another interesting point is now presented. The travel that will be secured to that road. The estimate that 800,000 persons crossed the mountains, and passed from north to south, and from the south to north, during the past year, is generally considered as nearly accurate. Of this amount, 200,000 passed over the lakes; the balance on the various lines south, and by sea, coming around the capes of Florida.

The following table, as furnished by Mr. Barton, is instructive on this point; and, for general information, I copy it. It contains the number of passengers going west, from Buffalo and other places; Whole number of passengers leaving Buf-

falo.....	93,367
Taken on board at way ports.....	5,369
Total.....	98,736
Of these passengers, there were landed at	
Erie.....	4,130
Conneaut.....	2,106
Grand River.....	1,266

Cleveland.....	14,895
Huron.....	1,536
Sandusky.....	2,274
Toledo.....	9,935
Monroe.....	1,323
Detroit.....	20,636

Total number lake Erie.....	58,106
Mackinac.....	1,669
Sheboygan.....	405
Milwaukie.....	12,773
Racine.....	2,750
Southport.....	2,789
Chicago.....	20,244

Total upper lakes.....	40,630
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Total number lake Erie and upper lakes... 98,736
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From this table, Cleveland, Toledo, Detroit, Milwaukee, and Chicago are evidently the points for collection of passengers.

The high rates of fare from this city to Charleston and New Orleans, force passengers up the Mississippi, or to take ship at New Orleans. We can hardly expect, for some years to come, that those rates can be sufficiently reduced to compete with the western waters. The great stream of travellers ascending the Mississippi and Ohio rivers, will form a point at Cincinnati; while from St. Louis comes another current; and the lines from the lakes give their increase. At every depot from St. Louis, we have an increase of travellers, bending their way east, on this grand line of railroads.

With a speed of from 20 to 30 miles an hour, no water communication can compete: and it must be that a large portion of the travel from east to west, and from west to east, will pass over this road. If the whole amount of travel is now 800,000, in 1850 it will be one million. How much of this travel, think you, will pass over the shortest, safest, and, counting time, the cheapest road? At the very lowest mark, we put 250,000. Bringing together these items, we may calculate the business of the Pennsylvania railroad, after its completion, say in 1850,

250,000 passengers, at \$4 60, (2 cts. per mile).....	\$1,150,000
200,000 tons freight, at \$6 44, (\$2 80 per ton per 100 miles).....	1,288,000
	2,438,000
Making a fair allowance for expenses...	1,250,000

Will leave as a profit.....	1,188,000
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Estimating the cost of the road at Mr. Schlatter's estimate, \$9,496,709, will give a fraction over 12 per cent.

Here is left a large margin. The amounts of trade and travel may appear large; but a fair examination will sustain them. How great are the inducements to build this road to capitalists, and especially to the citizens of Philadelphia? Should she neglect so great a prize within her grasp, how low must be her fall!

Were the same within reach of Boston, her entire energies would be devoted to it; and it would be built, did it cost thrice the estimate. The property holders of Philadelphia could build the road; and though they sunk every dollar invested, would still be the gainers. But I have trespassed longer upon your patience and my own time than I anticipated, and, for a pardon, will promise never to commit a similar offence.

Yours, very truly,
 JOHN A. WRIGHT.
 Philadelphia, Oct. 28, 1846.

The Hiwassee Railroad.

It will be remembered that a suit has been pending for some time, between the state of Tennessee and the Hiwassee railroad company. A late number of the Knoxville Register informs us that a decision has been obtained in the supreme court of Tennessee, from which the annexed extract is given.

It declares *void* the deed of trust executed some four or five years ago, conveying to trustees the assets of the road and its appurtenances, together with the claims on the state and individual stockholders, in satisfaction of the outstanding liabilities of the company. It also declares the liability of the state for the unpaid balance of her original subscription.

On the other hand, it enjoins the company from the further prosecution of the plan of erecting iron works and manufacturing iron, and from the further issue of scrip, declaring, however, that the scrip already issued constitutes an equitable lien upon the corporation. It declares further that, so far as arrearages are concerned, the state and the individual stockholders were on an equality in their payments, on the 3d of October, 1842, the state being considered to have fully paid up her half of the amount expended to that date. It also declares the notes executed to the several banks named, and all the other valid debts, to constitute a just charge against the company.

By this decree the Register says that much has been gained by the company, "in the restoration of its property and in the declaration of the liability of the state for the amount of her subscription remaining unpaid, while in the limitation of its privileges nothing has been lost which it would be of any material advantage to retain." Notwithstanding this decree, we regard it as very doubtful whether the legislature will consent to appropriate the "amount of the subscription remaining unpaid." For several sessions past we have noticed a strong spirit of opposition to any further appropriation on the part of the state, notwithstanding the justice of the case stares the members in the face.

Boston, Concord and Montreal Railroad.

A correspondent of the Boston Courier gives the annexed statement in relation to the progress of the road to Montreal, via Concord. The proprietors are making headway as rapidly as possible, and this route will prove a very important addition to the roads tending to the city of Boston, when it shall be completed. The proposed line is laid through a beautiful country, the business upon which must eventually be immense. The writer informs us that

Rapid progress continues to be made in the first division of this railroad between Concord, N. H., and Sanbornton bridge, a distance of 18 miles. The stone masonry of the bridge at North Concord is nearly half finished. The embankments on both sides the bridge are advancing across the plains on each side of the Merrimack, and the contractors have commenced work on several sections above, while considerable progress has been made in the cut at Northfield, and nearly all the masonry is now let.

The agent for construction, Mr. Clark, the originator of the Concord railroad, has availed of the delay in beginning this enterprise,

to make great improvements in the route, and a line has been adopted which offers greater facilities than any yet selected in New England. The earthwork on this line averages less than 26,000 yards per mile, and the average rate of the contracts and bids is 13½ cents per yard. The whole amount of earth to be removed is but 466,000 yards. No ledge or indications of ledge to the extent of one thousand yards appears on the line.

The masonry, including the piers and abutments for the bridge over the Merrimack, average less than \$800 per mile.

The engineer's estimate for the bridge was \$20,000; the actual contracts are below \$13,000, of which, more than half is payable in stock. Chestnut, suitable for sleepers, is abundant, and may be obtained at low rates. In view of this fact, and of recent experiments which show that American rails, from charcoal iron, are one-third stronger than the English, and also demonstrates that a rail of forty pounds to the yard, laid on sleepers two feet apart, is equal to a fifty pound rail on bearings three feet apart—the space on the Lowell, Worcester and Providence railroads. It is proposed to avail of this experience, and lay down a track with 2500 sleepers to the mile and a rail of American iron, weighing from forty to forty-five pounds to the yard.

The depots will be of the cheapest class, until the road reaches Meredith and Plymouth.

Beneath is the last estimate of the cost of the first division of this railroad.

Earth work, 18 miles, 466,000 yards, at 13½	\$61,846
Bridge masonry and frame work and piling.	13,000
Other masonry.....	12,400
Land and land damages.....	8,000

	\$95,246
Contingencies and engineering.....	9,524
Fencing.....	5,000
Depots and tanks.....	6,000
Track.....	108,000

Total.....	\$224,770
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The aggregate is less than \$12,500 per mile, and when cars and engines are added, the road must be the cheapest in the country. The stock of this railroad is held principally in New Hampshire, by parties on the line of the road, and bids fair to be eminently productive from the light cost of the line, and the large travel between Boston, Meredith, the White Mountains, and upper country. Its prospects are quite as encouraging as those of the Concord when first commenced.

Notice to Contractors.

Cleveland, Columbus, and Cincinnati Railroad.—By an advertisement in this number of the Journal, it appears that the board of directors of this important road have so far matured their plans, as to advertise for proposals to build forty miles. We extract from the Plain Dealer as follows:—

"The money has been subscribed, the route surveyed, and the right of way secured; and now the question is, who shall build it? Forty miles only is proposed to be let at present, because the directors do not choose to incur liabilities one cent beyond their actual available means to pay. This completed, and there will be funds enough seeking investment in its continuance.

"There will be nothing to hinder the

work commencing by the first of December. The winter will be an excellent season to get out the timber and grade the road. It is seldom we have frosts to impede such a work. Besides, labor is much cheaper in the winter than in summer.

"We have these advantages over the New York and New England railways: First, we have a much more level country; second, a lighter soil; third, a greater supply of timber; fourth, labor cheaper; and, fifth, we can build railroads and use them all seasons of the year. When once in operation, no snow banks will impede the locomotive.

"We look with entire confidence and certainty to the completion of this road, and that too in a very short space of time. The starting point is now gained; the end is sure to follow."

Miscellaneous Items.

A Good Beginning.—We observe by the Montreal papers, that the first twenty miles of the St. Lawrence and Atlantic railroad—from Montreal—have been put under contract. Before winter sets in, the grading of both sides of the great line from the Atlantic to the St. Lawrence, will have been commenced. An excellent spirit is evinced, and a determination is apparent on the part of those having the management of this important route, to push the matter forward as rapidly as may be practicable, towards a speedy completion.

Ohio Railroads.—We learn from the Cincinnati Chronicle, that the receipts upon the "Mad river railroad are already at the rate of \$80,000 per annum. The gross receipts upon the Mad river and Little Miami are now about \$200,000 per annum.

A Monster Chimney.—An enormous chimney has just been erected at the carpet manufactory in Lowell, (Mass.) It is intended to carry off the smoke of 24 steam boilers, and according to the Courier, is of the following dimensions:

"It is 12 feet 9 inches square at the base, and 7 at the top, and its height is about 120 feet. It is calculated that over 150,000 brick have been used in its construction, the weight of which, together with the mortar, is between 500 and 600 tons."

Worcester and Nashua Railroad.—The directors of this road had a meeting last week and chose Wm. A. Wheeler, Esq., of this town, to superintend the construction of the road, and Joseph F. Miller, Esq., engineer. The directors have been fortunate in securing the services of Mr. Wheeler. He is one of our most enterprising and successful business men, energetic and persevering, and will see that every dollar of expense tells for the benefit of the company. It is said the location of the road will be immediately settled in substantial conformity to the surveys already made, and its construction at once commenced.

Connecticut River Railroad.—It is stated that the bridge across Deerfield river will be completed in ten days or a fortnight, and that the cars will run to Greenfield about the 15th

of November. Two new and heavy engines have been added to the road, making the whole number six.

Influence of Railroads on the Weather.—The German Schnellpost says that the well known natural philosopher, Dr. August, has made a communication in a Berlin paper, in which he states that when an extended portion of the earth's surface is brought by a net of railroad tracks into connection of electrical conductors, the accumulation of electricity in the lower part of the atmosphere is prevented, as the iron tracks effect a constant electrical equilibrium between the remote regions. By this means a violent storm is rendered unlikely, and if one should arise, it would undergo a considerable diminution. The doctor states it as a fact, that since Berlin has become the focus of several railroads, there have been no violent storms; and all that have risen here, had a rapid and general termination.

Railroads.—The constant increase of travelling and business in our country, must make investments in railroads amongst the best if not *the best* that can be made. Railroads that a few years ago paid nothing, are now doing a good business, while those that have paid are paying more.

The Western railroad, which connects the cities of Boston and Albany, did not, if we collect right, the first year, pay its running expenses. But now it pays dividends, and its stock is held at par.

The Housatonic road, which was bankrupt and to pay its debts, the private property of the citizens of Bridgeport was threatened with sale, has so recovered from its embarrassment that its directors are now engaged in laying it with a T rail.

The New York and Erie and the Harlem roads, the stock of which were long a drug in the market, are now looking up, and promise to be profitable.

But let the Hudson river railroad be made and it will soon be equal to the best in paying interest to its stockholders. The route through which it will pass—the lovely, fruitful, and wealthy valley of the Hudson—the immense business it must ever command because its grades will be better than any road that can be laid between the two cities, added to the large way business which it must have will give it advantages which can never be overcome.—*Po'keepsie Telegraph.*

Steam Packets on the Canal.—The last number of the Pottsville Journal says, that Mr. James Downey, of that borough, will commence running two steamboats between Reading and Philadelphia, next Monday, for freight and passengers. The steamboats are built of iron, and furnished with berths, cooking apparatus, etc. It is his intention to run to Pottsville, as soon as the canal is finished. The boats are of the capacity of 70 tons. He contemplates making the trip from Pottsville to Philadelphia in 20 hours. The appearance of these boats upon our waters is anxiously looked for, and the novelty of the thing will doubtless give them plenty of passengers for a while; but we think the fare will have

to be very low, for the canal to begin to compete with the railroad in the transportation of passengers. People like to get to their journey's end as soon as possible now-a-days, and would not endure the slow movements of a canal boat, unless they could save a great deal in the fare.

The Telegraph.—We understand, says the Philadelphia Gazette, that the magnetic telegraph company have agreed to extend another wire from this city to Baltimore, and also another range of poles for two wires from this city to New York, the work to be commenced immediately, and to be paid for from the profits of the company. This last conclusion denotes the successful operation of the wonderful work, and is an evidence of the growing utility and general appreciation of the lines.

Central Railroad.—The Detroit Free Press says that this important work passed into the hands of the company chartered, by the Michigan legislature last winter. The gentlemen composing the company embrace some of the most intelligent and enterprising business men in New York and New England, and under their management the road will no doubt be one of the best and most prosperous in the country.

The receipts upon this road, in the month of August last, were as follows:

Received from passengers..	\$11,259 49	
" for freight.....	11,151 72	—\$22,414 21
" in the corresponding time, 1845.		14,094 93

Iron wire tinned and galvanized, so as to prevent rust, is an improvement which has been patented in England, and is about to be introduced in the construction of the magnetic telegraph in this country.

Railroads in India.—The construction of railroads in India is becoming a topic of the greatest interest there. One road is in contemplation from Calcutta to Mirzapoor, a distance of 900 miles, with branches 200 miles long, diverging in different directions. Other railroads are in contemplation in different parts of India. The immense population of India will render them immediately profitable.

A magnificent viaduct has just been completed near Breslau, Germany, intended to carry the railway of upper Silesia. It is 88 feet in height, having 38 arches, and the cost of which has been nearly £700,000.

The Georgia Iron Works.—A writer in the Atlanta *Enterprise*, gives the following passing glance at the great enterprize of Messrs. Mark A. Cooper, and others connected with the manufacture of iron in Georgia: The writer says:

A visit to the iron works on the Eltowa must not be forgotten. Whether we visit this place for the purpose of viewing the infant efforts of the yet to be immense works of Georgia, I mean the iron manufactures, or whether we visit this place for the purpose of viewing the works of nature, we cannot fail to be interested. From some ten thousand miles of travel, never do I recollect to have seen in

the same space more of the romantic, picturesque and wild works of nature, than are found thrown together in the immediate vicinity of these iron works. They might well be the subject of a long letter, or a field for an artist's pencil, but I pass on to the improvements and works of man. This establishment is now owned and carried on under the firm of Cooper, Stroup & Whyley, Mr. Stroup commenced operations here about ten years ago. And his son——Stroup, pursued a policy of improvement and enlargement of the concern with that indefatigable industry and perseverance which is always necessary to the achievement of a noble work. Mark A. Cooper purchased an interest in it about two years ago, and has since that time devoted to the improvement of the concern his well known financial and business talents.

Mr. Whyley, a capitalist in New York, has lately become an owner, thereby constituting a firm sufficiently strong to put into operation all works, or additional works necessary to complete success. At the present they have one permanent dam across the Etowa, and, a few rods above, are completing another. And so great is the fall in the stream, that two more dams can be thrown across at a short distance above. Their furnaces and forges already turn out the rise of 100 tons of iron per month. To these I understand they intend adding a rolling mill and nail factory, and will probably much enlarge the entire establishment. Among other improvements they are constructing a flour mill on the most improved principles and in the most substantial manner. It is to contain four runners of stones, and will be able to grind 300 bushels of wheat per day.

The aggregate receipts of the Norwich and Worcester railroad company for September including the earnings of the boats, are something over \$55,000. The official report has not yet been received.

Auburn and Rochester Railroad.—We understand that William Wiley, Esq., has been appointed superintendent of the above road, in place of John W. Brooks, Esq., appointed to take charge of the Central railroad in Michigan.

Mr. Brooks has long been most favorably known to the travelling community in this section, and his departure will be greatly regretted. But in Mr. Wiley, the public will find a competent, gentlemanly and obliging successor.

An Iron Steamship.—The U. S. iron steamship Allegheny, now building at Pittsburg, is nearly completed. She is built entirely of iron, excepting the planking on the gun deck—will be bark rigged, and have an armament of four sixty-four pounders, mounted on pivots, weighing 1,000 pounds each. She is also pierced for a side battery of six thirty-two pounders, which can be put on at pleasure.—Her length of deck is 135 feet, and her keel 170 feet, length over all 200 feet, and her tonnage, carpenter's measurement, 1,156.—She will be propelled with Lieut. Hunter's submerged horizontal propellers. Everything about her is of Pittsburg manufacture.

Wabash and Erie Canal.—The tolls on the Indiana, Wabash and Erie canal, so far this year, show a considerable increase over the corresponding months in 1845. At Lafayette, during March, April, May, June and July, 1845, the aggregate tolls amounted to \$14,599 63. During the same months of 1846, they are given in the Lafayette Journal at \$28,241 80, being an increase over last year of nearly 100 per cent. The tolls this year on the finished portion of the canal, it is said, will amount to about \$100,000.

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by **JOHN W. LAWRENCE,** 142 Front street, New York.
Orders for the above will be received and promptly attended to at this office. 32 1y

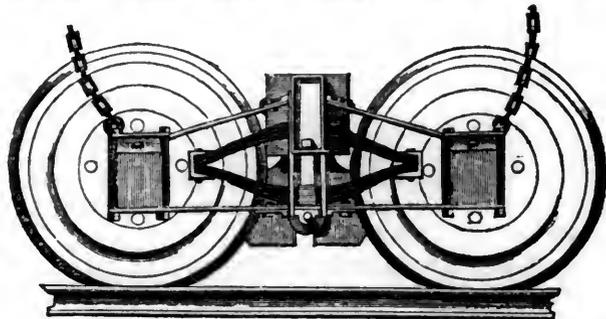
SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/4 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, Albany Iron and Nail Works, 1y

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/4 x 1/4 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/4 x 1/4 " Flange Iron Rails. 75 " 1 x 1/4 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons. **ELLICOTT & ABBOTT.** Factory, 9th street, near Coates, cor. Melon st. Office, No. 3 North 5th street, Philadelphia, Pa. 1y25

PATENT INDESTRUCTIBLE WATER PIPES. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly *indestructible*. The prices are less than those of iron or lead. We also manufacture Basons and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 28tf

TWO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by **MORRIS TASKER & MORRIS,** Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

J. BALL & CO. 28tf

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee **G. A. NICOLL,** Reading, Pa. ja45

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO., 45 North Water St., Philadelphia, or by their Agent, **ROBT. NICHOLS,** 79 Water St., New York. 28tf

THE SUBSCRIBERS, AGENTS, FOR the sale of Codorus, Glendon, Spring Mill and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L. KIMBER, & CO., 59 North Wharves, Philadelphia, Pa. Jan. 11, 1846. [1y4]

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846. **W. H. CALKINS, and Others.** To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] **WILLIAM ROE, Sup't of Power.** I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845. [Signed,] **G. A. NICOLL,** Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] **T. L. SMITH,** Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co. This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use. **Long Island Railroad Depot, Jamaica November 12, 1845.** [Signed,] **JOHN LEACH,** Sup't Motive Power. 1y19

RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited. S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.
Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open. JOHN BATAILLE.

Benton, Miss., December 27, 1845.
Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat. RICHARDS & CROOKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards. (Signed.) WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by A. S. MARVIN, General Agent, 138 1/2 Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844. ja45

PATENT HAMMERED RAILROAD, SHIP AND BOAT SPIKES. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

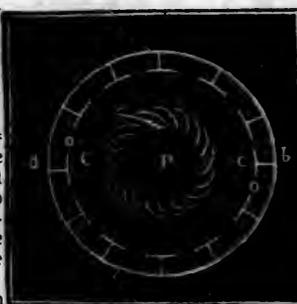
MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, 245 Paterson, N. J., or 60 Wall street, N. York.



PATENT RAILROAD, SHIP AND BOAT SPIKES. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

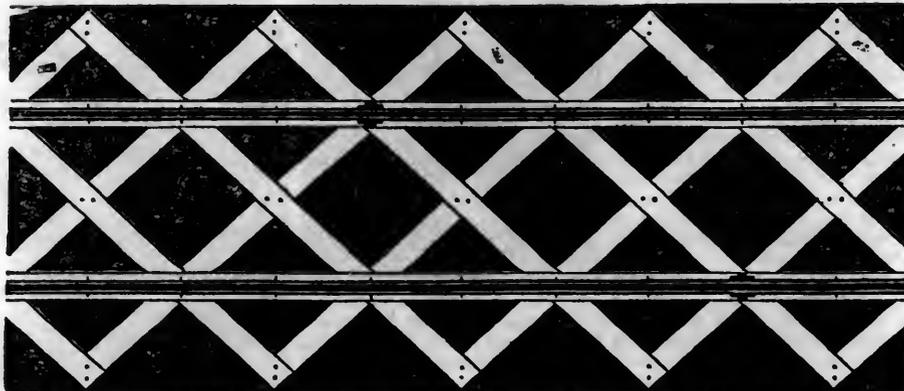
HENRY BURDEN, Agent. Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

DAVENPORT & BRIDGES CONTINUE to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes. 1y1

THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

THE UNDERSIGNED RESPECTFULLY invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts =		101 25
Workmanship free of patent charge =		600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 33tf

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.— for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information require respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.		
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4½	13 5	10	24 -	50	15-16	20	
13	3½	8 3	8½	16 -	27	11-16	13½	
14	3½	6 11	7½	12 8	17	9-16	10½	
15	2½	5 2	6½	9 4	13½	1-2	7½	
16	2½	4 3	6	8 8	10½	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut, Philadelphia.

LAP—WELDED WROUGHT IRON TUBES

FOR

TUBULAR BOILERS,

FROM 1 1-4 TO 6 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25

28 Platt street, New York.

ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

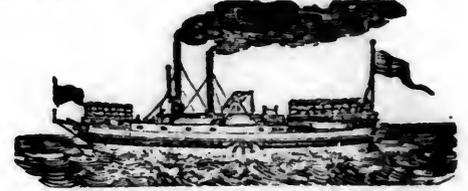
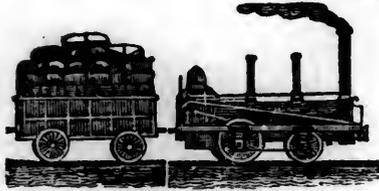
THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
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AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.
SECOND QUARTO SERIES, VOL. II., No. 46.] SATURDAY, NOVEMBER 14, 1846. [WHOLE No. 543, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7-20 a.m. and 3½ p.m.

All baggage at the risk of the owners thereof.

31 ly W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD AND STAGES Connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Winter Arrangement, 1846-7.

On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.

Boston for Great Falls at 7½ a.m., 2½ and 3-25 p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 3-25 and 5 p.m.

Boston for Reading at 7½, and 11½ a.m., 2½, 3-25 and 6½ p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 7½, 8½, and 11 a.m., and 3 and 6½ p.m.

Reading for Boston at 7, 8½ and 9½ a.m., 12 m., 1½, 4 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1y31 CHAS. MINOT, *Super't.*

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3 30, 4 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10 and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams Bridge trains will be regulated according to the state of the weather. 1y18

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A. M. and 4 P. M.
" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P. M.
" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, *Supt.*

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 tf

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced. 1846. Spring Arrangement. 1846

Commencing April 1st.

Passenger trains leave daily, Sundays excepted—
Boston 7½ p. m. and 4 p. m. for Albany.

Albany 6½ " and 2½ " for Boston.

Springfield 7 " and 1 " for Albany.

Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:
Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at 1 m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES, Superintendent and Engineer.
Western Railroad Office, }
Springfield, April 1, 1846. }

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/4 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail— which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/4 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

TROY AND SARATOGA RAILROAD.
THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/4 a.m., (arriving one hour in advance of the train from Albany), and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.
Aug. 3, 1846. 1y 32

THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 5 1/2 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00
" " Sandusky to Buffalo, Cabin..... 6 00
" " " " Steerage.... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.,] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, Sup't, etc.
M. & S. C. R. R. Co.

Sandusky, Ohio.

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO., Agents.**

Corner of Cedar and Greenwich Sts. 43 1y

NEW RAILROAD ROUTE FROM Buffalo to Cincinnati.

Passengers destined for Columbus and Cincinnati, O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance.....230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron.] to Mansfield, distance..... 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

TIME.
From Buffalo to Sandusky..... 24 hours.
Leave Sandusky 5 a.m. to Columbus.... 14 "

From Columbus to Cincinnati..... 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.
From Buffalo to Sandusky, Cabin.....\$6 00
" " " " Steerage..... 3 00
" Sandusky to Columbus..... 4 50
" " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 39 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Sup't, etc.
M. & S. C. R. R. Co.

Sandusky City, Ohio.

BALTIMORE AND OHIO RAILROAD.

MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

THE SUBSCRIBER IS PREPARED to execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warrant equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER, 17 Burling Slip. New York.

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily; except Sunday, as follows:

Leaves Baltimore at.....9 a.m. and 3 1/2 p.m.
Arrives at.....9 a.m. and 6 1/2 p.m.
Leaves York at.....5 a.m. and 3 p.m.
Arrives at.....12 1/2 p.m. and 8 p.m.
Leaves York for Columbia at...1 1/2 p.m. and 8 a.m.
Leaves Columbia for York at...8 a.m. and 2 p.m.

FARE.

Fare to York.....\$1 50
" Wrightsville..... 2 00
" Columbia..... 2 12 1/2

Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Harrisburg via stage to Harrisburg..... \$9
Or via Lancaster by railroad..... 10

Through tickets to Harrisburg or Gettysburg... 3
In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5 1/2 p.m.
Returning, leaves Owing's Mills at.....7 a.m.

D. C. H. BORDLEY, Sup't.
Ticket Office, 63 North st.

LXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.
Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.
1y25 JOHN KING, Jr, Agent.

CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.
On measurement goods..... 13 cts. per cubic ft.
On brls. wet (except molasses and oil).....\$1 50 per barrel.
On brls. dry (except lime)... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.
On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, Gen'l. Sup't. Transportation.

MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburg, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

2v19 1y

CENTRAL AND MACON AND WESTERN Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad 190
 Macon to Atlanta—Macon and Western 101
 Atlanta to Oothcaloga—Western and Atlantic.. 80
 Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20	pr. 100lbs. 35
Crockery, per cubic foot.....	0 15	" " 35
Molasses and Oil, per hhd., (smaller casks in proportion),	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95

Goods consigned to the subscriber will be forwarded free of Commissions.
 Freight may be paid at Savannah, Atlanta or Oothcaloga.
 F. WINTER, Forwarding Agent, C. R. R.
 Savannah, Aug. 15th, 1846.

LITTLE MIAMI RAILROAD.—1846.—
 Summer Arrangement.

Two passenger trains daily.
 On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1½ p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m.
 On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m.
 Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.
 Tickets may be procured at the depot on East Front street.
 The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount.
 W. H. CLEMENT,
 Superintendent.

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00
 " " Richmond..... 6 60
 For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to
 STOCTON & FALLS, Agents.

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.
 AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

RATES OF FREIGHT.		Between Augusta and Oothcaloga, 250 miles.	Between Charleston and Oothcaloga, 386 miles.
1st class.	Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 25
2d class.	Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	0 90	1 40
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 55	0 75
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 37½	0 62½
	Cotton, per 100 lbs.....	0 45	0 65
	Molasses, per hoghead.....	8 50	13 50
	" " barrel.....	2 00	3 25
	Salt per bushel.....	0 17	95
	Salt per Liverpool sack..		95
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows...	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.
 Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.
 J. EDGAR THOMSON,
 Ch. Eng. and Gen. Agent.
 Augusta, Sept. 2d, 1846.

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.
 On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.
 This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
 Chief Engineer.
 Atlanta, Georgia, April 16th, 1846.

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.
 When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.
 THOMAS & EDMUND GEORGE,
 a45 N. E. cor. 12th and Market sts., Philad., Pa.

ATLANTIC AND ST. LAWRENCE RAILROAD. Notice to Contractors. Proposals will be received at the office of the Atlantic and St. Lawrence Railroad Company, in this city, from the 19th to the 24th October instant, inclusive, for the Grading, Masonry and Bridging of the second division of the road, extending from the termination of the first division, near the west bank of Royall's River, in North Yarmouth, to the Old Danville road, so called, a distance of about sixteen miles.

Also for the erection and completion of a pile bridge across the outlet of Back Cove, at Portland.
 Plans, Profiles and Specifications will be exhibited, and the requisite information given at the engineer's office, in Portland, on and after the 20th of this month.

Persons offering to contract for the work, or any part thereof, who are unknown to the undersigned, or to the directors, will be required to accompany their proposals with references as to character and ability; and in all cases where any proposals shall be accepted, and a contract entered into, the Contractor will be required to give bonds for the faithful completion of his contract, according to the terms agreed on.
 W. M. P. PREBLE,
 President Atlantic and St. Lawrence Railroad.
 A. C. MORTON, Chief Engineer.
 Portland, October 7, 1846.

TO IRONMASTERS.—THE UNDERSIGNED is now prepared to sell or lease the valuable seat for Iron works, known as the "Horse Shoe Bend" of the Merrimac River, together with several hundred acres of Iron Ore of a superior quality, in the immediate vicinity. The Ore lies in inexhaustible beds on each side of the River, (based some on sandstone and some on limestone,) and is a brown Oxide, the principal beds known as "Pipe Ore."—The beds are from five to thirty feet in thickness, from one to three hundred yards in breadth, and from one quarter to one mile in length. The ore occurs in distinct masses of from one to five hundred cubic feet in size, is connected with Yellow Ochre, and in point of quantity and quality is believed to be not inferior to any in the state. The distance of the Ore from the Bend is from one-fourth to three miles, and the cost of mining and transporting it to the furnace from the farthest beds, will not exceed sixty or seventy cents per ton.

The lands are thickly timbered with Oak, Hickory, Ash, etc., and when cleared off are fine for agricultural purposes. The distance around the Bend of the River is four miles, and the amount of natural fall in that distance is nine feet, to be made available by cutting a race three hundred yards in length across the Narrows, through which, if wanted, the whole River may be drawn by increasing the size of the race. Its situation is three miles below the Virginia Mines in Franklin Co., Mo., sixteen miles south of "South Point," on the Missouri River, and thirty-two miles west of a good shipping point on the Mississippi, from which latter the Merrimac River is navigable to the Virginia mines, and above for keel boats, batteaux, and other light craft, for more months in the year than the Ohio.

This water power, from its great extent and cheapness over any other now in use, must necessarily draw to it the smelting of those rich Ores of Copper and Lead which recent discoveries have shown to be so abundant in this region.

The wants of the vicinity require the erection of good grist mills; also, a large and profitable business can be done with saw mills, the material for lumber being varied, rich and extensive.

Large forests of Yellow Pine exist on the head of the Merrimac River, which can be easily floated down to the Bend, and from that point the rafts of lumber, can pass out to the Mississippi in any season of the year. The property is offered very low, as will be apparent to any one examining the same. Tides amply guaranteed.

FERNANDO A. EVANS,
 441] Virginia Mines, Franklin Co., Mo., Sept. 1846.

RAILROAD IRON.—1000 TONS HEAVY R H Railroad Iron, 60 lbs. per lineal yard, expected to arrive within the next 30 days. Apply to
 DAVIS, BROOKS & CO.,
 October 9. [1042] 68 Broad St.

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shalting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. 1y1

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 fe. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side o Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

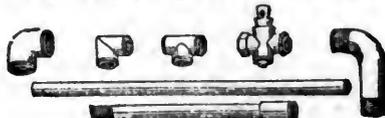
Blacksmith shop, 49 feet long by 20 feet wide For terms, apply to **HENRY ANDREWS, 48 State st.**, or to **CURTIS, LEAVENS & CO., 106 State st.**, Boston, or to **A. & G. RALSTON & Co., Philadelphia.** ja 45

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ½ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.

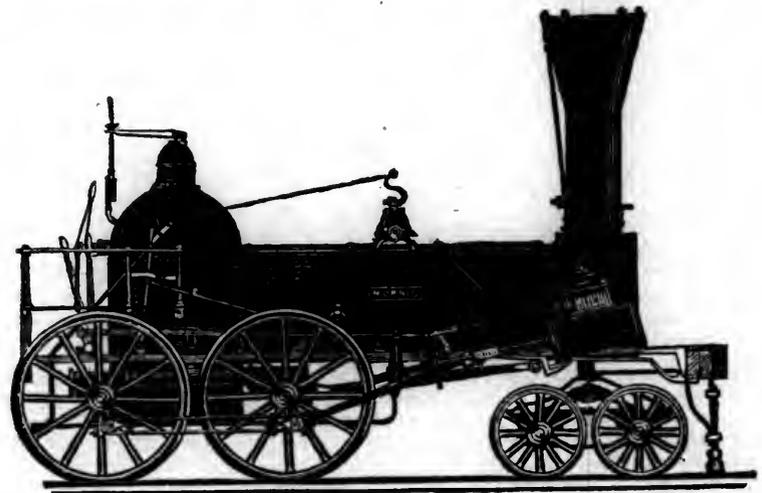
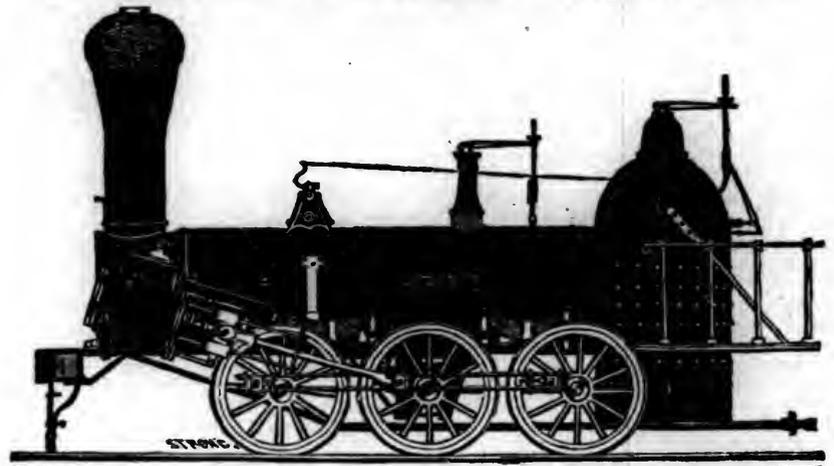


Manufactured and for sale by **MORRIS, TASKER & MORRIS.** Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

RAILROAD IRON.—THE NEW JERSEY Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to **FULLER & BROWN, Agent,** No. 139 Greenwich, corner of Cedar street. September 18, 1846. 10:39

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " × 24 " "
"	3,	14½	" " × 20 " "
"	4,	12½	" " × 20 " "
"	5,	11½	" " × 20 " "
"	6,	10½	" " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives. The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** a45 President of the Newcastle Manuf. Co.

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20th 4 South Front St., Philadelphia.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to **James P. Allaire,** } New York. **Peter Cooper,** } **Murdock, Leavirt & Co.** } **J. Triplett & Son,** Richmond, Va. **J. R. Anderson,** Tredegar Iron Works, Richmond, Va. **J. Patton, Jr.** } Philadelphia, Pa. **Colwell & Co.** } **J. M. L. & W. H. Scovill,** Waterbury, Con. **N. E. Screw Co.** } Providence, R. I. **Eagle Screw Co.** } **William Parker,** Supt. Bost. and Worc. R. R. **New Jersey Malleable Iron Co.,** Newark, N. J. **Gardiner, Harrison & Co.** Newark, N. J. 25,000 to 30,000 made weekly. 35 1y

Steam Ships.

Comparative view of the relative advantage of constructing steam ships of wood or of iron, in the United States, for ocean navigation.—By Junus Smith, L.L.D.

From the natural position of the United States and the peculiar characteristics of the people, the science of marine architecture, by an inevitable consequence, claims a prominent rank in the pursuits of knowledge; and being so closely interwoven with all the great interests of the country, its cultivation and practical application will continue to be, what it ever has been, a subject of the deepest solicitude. Whether we consider it in relation to the mercantile or the naval marine of the country, it is equally important. The experience of all time is before us, and it remains to be seen how far the genius of the people will discover improvements, and add strength, beauty, velocity and durability to the naval and mercantile force of the country.

The introduction of steam as a propelling power, and its gradual but uninterrupted extension, opens a new field for scientific labor, and stimulate the public mind to bold and untried achievements. That there should arise amid the developments of sanguine minds much fancy and speculation, and theory and costly experiments, upon a theme so new and comprehensive, is just what might be expected. But even the failure of the most flattering anticipations, advances the science itself. Our ideas are corrected, by being driven from untenable positions to others more sound and practical. The best system is ascertained by experiment, and by experiment only. In this respect it bears some analogy to the science of chemistry, which has grown up, step by step, by slow but certain advances, until the elementary principles are more fully developed, and their application to the arts and to manufactures, has conferred incalculable benefits upon the family of man. It is worthy of remark, that the fact of several iron steam ships having been constructed in England, is no ground for concluding, even supposing they succeeded, that it will be equally advantageous to build of iron in the United States. In England iron is cheap, and timber dear. In this country timber is cheap, and iron dear. The first cost of a ship, therefore, depends not upon the material itself, with which it is constructed, but upon the price and facility of obtaining that material at the place of building. In this country, the cost of an iron built ship is about 30 per cent. more than the cost of a wooden built ship of the same dimensions. She ought, therefore, in order to stand upon an equally advantageous footing, in reference to the expense of construction, with a wooden built ship, to be kept in repair in a seaworthy condition, at 30 per cent. less expense, and to maintain a durability of 30 per cent. longer time, than a wooden built ship. A short time has elapsed since the first construction of iron steamers for ocean navigation, and so far, the result of experiment is by no means in favor of their durability, compared with timber built ships.

The Montezuma, a Mexican iron steamer, constructed at Woodside, opposite Liverpool,

in England, was sent to New York, together with the Guadaloupe, two years ago, for repairs. The Montezuma had been in service about three years. When in the hydraulic dry dock, I went to examine her condition. I found that between wind and water, there was streak from stem to stern, where corrosion had taken effect; and the whole line was eaten in from one-sixteenth to one-eighth of an inch, resembling a honey comb. The cause of this effect is sufficiently obvious.—The motion of the ship at sea, alternately dipping and immersing, and bringing the salt water under the action of the hot sun, produces a chemical decomposition of the liquor, evaporating the fresh water particles, and concentrating the muriatic acid; and thus forming a powerful solvent, constantly acting upon the iron plates. It may further be observed, that iron has a strong affinity for muriatic acid, which rapidly dissolves thin sheets of iron with which it comes in contact, and is forced by attraction and pressure into the cavities of the iron, expelling the globules of air and assuming their place, and thus breaking the strength of the iron just in proportion as the attraction of aggregation is overcome.

If so great an effect be produced in three years by the action of salt water upon the iron plates, and the remaining plates weakened in manner and measure similar to the dry rot in timber, the understanding can find no great difficulty in measuring with tolerable accuracy the durability of the ship. It will be borne in mind that the last stage of consumption is far more rapid than the first, because the disease has penetrated the whole mass, its constitutional vigor is prostrated, and the living thing is already dead.

I am aware that a new mode of galvanizing sheet iron has been brought before the public, and that high expectations of thus rendering it anti-corrosive are indulged. Undoubtedly it will check oxidation upon the body of the plate, but beautiful as the operation is, I fear the grand difficulty will remain unremedied. Wherever a hole is perforated for rivets, or screws, or bolts, there the iron plate is already weakened in exact proportion to the number and size of the holes. The muriatic acid is invited, and it begins to feed upon and oxidate the whole ship. There is a mutual attachment, and they rush into each other's arms through a space not larger than a hair.

Another important result from the experiments that have been made, demands our notice: and that is the possibility of rendering a ship constructed of iron plates, riveted together from two to three hundred feet in length, as the case may be, water proof. The rivets which fasten the iron plates to each other, or to the iron ribs of the ship, are the bearings which are to sustain the warping and straining of the ship at sea. By continual action, being no elastic medium between the joinings of the plates, a gradual, though minute opening, sufficient for the admission of water, is made throughout the ship; and I apprehend this much to be the case if there were no other wearing by the motion of the

ship than that upon the rivets. The drawing of the head of a rivet, a screw, or a bolt through a plate, which I have seen, causes a leak not easily detected, and still less easily remedied. This fact, I believe, will be confirmed by the experience of all the iron steamers that have weathered the ocean.

The United States revenue iron cutter, the Legare, which I examined when under repairs, last year in New York, is a very leaky ship. The openings of her plates, at the bottom of her keel, were at least half an inch, and they extended, more or less, from stem to stern, between each set of plates. Workmen were employed in forcing lead into the openings to stop the leaks, a process which, it appeared to me, would ultimately make the leaks worse than before. A ship constructed of timber is caulked between every streak of planking, from the keel to the upper deck. The aggregate of this caulking, thus distributed, constitutes an elastic body of considerable thickness, which yields imperceptibly to the heaving and rolling of the ship, without opening a seam or admitting water. In case of a leak, the ship is easily fresh caulked, and all necessary repairs made with great facility. But you cannot caulk an iron built ship; and from my own observation, I perceive that oxidation of the iron plates, both within and without the ship, commences the moment they come in contact with salt water—and of course the chemical laboratory is at work to effect leakages, and the ultimate consumption of the ship. The repairs of an iron built ship are far more difficult and expensive, and ineffectual, than the repairs of a timber built ship. Few people can work in iron—almost every sailor can work up wood. The idea suggested by an honorable senator, that iron ships require no repairs, and will last almost forever, is entirely fallacious, and founded upon mistaken data, or the want of experience.

The formation of lamina, or thin scale upon sheet iron, when exposed to the action of salt water, is a natural consequence, and becomes visible more particularly after having been fresh painted. The oil of the paint loosens the oxidated scale, so that it peels off, leaving its original place upon the plate untouched by the paint, and ready for the repeated action of the muriatic acid. This is generally visible in a few hours after painting. The abstraction of every scale, it is easy to see, is a diminution of the strength of the ship.

The effect of temperature in the expansion and dilatation of all bodies, is an universal law of nature, and worthy of our consideration in the present inquiry. The same amount of heat has not the same effect on all bodies, inasmuch as liquids expand more than metals, and air form bodies more than either, and under the application of the same quantity of caloric. By the introduction of an intermediate body, that of quicksilver, the only metal that retains a fluid state at the atmospheric temperature, and confining it in a convenient instrument, known as a thermometer, and making that a general standard, we can graduate the relative quantity of caloric in

any body, and of consequence measure the expansion and contraction of metals when exposed to different degrees of heat and cold with sufficient accuracy to enable us to lay hold of important results in reference to iron built ships. By the attraction of aggregation the particles of metals are held together in what is called a solid state, although philosophically speaking, there is no solidity about it. These particles approximate with infinite nearness, and yet never touch one another. The cavities of the metal are filled with innumerable globules of air, and the application of heat expanding the air, drives the metallic particles asunder, in proportion nearly to the quantity of heat applied; so that if the heat be raised to a very high temperature, the hardest steel that was ever manufactured may, under the action of a blow pipe, be reduced to an impalpable powder, lighter than the atmospheric air, and will float in that medium like the small dust of the balance in the beams of a summer's sun.

But our immediate object is with iron only, and to inquire how far the general law of expansion and contraction bears upon the matter in hand. It may however be observed that the expansion of metals is not in exact proportion to the movements of heat applied. The strength of cohesion is weakened by every addition of heat, and, of consequence, a less quantity is necessary to overcome less resistance, and, therefore, the same quantity added to high temperature, would occasion a greater expansion than the same quantity added to a low temperature. In view of this great and fundamental law of nature, I sometimes fancy in the morning that I hold the mercy of Jehovah in my hand, in the form of a razor. The application of heat only would at once reduce it to a liquid or æriform state in the very act of shaving. It would drop like water at my feet, or dance away upon the breeze.

A few years ago, Dr. Ure, the author of a valuable dictionary upon practical chemistry, then in London, sent a message desiring to see me. I found him engaged in experimental philosophy, and perfecting a very ingenious steam valve, which acted altogether upon the principle of expansion and contraction. The expansion of the metallic arm, connected with the valve by the heat of the boiler opened the valve in proportion to the degree of heat, and the refrigeration of the heat again closed it, so that the quantity of steam allowed to escape the safety valve depended entirely upon the temperature of the heat. I have no means at hand of ascertaining exactly what would be the expansion of an iron built ship, 300 feet long, for the addition of every 20 degrees of heat, nor do I deem it necessary in the present inquiry; seeing the contraction under an equal degree of cold, is equal to the expansion under a similar degree of heat, we can easily perceive that every particle of matter in an iron built ship is in ceaseless motion. The ship is all alive, a sea serpent, a mighty snake, expanding and compressing its elastic folds at the bidding of an unconquerable and ever acting agent.

Iron Steam Ships of War.—On this point

we have no experience. The merchant marine affords but limited and unsatisfactory results. The iron steam ships of war recently constructed in Great Britain, have not had time to demonstrate their properties, and present us with experimental facts. We are thrown, therefore, upon the resources of the mind, and to the necessity of feeling our way to the most important purposes to which marine architecture can be directed.

The objections already suggested in regard to the *cost, durability, water proof, and expense of repairs* of the mercantile iron steam ship marine, are common to all iron built ships. But with respect to ships of war, there are other objections arising from the peculiar nature of their employment. A shot will penetrate the side of an iron built ship as well as of one built of wood. In that event, the first thing that occurs to the mind is the difficulty of stopping the hole. A wooden plug is effectual in stopping a hole made by a shot penetrating the side of a wooden built ship; but in consequence of the shagged nature of an orifice made through an iron plate, it is quite impossible to exclude the water by a wooden plug. The opening may be partially stopped, but in action no time can be allowed to file away the indentations of the orifice and fit it to receive a plug, and a number of such openings would still admit sufficient water to flood and endanger the ship.

Whether the fragments of an iron sheet, carried into the ship by the force of the ball, would be more destructive than the splinters of a wooden plank, is a question which cannot be determined by any evidence of which I am aware; but it seems reasonable to suppose that the difference would be just that observable between an iron and a wooden ball. The iron fragments detached from a plate would be nothing less than a volley of shot sweeping through the ship, and doing more execution upon the crew than the shot itself.

Anything like forcing in a considerable portion of the side of an iron built ship would, I apprehend, be certain destruction, as no adequate means of repair could be had at sea. The ordinary means of repairing a wooden built ship under such circumstances, would utterly fail, and she must be left to the mighty ingushing of waters that would soon engulf her. In the present state of marine architectural science, it would seem, upon this brief view of the subject, that the risk is too imminent, the expense too large, the durability of the ship too uncertain, and the advantages too problematical, to justify a departure from the established mode of constructing steam ships of war in the United States.

Since the foregoing remarks were written, the steamer *Britannia* has brought to our aid and in confirmation of the conclusion to which we had come, most important information, under the head of Portsmouth, August 14th.

"Some remarkable results have been produced by the experimental shot practice from the *Excellent* on the iron steamer *Ruby*, and it is expected the admiralty will in consequence stop the building of iron and other vessels for the present. The shots which hit

the *Ruby*, not only penetrated the side first struck, but in some instances passed through the other side, carrying with it whole plates of iron. In action, this would risk the total loss of the vessel, for on heeling over to leeward, such a body of water must rush in, that nothing could prevent her sinking with all on board.

"A representation of this important circumstance, arising from the recent trials, has been made to the admiralty; and should further experimental firing prove that serious risk will be occasioned to iron vessels of war when exposed to the chance of being struck by heavy shot, it is doubtful if the board will not abolish them as men of war."

From the fact that the result of these experiments were reported to the admiralty, we may infer that they were made by its orders; and from the plain, straightforward details presented to the public, there does not appear any ground to doubt their correctness. If they do not go far enough entirely to settle the question, they do go far enough to settle the impolicy of building iron steam ships of war, with a weight of evidence so preponderating against their utility.

Little Miami Railroad.

The increase of business upon the Little Miami railroad is extraordinary. Since the opening of the branch to Springfield, the engineer, Mr. Clement, assures the editor of the Springfield Republic, that, if it continues to increase as it has already done, he will be obliged to devote a train especially for that town, during the business season. As it is, at this time, it is difficult to keep the storehouse clear from the accumulating merchandize conveyed over that branch. This is certainly very cheering to the proprietors of the road, and we are happy to learn of the excellent success they are meeting in this enterprise.

The Cincinnati Gazette devotes a long article to the "Little Miami road," giving an extended account of its business and prospects, from which we make the following extracts:—

Every day, says the Gazette, is attesting more and more strongly, the wisdom of those minds who projected this work, and the good service rendered the state by the hands that constructed it. With the Miami canal opening the country north of us to this city, and the Whitewater branch leading to and from the rich agricultural lands and fine manufacturing localities of south-eastern Indiana, the Little Miami railroad was the only present avenue wanted to complete the connection between the producing region north of the Ohio river and its natural exchanging and shipping point—Cincinnati. On the south side of the river, however, a great deal is to be done, before any such connection can be established there; and yet Cincinnati is just as much the *natural factor* of all the country bounded by the Kentucky river and the highlands of Montgomery, Lewis and Fleming counties, as of the region north of the Ohio which is traversed by the railroad and canals (not to speak of numerous turnpikes,) to which we have referred. Our friends in central-northern Kentucky, we think, are permitting "golden opportunities" to escape them, by the tardiness with which they pro-

secure works of public improvement. In slackwatering the Kentucky river, they did a wise thing; but in failing to render the Licking similarly navigable, especially after expending a considerable sum of money in commencing the work, a very foolish one.—The extension of slackwater works on the Kentucky, and the completion of the Licking improvement as at first designed, with a good railroad opening the garden-spots of Clark and Fayette directly to Cincinnati, the productive and manufacturing capacity of central Kentucky would receive an impulse that would soon create a state of prosperity there, such as is not now dreamed of.

We have been much interested in comparing receipts of two leading articles of produce, and also receipts of money for freight and passengers, during two corresponding periods last fall and this, by the Little Miami railroad.

Produce.		Flour.	Whiskey.	
1846	month of September,	6,100 brls.	2,560 brls.	
1845	do do	3,726 "	1,767 "	
Increase,		2,374 brls.	793 brls.	
Revenue.		Passengers.	Freight.	Both.
1846	September,	\$5,966 17	\$5,388 37	\$11,354 54
1845	do	4,253 21	2,397 67	6,658 88
Increase,		\$1,712 96	\$2,990 70	\$4,695 66

September '45 the road was open to Xenia—September '46 to Springfield, 19 miles farther. The following statement compares the receipt for freight and passenger's the first full month after opening the road through to Springfield, with the revenue from the same sources for the last full month it was open only to Xenia.

Revenue.		Passengers.	Freight.	Both.
1846	September,	\$5,966 17	\$5,388 37	\$11,354 54
1846	July,	5,624 79	2,983 55	8,608 34
Increase,		341 38	2,404 82	2,746 20

The increased receipts from passengers, owing to the extension of the road, are small, but all that was anticipated. There was no large thoroughfare to divert passengers from, but only a new district of country to open to travel by railroad, and that one which had previously given its travel to the Little Miami road from Xenia down. The increased receipts from freights, however, are large, (about 80 per cent.) and speak well for the productive industry and manufacturing enterprise of Clark county. The receipts for freight during the month of September this year, as compared with the receipts during the same month last year, show an increase of one hundred and twenty-five per cent!

Fitchburg Road.

The Boston Times says that a large number of the stockholders of this road met at the Tremont Temple, to see whether the corporation would assist the Rutland railroad company in the construction of their road. This meeting, says the Traveller, was called at the request of a committee appointed at a former meeting of the stockholders, and to whom was referred a letter from Judge Fellett, president of the Rutland railroad, in reply to an inquiry from some stockholders in the Fitchburg railroad, as to what obstacles existed to the building of the Rutland road. The letter of Judge Fellett goes at length into the history of the Rutland road. He states that the want of subscription among the capitalists and

business men of Boston has been the chief obstacles with which they had to contend. Mr. Nathan Rice addressed the meeting at considerable length in favor of the Rutland route. Mr. Wheildon, of Charlestown offered some resolutions in favor of the central route, and Mr. G. W. Warren, of Charlestown, also offered some resolutions that the Fitchburg company would treat both railroads impartially.

The Boston Courier gives the following account of this meeting—which seems to have been characterized by considerable feeling. The Courier says:

The meeting was called to consider a proposition for aiding and encouraging the lake Champlain and Connecticut river railroad—Rutland route.

There was great animation and some very tart speeches on the occasion. Mr. Nathan Rice spoke over two hours in the forenoon, giving a history of the connection which was brought about last year with the Central railroad, (Montpelier route) and complaining of the measures which were taken to that end.

There was also quite an amusing discussion between the rival engineers, Messrs. Gilbert of the Rutland, and Felton of the Montpelier routes, respecting the cost and labor of making the two proposed roads.

Mr. Hoar, of Concord, replied to Mr. Rice in a speech full of sarcasm, and not a little personal in its tenor.

In the afternoon, a committee of seven reported resolutions of sympathy for the Rutland road, and pledged the Fitchburg corporation to receive the business of the Rutland road when completed, on as favorable terms as those granted to any other company. This report was accepted unanimously.

Mr. William F. Weld then moved that the same committee be requested to solicit subscriptions in aid of the Rutland road to the extent of \$240,000. On this motion there was considerable discussion, and it was carried by hand vote by a large majority. But Mr. Belknap, of Windsor, Vt., doubted the decision of the chair, declaring the motion carried, and called for and insisted upon a stock vote.

A ballot was accordingly taken, 5,120 shares being represented, which resulted as follows:

In favor of the motion,	1,553
Against it,	3,567
So the motion was rejected.	

Several gentlemen addressed the meeting, and one from Vermont stated, after the ballot was declared, that this was the last time any attempt would be made to obtain aid from the citizens of Boston, towards bringing the business of western Vermont in that direction. He stated that there was another route which would probably now be tried, and he hoped, with success. He probably alluded to a conjunction with the Western railroad, via North Adams and Pittsfield.

The meeting then adjourned.

The First American Ocean Steam Ship.

The New York ocean steam ship now building at Westervelt and Mackay's ship yard, is intended as the first in the line of ocean steam ships to run between New York and Bremen via Cowes, in the employment

of the post office department. She is called the Washington, is of 1750 tons, custom house measurement, which is equal to about 2350 tons carpenter measurement. Her frame is well seasoned white oak; her timbers are pieces 22 feet long, sided 12 inches, moulded 20 inches, and very close together. All the crooks are such as grew with the timber, and none of it is cut across the grain. Her keel and kelson are of great solidity, forming a mass seven feet in thickness, and bolted throughout with heavy copper bolts. There are four kelsons to form the bed of the engine, running fore and aft, each 36 inches at the bottom, and 26 inches above, and 4 feet 3 inches high. There are, in order the more to strengthen her, bilge kelsons running fore and aft, 16 inches square. The length of the keel is 220 feet—of the upper deck, 245; the breadth of beam is 39 feet, and depth of the hold, 31½ feet. She is to be planked up inside and out with 6-inch white oak plank, except across the timber heads, where the plank is to be 8 inches; and what seems to us indispensable to the safety of all sea going steam ships, she is to have a complete flush deck from stem to stern, so that if a heavy sea be shipped, it must run off, as there are no openings into which it can pour and thus endanger the safety of the vessel.

The Washington is to be equipped with two marine engines, now constructing by Stillman, Allen & Co., of 72-inch cylinder and 10 feet stroke; the wheels are to have 40 feet diameter, and it is intended that they shall, when pushed, make 18 revolutions. Her cylinders, furnishing 20 inches of steam will be equal to 2,000 horse power.

She will have an unbroken cabin saloon of 80 feet, which is to be furnished in that most tasteful and brightest of all styles, varnished white and gold. The main cabin will furnish 200 berths—not scutees, nor cots, nor occasional substitutes, but ample berths in convenient and roomy state rooms. She will have a second class cabin forward, with 100 berths—no less comfortable, though less luxuriously furnished, than the main one.

Her whole cost afloat and ready to receive her mails and passengers, will not reach \$250,000. The Mississippi and Missouri war steamers, (the one built in Philadelphia, the other here, by the government,) each cost we believe, close upon \$700,000, and they were not so large as the Washington, and by no means we suspect so strong.

The government, it is known, have made a contract with Mr. E. Mills for four ocean steam ships, in which to transport the mails to Bremen, touching, going and coming, at Cowes. The contract is to last for five years, and the price is one hundred thousand dollars per annum.

The Washington is the first of the four, and she will be ready to commence her trips in March next. As soon as she is launched, which will probably be early in January, the keel of another ship of like dimensions is to be laid, and the four are to be completed in succession—so that each one may be rendered more perfect by the experience of those that precede her.

Franklin House, Philadelphia.

The undersigned desires again to call the attention of the readers of the Journal and the railroad interest generally, to his change of residence, and connection with this popular, and well arranged HOTEL. In presenting his compliments to the readers of the Journal, and his claims upon the railroad interest for a share of patronage in his new pursuit, he is willing to rest his claims upon the merits of the house, as it now is, and upon the manner in which it shall be hereafter kept; believing, as he does, that those who give him an opportunity of proving his claims will find them valid and substantial.

D. K. MINOR,

105 Chestnut street, Philadelphia.

English Iron Trade.

The iron trade remains in a healthy condition.—The demand continues steady, and prices for railway iron continue to range from £9 15s. to £10 per ton. The Shrewsbury and Wolverhampton company ordered 10,000 tons of rails, and 3,600 tons of chairs; while others who wanted to purchase, declined to do so until after the quarterly meeting of iron masters, which was to take place at Birmingham on the commencement of the month; prices were, however, fully sustained, with a tendency to advance; which tendency will be very likely to continue, as there can be no doubt of the rapid construction of the numerous lines of road already chartered—as may be inferred from the progress already made, and making, with those chartered in 1845, if the statement in another column from the English journals is correct.

In the Mining Journal, of 17th October, we find the following quotations and communications:

LONDON, OCTOBER 16, 1846.

	£.	s.	£.	s.	d.
Bar a Wales—ton	8	15	9	0	0
“ London	9	15	10	0	0
Nail rods	0	0	10	15	0
Hoop (staf.)	11	5	11	10	0
Sheet	0	0	13	0	0
Bars	11	0	11	10	0
Welsh cold blast foundry pig	0	0	5	5	0
Scotch pig b Clyde	3	10	6	3	11
Rails, average	9	15	10	0	0
Russian, CCND c	0	0	0	0	0
“ PSI	0	0	0	0	0
“ Gourieff	0	0	0	0	0
“ Archangel	0	0	13	0	0
Swedish d, on the spot	0	0	11	10	0
“ Steel, fagt	0	0	16	0	0
“ kegs e	13	15	14	0	0

a, discount 2½ per cent.; b, net cash; c, discount 2½ per cent.; d, ditto; e, in kegs ½ and ¾ inch.

From our correspondent.

IRON.—Welsh and Staffordshire in good demand. Scotch pig has been sold this week at 67s. 6d. for mixed nos.; and at 69s. for all no. 1, at which rates a considerable business was done, to-day the prices are full 2s. per ton higher.

Communicated by Messrs. Whitcomb & Barton.

English bar iron continues steady; a considerable fluctuation has taken place during the last 10 days in Scotch pig iron—sales having been made so low as 68s. 6d. cash; since which prices have rallied, and we may quote the market firm at 70s. for mixed nos., and 72s. for all no. 1, cash.

To the Editor of the Mining Journal.

Glasgow Pig Iron Trade.—Sir: There have been considerable fluctuations in prices since our last, at one time sales were effected as low as 68s. 6d. for mixed nos., and 70s. for no. 1, cash in 14 days—now they are being made at from 70s. to 71s. for mixed nos., and 72s. for no. 1. The feeling is improving, and holders have become firmer. The shipments from here, both coastwise and foreign, amounted to about 24,000 tons last month.

DOUGLAS & HILL, Metal Brokers.

Exports of pig iron from Port Dundas, Kirkintilloch, and Clyde, during September last: from Port Dundas and Kirkintilloch, 12,867 tons; from Clyde 11,100 tons—in all, 23,967 tons.

Improvements in the Manufacture of Iron.

We find the following specification, and engravings, of what is termed an improved method of making iron, in the London Mining Journal.

Specification of patent granted to Rees Davies, gentleman, of Ystradgunlais, in the county of Brecon, for improvements in the manufacture of iron.—From Newton's London Journal.

This invention consists in so conducting the process of manufacturing iron, when anthracite, stone coal, or culm is used, that the charge may be caused to enter the blast furnace in an ignited state.

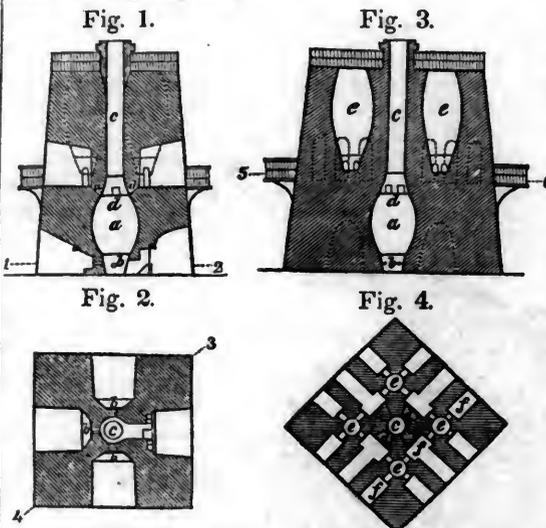


Fig. 1, is a vertical section of a blast furnace, suitably constructed for carrying out this invention; fig. 2, is a horizontal section, taken on the line 1, 2, of fig. 1; fig. 3, is a vertical section of the furnace, taken in the direction of the dotted line 3, 4, (fig. 2); and fig. 4, is a horizontal section, on the line 5, 6, of figs. 1 and 3. a, is the part of the furnace in which the blast operates; this part is constructed in a similar manner to the ordinary blast furnaces, from the lower parts up to the boshes, and the blast, (whether hot or cold) is applied in the usual way by the tuyeres b, b. Above the part a, the interior of the furnace is contracted, and forms a chimney c, to carry off the gases and products of combustion; the

charging of the furnace is not effected through the tunnel head or chimney c, but through the passages d, d, excepting the first charge, which must be made with unignited materials, in the ordinary way. e, e, are kilns or chambers, into which the charges of iron ore, fuel and flux, are continually introduced and ignited; the upper ends of the chamber are open to receive the successive portions of the charge, and the lower ends communicate with the furnace a, by the passages d. f, f, are openings for stirring the charge and regulating the passage of descending materials from the chambers e, into the furnace. The blast does not act on the charge contained in the chambers e; but the anthracite being kept in a state of partial combustion, by the draft of atmospheric air through it from the passages d, there will be a previous ignition of the charge going on in the chambers e; this is important—as anthracite, stone coal, or culm, which has been ignited before being brought into contact with a blast of air, works more favorably in the manufacture of iron (either with hot or cold blast) than when thrown in a cold state into the blast furnaces; and the ore, after the above process, is in a more suitable state for introduction into the blast furnace.

The patentee remarks, that although he believes it to be best to use anthracite, stone coal, or culm alone, yet other fuel may be mixed therewith; and that although he has shown the best arrangement of furnace that he is acquainted with, he does not confine himself thereto, so long as the charge can be supplied to a blast furnace in an ignited state.

He claims the manufacture of iron by means of anthracite, stone coal, or culm (whether used alone or mixed with other fuel), which has been, together with the iron stone, or ore, or flux, before its projection into the blast furnace, brought into a state of ignition by a draft of atmospheric air, in chambers so arranged as not to interfere with the blast furnace.

New York and Boston Railroad.

A convention of gentlemen friendly to the immediate establishment of a railroad from Boston to New York city, via Woonsocket, and thence by the most direct and practicable route by land to the latter city, was held at the Western (upper falls) last week. The meeting was called to order, says the Boston Times, of Oct. 28th, by Otis Pettee, Esq., of Newton, and the following officers were selected on the occasion:—

Hon. Luther Metcalf of Medway, president; Rev. Daniel Kimball of Needham, Rufus Ellis, Esq. of Newton, Ralph Huntington, Esq. of Woonsocket, R. I., vice presidents and Joseph W. Plympton of Newton, Walter Janes of Medfield, and Wm. E. Clark of Newton, secretaries.

Resolutions were, introduced, and a report was received from Mr. Stone, engineer, upon the Rhode Island portion of the line, showing the feasibility of

the route. It was contended that the people of Norfolk county had claims upon the legislature of Massachusetts for the establishment of a road thro' that region, and complaint was made against the management of one of the existing lines from Boston to New York. A number of spirited speeches were listened to, and a determination was evinced to carry through the project, if the legislature accedes to the views of those interested in the enterprise. The projects of such a route, were represented as being highly promising and lucrative, and the report and resolves were unanimously adopted.

The meeting was very fully attended, and about 300 delegates were present from the towns bordering on the proposed line, in Norfolk county, and from Rhode Island and Connecticut. The "Times" adds, that the proceedings, throughout, were characterized by a most admirable spirit of unanimity and zeal. It is understood that the next meeting of the friends

of this great project, will take place at Fanueil Hall, Boston, at an early day, when it is believed a large and effective gathering will be present. The country through which the proposed route is intended to pass, is rich in manufactures and agriculture, and the road will prove a very important channel for the trade of that vicinity.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N.Y.

Saturday, November 14, 1846.

Steam Ship.

By the *Britania* we have our files to the 19th October, from which we learn that the railway interest and the iron business are still in a flourishing condition.

Comparative Cost of Canals and Railroads.

We recently published in the *Journal*—see number 43, October 24th—an able and interesting article on the comparative cost of canals and railroads, by A. WHITNEY, Esq.; and in our introductory remarks we spoke of the writer as the author of the projected *Oregon* railroad. We were in error in thus attributing the authorship, and therefore take this opportunity of placing the matter right, that an innocent party may not be chargeable with sins—if sins they be—of which he is not guilty, and that the real author may have credit for his labors, if they are entitled to credit.

We should have said that it was written by Mr. Asa Whitney, of Philadelphia, late of the well known house of BALDWIN & WHITNEY, locomotive engine builders, and formerly one of the canal commissioners of the state of New York; a gentleman who has contributed largely to the improvement of the locomotive engine in this country; and we avail ourselves of this opportunity of again calling attention to the important facts so clearly set forth by the writer.

Improvement in the Telegraph.

The *Albany Evening Journal* chronicles a mode lately discovered by Mr. Cornell, for carrying the telegraphic wires across navigable rivers—a question which has given rise to several experiments, none of which as yet, however, have been found practicable. “Mr. Cornell,” says the *Journal*, the “superintendent of the Albany and Buffalo road, has been studying for a year or two, with a view to overcome this serious obstacle to a continuous connection. His reflections have resulted in what he deems a practicable discovery. He tested his project on Tuesday, and it resulted, he assures us, to his entire satisfaction. What the discovery is, he does not choose, at present, to inform the public—except that the connection is secured through a naked wire placed in the water. Those who are aware that water is among the very best conductors of

electricity, will question Mr. C’s veracity, until they learn more of the details of his discovery. But, of this the public may rest assured—the experiment has been successfully made, and under circumstances which promise permanent utility.”

Railroad Iron.

In no branch of business, has greater progress been made within the last four years, than in the manufacture of iron. But in the manufacture of rail iron especially, the progress is extraordinary. In 1844, says the *Philadelphia “Pennsylvanian”* when the first railroad iron was made in this country, it was regarded as an experiment of extremely doubtful success. Now there are at least ten establishments engaged in its manufacture, while a number of others are in progress of construction; and the whole business has been brought to a degree of perfection highly creditable to American skill and enterprise. A late number of the *Miners’ Journal*, in an article upon the subject, furnishes the following list of these establishments, their location, and the number of tons they are capable of turning out yearly. Of these, all are in operation, except four or five, which are nearly finished. It will be seen that the whole number are of sufficient capacity to make 119,000 tons of railroad iron per annum, equal to 2,288 tons per week, or 382 tons per day:

Names.	Location.	Tons per ann.
Montour Iron Co.,	Danville, Pa.	9,000
Wyoming,	Wilkesbarre, Pa.	9,000
Trenton,	Trenton, N. J.,	9,000
Mount Savage,	Maryland,	9,000
Providence,	Providence, R. I.,	9,000
Hunt,	Philadelphia, Pa.,	6,000
Great Western, near,	Pittsburgh, Pa.,	6,000
Seibert & Wainright,	Philadelphia, Pa.,	6,000
Grey,	Boston, Mass.,	9,000
Phoenixville,	Phoenixville, Pa.,	9,000
Tremont,	Conn.,	6,000
Fall River,	Conn.,	9,000
Moore & Hoven,	Norristown, Pa.,	6,000
Elicott’s,	Baltimore, Md.,	6,000
Yarmouth,	Yarmouth, Mass.,	5,000
Lackawana,	Luzerne, Co.,	6,000

Total, Tons, 119,000

For a mile of railroad with heavy track, continues the *Journal*, 90 tons of iron are required. It will be seen, therefore, that iron enough can now be manufactured in the United States to lay *four miles per day*, or twelve hundred miles per year. In producing this amount of iron, 300,000 tons of iron ore are used; and it is estimated that five tons of coal are required in the manufacture of every ton of railroad iron. This gives an aggregate 595,000 tons of coal used for this purpose, nearly all of which is anthracite. This fact is sufficient to show the important relation which this branch of the iron business holds to the anthracite coal trade of Pennsylvania.

Camden and Amboy Line.

The Philadelphia correspondent of the *Anglo-American* has the following remarks in relation to the conduct of the managers or agents of the Camden and Amboy railroad:—

“There is a species of policy or of management practised upon the public who have to travel to and from New York and Philadelphia, of which the public, are in some measure acquainted, but which does not appear to have made particular impression, and which I confess, I only happened to be struck with from the observation of a fellow traveller who made the remark when we were travelling between these two cities. It is this, that while we are only paying say a dollar and a-half fare to Albany, about 150 miles, and two dollars and a-half to Boston, more than 200 miles, we are charged by the *cheapest* conveyance, three dollars to Philadelphia, and by the only other alternative four dollars, although the dis-

crepancy in either case is only about 86 miles. Now what can be the cause of this discrepancy in the several rates of charges, and what can be the reason that one of the passages to Philadelphia shall cost 33½ per cent. more than the other?”

The writer appears to be unacquainted with the fact that the ‘policy’ of the line is, to do just what it pleases, and in whatever manner it pleases, without the slightest reference to the comfort or convenience of the passengers who are compelled to travel over the route.

The same writer adds, that “this was not the only circumstance in the conversation with our fellow-passenger. We were in time to start by the *Amboy steamer* by 5½ o’clock in the morning, at which hour we had understood she was used to proceed on her destination. We had to keep ourselves warm as well as we could until 6¼ in the morning at which time we actually started, and complaining of this to our new acquaintance, he said such was very usual by that route, that the property of the route had fallen in the hands of a few who had also the principal influence on the other route, and that they wanted to turn away the passage of travellers to the other way (to the four dollar way): that this route which we were going was, by charter, bound to be kept going, and therefore they could not shut it up, but there was no restraint upon them altering the time of starting, provided they give public notice they were about to do so. That these notices were placed in one or two newspapers where they were not likely to be seen, or might be passed over: thus the legal part of the stipulation was fulfilled, altho’ the spirit might be wanting. That in the case before us they had complied, and therefore he pulled out a previous morning paper and showed it to us. He said he was an old traveller and ‘what was every man’s business was no man’s business,’ hence he took no trouble about the matter, except to talk of it as he was now doing. He also said that the *Amboy boat* started sometimes before her time, and hence those that came after she had started were advised to go the other route, and hence the present route was gradually getting a bad name for regularity, besides the inconvenience of starting at so inconvenient a time of morning, so that by degrees it would only be a freight route, to which the owners had no objection.”

This appears to be the whole truth in a brief space. The *early* line is the “three dollar” line, and a proviso in their charter requires the “Camden and Amboy company” to run a line from New York to Philadelphia at this price. They do so; but it is said by some that means are adopted to render that route uncomfortable, and it has long since obtained a reputation for being one of the worst managed routes in the country.

The writer concludes as follows:—

“I know not the truth of all these allegations, but they appear to be very plausible. If they are at all true we think there is an opening for a new company who may be contented with a reasonable profit, or at least may seek the public convenience upon fair terms; or the controllers of the present routes may be taught to respect the public opinion thereon, for we are of belief that the owners might make more money by materially reducing their terms, as has been well proven by others who have had wisdom or who have been compelled to try the experiment.”

There would be “an opening for a new company,” which (in view of such management as has characterized the career of this route for years,) would long ago have been established, but for the very cogent reason given by this writer, in the early part of this communication, viz: “that the property of the route was in the hands of a few who have also the principal influence in the other!” The fact is, they are mainly owned by the same proprietors; and so long as they choose to do as they now do, so long must the public be annoyed and overcharged. When will the proprietors of the Camden and Amboy railroad remedy these evils?

New Railways in Great Britain.

Herapath says that the "following are the amounts authorised in the session of 1846, to be raised for railways, and the number of miles to be constructed:—

	No. of Bills.	Capital £	Loan £	Length in miles.
England	189	70,234,870	23,612,027	3,230
Scotland,	60	11,749,780	3,903,000	805
Ireland,	51	8,517,900	2,820,558	670
Total,	270	90,502,550	30,345,585	4,705

The estimated average total cost, per mile including capital and loan, would appear to be for England, £29,055; for Scotland, £19,444; and for Ireland, £16,938. It may be interesting to mention, that in the session of 1844, the estimated average cost per mile of the 819 miles of railway then sanctioned, was £19,148; in the session of 1845, 2,860 miles were sanctioned, averaging £20,438 per mile, increase, 6.74 per cent; and in 1846, as above, 4,705 miles, averaging £25,685 per mile, increase in cost, 25.67 per cent. The total length of railway sanctioned during the last three sessions, amounts to 8,364 miles; aggregate amount of capital and loan authorised, was £194,983,767.

Commerce and Resources of the West.

The attentive observer of the passing events of the day, will have noticed the rapid improvements which have been making the past two or three years, and especially the last year, throughout the western country; and the lively interest which has been exhibited by the mercantile community and capitalists generally, in railroad enterprises in that region of the country. The immense resources of the great west are not yet fully appreciated by the eastern men, who are inclined, generally, to bestow their attention to matters more immediately *at home*, or in the vicinity of their own limits of operation. There is nevertheless, a rapidly growing disposition among our capitalists to avail themselves of a participation in the advantages which *must* accrue, in a short time, from intercourse with the west: a matter which is becoming daily more closely interwoven in all our business affairs, and which emanates from the communication with that country, which is every month advancing with such astonishing rapidity. However great may be the advancement in the prosperity of our *Atlantic* cities, the cities throughout the west are increasing in a far greater ratio—and while prosperity marks the course upon our own borders, the destiny of the "mighty west" is "onward," with far more rapid strides. Her resources are not yet well understood, but the day is fast approaching when all her interests must become most intimately blended with our own.

Mr. Wm. Kenrick of Newton, Mass., has prepared an elaborate series of articles upon this subject, which are now in course of publication, in the Boston Courier; and which will be read with deep interest by all who have the *general* good of the country at heart. We extract below, from the last number of the Courier, the following in relation to the commerce of the lakes, and of the western country. The writer observes that—

The great west is ours, the great Welland ship canal, and the tendency of every great public improvement being to the east continually. The Michigan Central railroad, and the Miami railroads, under New England management, and now also ours, must eventually, do a business very great, and commensurate only with the growth of those vast

countries, and all tending to the east, to lake Erie, and thence to lake Ontario, from thence to the two great seaports of New York and of Boston, by canals, or by destined railroads.

The merchandise brought down to Albany from the lakes, come now only by the Erie canal, from Buffalo direct, and by the branch of this same canal, from Oswego, on lake Ontario. The time by canal from Buffalo to Albany, is usually about seven days; and the time from Oswego to Albany, is usually five days. These two cities of the lakes have grown with a growth almost unprecedented. Yet the harbor of Buffalo is very small and contracted, and liable, from its position, to danger from floods and to obstructions from ice in spring, and for a month later than other ports of the lake. These canals being the property of the state, are subject to heavy tolls, over and above the freight and other charges. The central railroads which run parallel with these canals, are under restrictions, which prevent their taking any freight except in winter, and then subject to canal tolls, as tribute to the state—the time during which the canals are closed by winter being usually over four months.

The share of merchandise which Boston receives from the lakes, comes now only, or almost exclusively, by the Western railroad. The Western railroad is now doing a vast business, and twice the amount of flour is said to have come down already, than in the same period of any former year. And new engines are putting upon that route, to meet the overwhelming and immense business of the present autumn and year.

In reference to the business of the different routes, leading to and terminating in Boston, Mr. Kenrick informs us that the amount of flour consumed in Massachusetts is very large—the quantities used in the cotton factories, for sizing the cotton warp, etc., being very considerable.

Three or four years since it was ascertained that 10,000 barrels had been thus consumed in a single year, in the factories of Lowell alone. And it was ascertained at the same time, that the total imports of flour into Massachusetts, over and above all our exports, was 700,000 barrels in that year—or about one barrel to each individual inhabitant of our population, all which was left for our own consumption. And the tax or tribute to the state of New York, in canal tolls alone, for this quantity, amounting to 35 cents a barrel, (admitting it had all come through this source) would have amounted to \$245,000, in tolls alone, over and above the charges of freight on those canals.

The Western railroad, so called, extends from Worcester to Albany, in all 156 miles, and being hewn out, in part, through rocks and over mountainous heights, cost nearly \$8,000,000. Yet, under its present management, it is now doing an overwhelming and unrivalled business, and greater far than in any former year, and is yielding a large dividend on the enormous cost if its construction.

The following, in relation to the different routes, connecting New England with the lakes and the regions of the north-west, contains sufficient of inter-

est, to publish entire. Mr. Kenrick concludes as follows:—

The Ogdensburg and Champlain railroad was surveyed in 1840, by order of the legislature of New York—the work being executed by the most experienced engineers, at the expense of \$30,000 to the state. The whole distance from Ogdensburg, on the St. Lawrence river, to Plattsburg and Cumberland Point, on lake Champlain, being 120 miles. The crossing of lake Champlain, is from Cumberland Point to Grand isle, a distance of from two to three miles. From Grand isle, the crossing of the lake to the Burlington side, is over a solid sand bar, with water not over two feet deep, which is fordable for cattle, and horses, and carriages, at all times. Lake Champlain has no current; and it is protected on all sides from high winds, and is never obstructed by floods or drifting ice, as is the case in the crossing of all rivers,—such, for instance, as at the crossing of the river at Havre de Grace on the Baltimore railroad, or at the crossing of the Hudson river, at Albany, of the Western railroad.

The grades of the Ogdensburg and Champlain railroad are exceedingly low; it passes for the most part over a champain country, level, or but gently undulating, with no high hills, and no mountains; the highest grade being but 34 feet of elevation to a mile from west to east. From Burlington eastward to Boston, is by the Concord and Lowell, or by the Fitchburg routes. The route from Burlington to Concord, N. H., seems, for the most part, especially formed by nature in the valleys of the rivers—the highest grades being 50 or 52 feet to the mile. From Concord the grades being in the valley of the Merrimac, are very low, and favorable to Lowell; and from Lowell to Boston, the grades are but 10 feet to a mile, except in one single instance, near Lowell.

Let us now compare these grades with those of the Worcester or Western railroad, which is now the only railroad from Boston to Buffalo, and the western lakes direct. On the Worcester railroad, which extends from Boston to Worcester, a distance of 44 miles, the usual grades are 30 feet; but for short distances they sometimes rise to 40 feet of elevation to a mile. The Western railroad extends from Worcester to Albany. From Worcester to Springfield, a distance of 54 miles, the highest grades are 50 feet of elevation to a mile. But from Springfield to Albany, a distance of 102 miles, the grades are exceedingly high and mountainous; the highest grades being 83 feet of elevation to a mile, for about two and a half miles: the next highest grade being 78 feet to a mile, for about 7 miles, from east to west; and the next highest grade is 76 feet to a mile, for about 6 miles, from west to east. Over this section, the train of 60 cars loaded with 480 tons of freight, which is ordinarily drawn by a single engine on the Worcester road to Boston, is here divided into five separate trains, and thus carried through this section by the aid and power of five engines. It seems evident, therefore, that in this western section of 102 miles, the expenses of engines

and of power employed, must be not far from equivalent to 500 miles travel, on all other railroads, and, at least, fully equivalent to the travel of the whole railroad route from Boston through Burlington to Ogdensburg and the St. Lawrence river, in all the expenses and cost of engines, of engineers, and of power.

Lake Ontario is never closed; and the navigation of the St. Lawrence river, from lake Ontario to Ogdensburg, is usually from a month to six weeks longer in each season than the New York canals. Ogdensburg is the lowest point of ship navigation on the St. Lawrence, from lake Ontario. Below, the river is obstructed by rapids.

The Saint Lawrence is the greatest river in the world. From Trois riviere, or Montreal, to Kingston, on the lake above, its Indian name was Iroquois, or Cataract. Iroquois was the name of the famous confederacy of the Six Nations—the Mohawks, the Oneidas, the Onondagas, the Cayugas, the Senecas, and the Tuscaroras. Ogdensburg, the nearest of all points to the lakes, is about 350 miles distant from Boston, by the Burlington railroad; or about the same distance from Boston as Buffalo is from Albany. It is nearer to Boston than Oswego, by lake and by river; and nearer than Buffalo by about 200 miles, by the pass of the Welland ship canal, and the free navigation of river and of lake. Ogdensburg is the key, and the nearest point, also, to the trade of all Canada West; for here, and at this place only, can you cross over to Canada West at all seasons—the river being bridged in winter by the ice; while, except only on the shores, the waters of lake Ontario never freeze, by reason of their profound depth, but are open seas continually.

In its position on the river, the great receiver of the waters of all the lakes; as the key and entrance to Canada West and a foreign country, at all seasons and times.—Ogdensburg stands alone—as the point intermediate, and above all, the nearest, most direct and easiest, between those vast countries and lakes, and the city of Boston, on the outer sea.

Rutland Railroad Meeting.

The friends of this railroad, in goodly numbers, met in the Tremont Temple, last evening. Charles W. Cartwright, was chosen president, and Geo. F. Williams, and E. C. Hutchins, secretaries.

The president stated the object of the meeting to be, to endeavor to raise the sum of two hundred thousand dollars amongst the friends of the Rutland railroad in this city, and elsewhere, in order that the building of the road might be commenced. He expressed his favorable opinion of the proposed road, as a connecting link through the lakes with the great west and the Mississippi, and had no doubt that its business would in time equal the present or future business of the Western road.

Mr. B. T. Reed called for information in relation to this road.

Mr. T. P. Chandler made a remark or two as to the facts coming within his personal

observation. While travelling in Vermont, he casually came across Mr. Gilbert, the engineer of the road, and accompanied him to the summit of Mount Holly, where it is proposed to cross the mountains. The ascent was very gradual, and the grade, as stated by Mr. Gilbert to him, would not exceed sixty feet; for the remainder of the road not more than forty.

Judge Follett, president of the Rutland road, made a statement of the present condition and future prospects of the road. The length of this road from Burlington to Belows Falls, where the Cheshire road ends, was 116½ miles. It is the shortest route from lake Champlain to Boston. The route has been surveyed twice; first by Mr. Felton and afterwards by Mr. Gilbert, now in the employ of the company. Mr. Felton at first estimated the grade at Mount Holly, at 70 feet, but afterwards reduced it to 60. He estimated the entire cost of the road from Belows Falls to Burlington, at \$3,200,000.—Mr. Gilbert estimated its cost at \$2,600,000. The difference in their estimates was, that Mr. Felton put the iron at \$100 per ton, and estimated as necessary, one thousand freight cars, while Mr. Gilbert put the iron at \$80 per ton, and thought that four hundred freight cars would be sufficient. The expense for grading from Ludlow to the summit of Mount Holly, five miles, is estimated at \$105,000; the remainder of the route is as level as usual.

This road would open to Boston a region of 25,000 square miles, and a population of more than 100,000 inhabitants; there 14 thriving villages upon the line of the road, abounding in iron, cotton, woollen and marble mills, and also manufactories of nails, glass, starch, etc. There are mines of iron ore and marble through the entire line. The business of the road in merchandise had been estimated at 90,000 tons annually, aside from cattle, etc. He stated that Whitehall, which is at the head of the navigation of lake Champlain would be twenty-five miles nearer Boston by this road than New York city.—In relation to the subscription of one million dollars to the stock of this road by western Vermont, he considered it a substantial subscription, and that the assessments would be promptly met as called for. Of the 2,000 shares subscribed for 1,400 were taken by farmers upon the route. A small assessment of \$10,000 to pay expenses was promptly met by these stockholders. They were awake to the necessity of finding a market for their products; the Michigan farmer can get his goods to market, a distance of 1,400 miles, cheaper than they; and they were determined not to remain longer in the back ground; if they met with no assistance here, there were others who stood ready to aid them in their work. In relation to their intentions, in case the \$200,000 were subscribed here, he stated that they would immediately proceed to put 22 miles of the road from Belows Falls to Duttonville under contract; and he also thought that it would enable them to extend it as far as Ludlow, at the foot of Mt. Holly. Thirty-five miles west of

the mountain would also be put under contract, but he thought that if a liberal disposition towards this road was shown here, only a portion of this 35 miles would be attempted at present.

Mr. Edwards, president of the Cheshire road, made a few remarks in favor of this route. He stated that twenty years ago, more of the products of western Vermont reached Boston than at the present time; the reason was, that the water communication through lake Champlain, and down the Hudson had been improved, and the New York interests were pushing on, and endeavoring to secure the business of this region. In relation to the Cheshire road he stated that everything looked well, and he had no doubt, that even if neither the Central or Rutland roads were built, this road would pay a fair profit. He thought that the road might be opened to Keene, and the cars running by September next. The people of western Vermont have been urged within a short period to abandon their idea of a connection with Boston, and connect themselves with New York; this they will not do, unless forced to by a lack of encouragement here.

Mr. E. H. Derby made a few spirited remarks, in which he adverted to the great benefits that both Boston and western Vermont would derive from this road. He spoke of the fertility of the Green mountains, and stated that it was a fact that fifty per cent. more rain fell there than in this city. Boston was two hundred miles nearer England than New York, and the time would soon come, when by this and other lines, flour, and the other products of the great west would be brought here as cheap as it now is to New York; and would place Boston where New York now is.

Mr. B. T. Reed remarked that the information was highly satisfactory, and offered to be one of a voluntary committee of twenty to raise the subscription asked. The following fifteen gentlemen then volunteered their services, and they were empowered to increase their number if desirable:—Their names are, B. T. Reed, S. S. Littlehale, Abel Phelps, Thomas Thacher, E. C. Hutchins, Isaac Parker, Samuel Henshaw, Samuel Dana, E. H. Derby, Wm. V. Kent, Nathan Rice, Benj. Seaver, Samuel Raymond, W. G. Billings, and Geo. F. Williams. The meeting then adjourned.

Artesian Well.

We alluded a week or two since, to the attempt which was making at East Boston, to sink an Artesian well. The process was by boring a sufficient depth to obtain a supply of water for the accommodation of the citizens upon the island—the population of which is so rapidly increasing in numbers. The operator has abandoned the common earth auger, and has invented a cast iron tube, about 8 inches in diameter, and about 10 feet long. It is armed at the end with two prodigiously strong chisels, and just above them is an ingeniously devised valve.—At the other extremity is a wrought iron handle, fastened to which is a stout, short-linked iron chain to raise it up and down. When in action, it operates upon the principle of a common chopping knife

so familiar in mince pie manipulations. The engine raises it and then lets it fall, like the perpendicular movement of the dasher in the obsolete method of churning butter. As the bits of stone or other materials accumulate every time the massive tube drops, they are forced up into the tube and retained. Finally, when enough has been chopped to fill the cylinder of the drill, the name given it, the engine draws it to the surface to be emptied. The cost of the one Mr. Higgins is laboring with was \$600.—The Boston Transcript gives the following account in relation to this invention:

Before resorting to this unique contrivance at all, an ordinary well was dug 140 feet, to a stratum of hard, compact gravel, interspersed with water worn stones of various sizes. On this Mr. Higgins set a cast iron tube of 10 inches diameter; and another on the top of that, secured by water tight joints, and so on, to the very outlet above ground. This long, ponderous cylinder is carefully braced on the outside all the way, to keep it exactly perpendicular, and within it the mighty battering ram is let down and set in motion against the realm of Pluto. As fast as the hole was deepened, the weight of the superincumbent pipe pressed down farther, paring the sides as it ground along. All accumulations from that source, with its own chips, were secured by the valve. After passing through 10 feet of the mixture described, the instrument struck a hard, blue slate stone, through which Mr. Higgins urged his way at the average rate of 6 feet a day for 145 feet. Next he came upon a bed of talc, of a greenish gray color, greasy to the touch, one variety being recognized among tailors under the name of French chalk, and used for marking on cloth the course of the shears. Finally, on Saturday evening last, the cutter had penetrated 8 feet into that stratum, making the entire depth at this date 303 feet. The tube rests on the slate by which it is sustained; and water, soft and agreeable in flavor, rises in it to the height of 200 feet; probably it comes from between the seams and fractures of the rock, since none can possibly be forced in laterally.

Philadelphia and Cleveland Railroad.

We alluded in a late number to the prospects of this road. We find in Hunts' Merchants Magazine for November, an article in relation to this enterprise, in which the writer urges the completion of this route, acknowledges the great advantages of the proposed *Pennsylvania* route, in connection with the other. He says:—

Philadelphia feels the insufficiency of her present mixed system, and is contemplating a railroad, continuous from that city to Cleveland, on lake Erie, a distance of four hundred and seventy miles, having, it is reported, no grade exceeding forty-five feet per mile. This is about the same distance as from New York to Buffalo; and when that road is made, it will open to Philadelphia directly, a large fertile portion of Ohio, and make connection at the best position that is practicable, with lake Erie. For at least eight months of the year, such a road would command most of the travel, and for five or six months the whole business that would centre on lake Erie at Cleveland. From Cleveland, railroads will eventually be extended to Indiana,

Michigan and Illinois, which must produce a great influence on the western trade. With the exception of three or four summer months the lake is liable to be disturbed by severe storms, which will induce great numbers of passengers, and more or less of freight, to take the railroad, even while the lake is open; and, for five months, the storms and ice on the lake will send the whole trade over the railroad.

Progress of Railways in Great Britain.

It has been predicted by many, that the numerous railways, chartered by parliament during the past two or three years, will not soon, if ever, be constructed. If we may judge of the matter by what has been done, and is doing, in Scotland there need be no fear as to the result. It is stated in the London Mining Journal that those chartered by the session of 1845, will be completed in a little more than 12 months, when a man may breakfast in London and sup in Aberdeen, after "having travelled the immense distance of 500 miles."

London to Aberdeen in one day.—The various Scottish railways which have received the sanction of the legislature, in the session of 1845, will be opened about the same time. Several will be partially opened in the ensuing spring, and all in a little more than 12 months. The opening of the Scottish railways will make a very great and important addition to railway communication of the country. It is a curious fact, that in nearly every instance the railways now constructing on the other side of the Tweed will extend the communication in a northward direction, and may, indeed, be considered so many extensions of the great trunk lines of communication from London to the north of England. The Caledonian line, which will be upwards of 100 miles in length, is in effect a continuance of the Lancaster and Carlisle railway, and which is again a virtual extension of the great North Western.—Where the Caledonian ends at that part of the Edinburgh and Glasgow line which passes along Castlecary, the Scottish Central begins, and extends to Perth, a distance of 46 miles it is joined by the Scottish Midland which proceeds 33 miles in a northern direction. The Scottish Midland will effect a junction with the Aberdeen line at Twikhem; and the Aberdeen line being about 50 miles in length, we shall have an uninterrupted railway communication from Carlisle to Aberdeen, a distance of nearly 200 miles, which, with the great North Western, will make a continuous line of communication all the way from London to Aberdeen. In other words, an early riser will, in a little more than 12 months, be able to start from the great metropolis in the morning, after breakfast, and, having travelled the distance of 500 miles, reach Aberdeen in time for supper.

Miscellaneous Items.

Utica and Syracuse Road.—The Auburn Daily Advertiser states that the stockholders of the Syracuse and Utica railroad have ordered the president to have the track laid with new heavy H rails. Part of it is to be done this fall, and the balance in the

course of next season. The travelling public will be glad to hear this determination.

A Change.—The Rochester Democrat informs us that Mr. J. W. Brooks, for three years past the able and efficient superintendent of the Auburn and Rochester railroad, has resigned his situation, in order to take charge of the newly purchased Central railroad in Michigan. Mr. Wm. Wiley, late book keeper of the company, takes the post vacated by Mr. Brooks; and Mr. Geo. Redfield has been appointed book keeper. Both of these gentlemen have been connected with the railroad for several years, and are well known to our citizens as faithful, capable and gentlemanly officers.

Curious Discovery.—The Richmond Compiler has the following: Not long since we observed a brief notice of a wonderful discovery very lately made by Prof. Schonbein, of Germany. Common cotton is so prepared probably with a fulminating compound of nitrogen, as to be suddenly converted by a spark into a gaseous state, leaving a residue of only a small quantity of carbonaceous matter. Balls and shells are said to have been projected by this prepared cotton, the projectile force of which is said to be many times greater than that of gunpowder. It was said that four ounces blew a thick wall to pieces—an effect which would require, it was calculated, at least as many pounds of gunpowder. It was added that the cotton, though made wet, re-acquires its properties on drying. This is an extraordinary triumph of chemistry: but is not less true than strange. A friend, just from Washington, saw a letter from a highly intelligent American of standing, now in Frankfort, Germany, who had witnessed the experiments, and certified to the truth of the account. He states that one of the German principalities had given an order for 300,000 bales of cotton, to be employed in this novel process of military defence and offence.

The Pathfinder says that the contract for building the New York and New Haven railroad has been taken. The distance to the junction of the Harlem is 63 miles, and the price for building is \$2,000,000, or about \$31,000 per mile. When this railroad is completed, together with several others that must intersect the Harlem, the stock of the latter will no doubt be a valuable investment. Stocks of every description improve at the close of the week. Efforts are made to raise a new loan on the Morris canal, for the purpose of completing it!

Wabash and Erie Canal.—The Indiana State Sentinel informs us that the tolls on the Indiana, Wabash and Erie canal, so far this year, show a considerable increase over the corresponding months in 1845. At Lafayette, during March, April, May, June and July, 1845, the aggregate tolls amounted to \$15,599 63. During the same months of 1846, they are given in the Lafayette Journal at \$28,241 80, being an increase over last year of nearly 100 per cent. The tolls this year on the finished portion of the canal it is said will amount to about \$100,000.

Ogdensburg Road.—The Boston Traveler says that at a late meeting of the Rutland railroad company, Mr. Derby stated, on the authority of Mr. Hayward, who has just returned from a survey of the line of the Ogdensburg railroad, that the whole line from lake Champlain will not require a higher grade than 26 feet; and that the length of the ferry across lake Champlain will not exceed two miles. The obstacles throughout the entire route are of a trifling character.

Faber's Magnetic Water Gauge.—The Pittsburg Commercial Journal gives the annexed account of this invention:

This is a very ingenious and complete gauge for ascertaining the height of water in steam boilers. The machine is of a small size, and of a simple construction; but acts, as we imagine from the principles on which it works, with unerring certainty.

There is a small circular box, like a surveyor's compass, containing a metallic plate, marked with lines and having a needle, which by revolving, points to the proper mark and figure to indicate the height of the water.

This needle is turned by the action of a magnetic bar, which is inserted on the end of the axis of a wheel, over which there is a moveable chain, with two balls of unequal weights; one of them heavy, the other light and hollow for floating on the surface of the water.

The light ball floating on the surface of the water in the boiler, rises or falls according to the height of the water, and by this action turns the wheel over which the chain passes; this turns the magnetic bar, and the needle traverses in its tight box, according to the impulse of the magnetic bar, and thus indicates at all times, the height of the water in the boiler.

It is the invention of George Faber, of Canton, Ohio, and was patented in 1845.

South Carolina Railroad.—The receipts of this road, from Charleston to Augusta, Ga., from the 1st to the 18th of October, were \$40,613; \$11,290 more than during the corresponding days of last year.

Railroad Iron.—We learn from the Portland Advertiser, that a public meeting was recently held in that city, to consider the subject of establishing a machine shop and iron works, to be connected with the manufacture of railroad iron. The Advertiser says, "the matter is connected by certain distinct and responsible propositions with the enterprise of Mr. Norris to establish an engine factory here." Subscriptions, amounting to more than one-half the capital required were made at the meeting.

Survey of the Railroad Route, South.—The corps of engineers, consisting of Messrs. McRae, Fleming and Reston, employed by a committee of the citizens of Wilmington to survey the country between this and Manchester, S. C., for the purpose of determining upon the most eligible route for the contemplated railroad, have closed their field labors and returned here, and are now engaged in preparing their plots and estimates.—*Wilm. Chronicle.*

Copper Boats.—We have been informed, says an exchange, of the introduction of a novelty in river and port navigation, which, if it bears out all that is claimed for it, cannot be long before it comes into general use. It is nothing less than a boat of copper, made of four sheets only, stamped to due form by powerful machinery, and riveted together. It is 23 feet long, 5 feet wide, has four times the strength of wooden boats, and requires one-third only the power to propel at the same speed as a wooden boat of the same dimensions; one-third less weight; no caulking, renailling or pointing is required; and when worn out, the metal will sell for three-fourths of the first cost. Cutters, gigs, ship's boats, race boats, and others, from 10 feet to 60 feet may be made in four pieces. Their strength has been tried by dashing them against rocks and running ahead against stone piers; and it appears almost impossible to sink them.

Railroad Travelling.—A friend of ours, says the Portland Advertiser, who has spent the last two years in travelling through Europe, assures us that the idea so generally entertained, of the great superiority of the European over the American railroads, is entirely erroneous, so far as the railroads of New England are concerned. He says the track is in general in no better condition than ours, and the regulations are not near so good. There is much more of confusion and hurly burly at the stations, and the trains are not so exact to the time. Accidents are also more frequent than here. There are three grades of cars in England. The third are mere boxes, without any cover or protection from the weather, and the price in them averages two cents per mile. The second class have a cover, with wooden benches for seats, without stuffing or covers, and are made as uncomfortable as possible, to prevent people from riding in them. The first class cars are fine. They are richly trimmed, cushioned and stuffed, and the average rate of fare in them is about seven cents per mile, or nearly three times as much as it is in New England.

Portsmouth and Concord Railroad.—The Portsmouth Journal announces that a meeting of the stockholders, and citizens of Portsmouth, N. H., was held at the court house, on Monday evening, to take into consideration the present condition of affairs, and devise means for the prosecution of the enterprise. A. W. Haven, Esq., president, gave a history of the proceedings for some months past, and the failure of the subscription expected from the Concord and Nashua railroad corporation. Statements were made, which showed that the road might be safely commenced, when \$400,000 are subscribed; and it was deemed advisable to open new books authorizing the directors to commence when that sum, in undoubted subscriptions, is obtained. Alexander Ladd, Esq., who is a liberal subscriber to the road, was desirous of securing \$600,000, or else of extending the road for the present to Newmarket, and there await the filling up of the subscription. But the almost unanimous feeling of the meeting being in favor of aiming at once for

Concord, books were opened limiting the commencement of the road to the subscription of \$400,000, and 550 shares were entered at once, a good portion by men of moderate means. Many of our rich men, whose real interest in the road is greater than any others, were not present, and if they put down according to their means, like those who were present, the stock will be at once taken up.

Northern Railroad in France.—The English journals state that the magnificent railroad recently opened in France, running from Paris to the northern frontier of the kingdom at Lisle and Valenciennes, and at those points uniting with the two Belgian railroads leading to Brussels, has been the means of establishing a more rapid communication, not only with Belgium and Holland, but with England and Germany. Tickets are sold in Paris for the principal towns in Belgium, and by way of the Aix-la-Chapelle and Cologne railroad, and the steamboats on the Rhine, to the railroads of Germany. Two routes are established to England, by means of diligences and express coaches, one from Amiens to Boulogne, and the other from Arras to Calais. The latter makes the passage in 9½ hours, and connects with the steamboats to Dover, which makes the passage across the channel in 1½ hours. Three trains of cars leave Paris for Lisle daily, one at 7 o'clock a.m., at noon, and 7 p.m.; and for Valenciennes at 8½ a.m., at noon, and 7 p.m. The fare from Paris to Lisle is 28 francs 20 centimes for 1st class passengers; 21½ francs for those of the 2d class; and 15½ francs, 75 centimes, for the 3d class.

Junction of the Atlantic & Pacific Oceans.—The English Journals stated last season, that the departure of M. Klein, on a mission from the French and English company to the Isthmus of Panama, was to effect the presenting to the government of New Grenada the draft of a treaty for the concession and opening of a communication between the two oceans. M. Klein has returned from his mission, and arrived at Bogota with a copy of the treaty, and of the conditions of the contract for the execution of a railroad across the Isthmus of Panama, debated between him and a commissioner appointed *ad hoc* by the president of the republic. This project, duly signed by the commissioner of the government, has been officially communicated to the company. The latter and the republic have now only to regulate certain points, which, from their good understanding, they will speedily arrange.

Western Telegraph Line.—We learn from the Philadelphia Ledger, that the lines of wire between Lancaster and Harrisburg are now so nearly completed that the opening of the whole line, from Philadelphia to the capital of the state, was confidently looked for on Monday morning.

RAILROAD IRON.—100 TONS RAILROAD IRON [Bridge pattern] for sale low to close a consignment by

JOHN F. MACKIE,
169 Water street.

November 7th, 1846.

1m45

CLEVELAND, COLUMBUS AND CINCINNATI RAILROAD. In pursuance of a resolution adopted by the Board of Directors, on the 21st October, notice is hereby given, that proposals will be received up to the 1st day of December next, for the Grading, Timbering, Bridges and Culverts on forty miles of the road, commencing at Cleveland Profiles, Specifications, Terms of Payment, and all other information pertaining to the matter, to be furnished on application at the office of the Company, Merwin Block, Cleveland.

JOHN W. ALLEN, President.
A. G. LAWRENCE, Secretary.
Cyrus Williams, Engineer.
Cleveland, October 23, 1846. 45*1m

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1/2

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/4 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, Albany Iron and Nail Works, 1y

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/4 x 1/2 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/2 x 1/2 " Flange Iron Rails. 75 " 1 x 1/2 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures.

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons. ELLICOTT & ABBOTT. Factory, 9th street, near Coates, cor. Melon st. Office, No. 3 North 5th street, Philadelphia, Pa. 1y25

PATENT INDESTRUCTIBLE WATER PIPES. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basons and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 28tf

TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS, Water-ouse S. E. corner 3d and Walnut Sts., Philadelphia 1tf

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee G. A. NICOLLS, Reading, Pa. ja45

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO., 45 North Water St., Philadelphia, or by their Agent, ROBT. NICHOLS, 79 Water St., New York 28tu

THE SUBSCRIBERS, AGENTS FOR the sale of

Codorus, Glendon, Spring Mill and Valley, } Pig Iron.

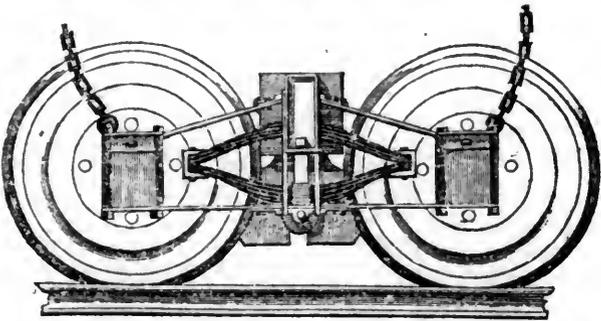
Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER, & CO., 59 North Wharves, Philadelphia, Pa. Jan. 11, 1846. [1y4]

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New

York, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846. W. H. CALKINS, and Others. To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] WILLIAM ROE, Supt of Power. I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845. [Signed,] G. A. NICOLL, Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH, Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, } [Signed,] JOHN LEACH, Jamaica November 12, 1845. } 1y19 Supt Motive Power.



RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATTAILE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was scorched by the extreme heat.

RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 133 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed,)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
133 1/2 Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

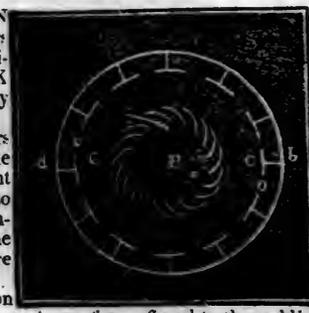
R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Starns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

*** The letters in the figures refer to the article given in the Journal of June, 1844.

ja45



PATENT HAMMERED RAILROAD, SHIP AND BOAT SPIKES.

The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

MACHINE WORKS OF ROGERS,

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.

PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

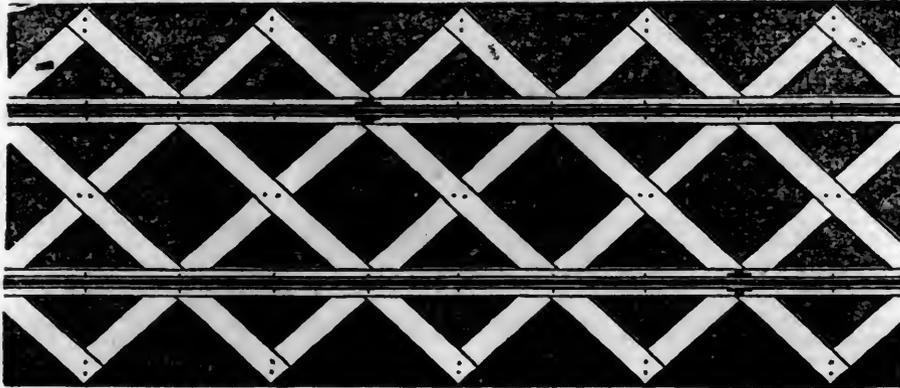
DAVENPORT & BRIDGES CONTINUE

to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

ly1

THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

THE UNDERSIGNED RESPECTFULLY invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =		101 25
Workmanship free of patent charge =		600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.
Civil Engineer and Patentee.
No. 277 South Tenth St., Philadelphia. 33tf

ENGLISH ATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.— for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halvards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.		
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4½	13 5	10	2½	50	15-16	20	
13	3½	8 3	8½	16	27	11-16	13½	
14	3¼	6 11	7½	12 8	17	9-16	10½	
15	2½	5 2	6½	9 4	13½	1-2	7½	
16	2¼	4 3	6	8 8	10½	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY **EDMUND DRAPER,** Surviving partner of **STANCLIFFE & DRAPER.**



No 23 Pear street, below Walnut, Philadelphia, near Third, 1y10

LAP—WELDED WROUGHT IRON TUBES

FOR **TUBULAR BOILERS,** FROM 1 1-4 TO 6 INCHES DIAMETER, and ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee.
28 Platt street, New York. 1y25

ENGINEERS and MACHINISTS.

- THOMAS PROSSER,** 28 Platt St. N. Y. (See Adv.)
J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)
TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)
S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
FRENCH & BAIRD, Philadelphia. (See Adv.)
NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
ROSS WINANS, Baltimore, Md.
CYRUS ALGER & Co., South Boston Iron Co.
SETH ADAMS, Engineer, South Boston.
STILLMAN, ALLEN & Co., N. Y.
JAS. P. ALLAIRE, N. Y.
PHENIX FOUNDRY, N. Y.
ANDREW MENEELY, West Troy.
JOHN F. STARR, Philadelphia, Pa.
MERRICK & TOWNE, do.
HINCKLEY & DRURY, Boston.
C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

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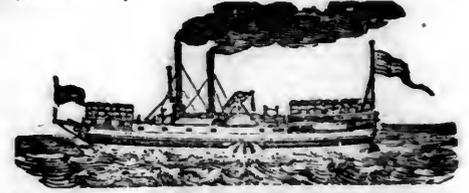
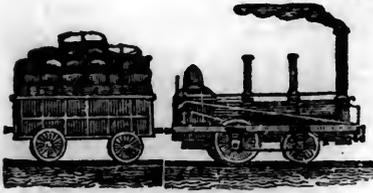
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FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,

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SATURDAY, NOVEMBER 21, 1846.

[WHOLE No. 544, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m. Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m. Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7:20 a.m. and 3½ p.m. All baggage at the risk of the owners thereof.

W. RAYMOND LEE, *Sup't.*
BRANCH RAILROAD AND STAGES CONNECTING with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. J. W. STOWELL, *Sup't.*

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Winter Arrangement, 1846-7.

On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m. Boston for Great Falls at 7½ a.m., 2½ and 3-25 p.m. Boston for Haverhill at 7½ and 11½ a.m., 2½, 3-25 and 5 p.m. Boston for Reading at 7½, and 11½ a.m., 2½, 3-25 and 6½ p.m. Portland for Boston at 7½ a.m., and 3 p.m. Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m. Haverhill for Boston at 7½, 8½, and 11 a.m. and 3 and 6½ p.m. Reading for Boston at 7, 8½ and 9½ a.m., 12 m., 1½, 4 and 7½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, *Super't.*

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4, 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7, 10, 8, 10, 9, 10, 11, 10 a. m., and at 12, 40, 2, 3, 10, 5, 10, 5, 30, 6, 10 and 7 p. m.

Leave Williams' Bridge and Fordham, at 6, 45, 7, 45, and 10, 45 a. m., and at 12, 15, 2, 45, 4, 45, and 5, 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave Cihite Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams Bridge trains will be regulated according to the state of the weather.

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M. " Middletown at 6½ A. M. and 5½ P. M. FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M. " Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, *Sup't.* March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13th

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846. Spring Arrangement. 1846

Commencing April 1st.

Passenger trains leave daily, Sundays excepted—

Boston 7½ p. m. and 4 p. m. for Albany. Albany 6½ " and 2½ " for Boston. Springfield 7 " and 1 " for Albany. Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:

Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, \$5; fare from Springfield to Boston or Albany, \$2 75.

Merchandise trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES, Superintendent and Engineer.

Western Railroad Office, Springfield, April 1, 1846. }

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/4 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail— which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/4 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

TROY AND SARATOGA RAILROAD.

THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/4 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug. 3, 1846.

1y 32

THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky \$8 00
 " " Sandusky to Buffalo, Cabin 6 00
 " " " " Steerage 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.,] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, Sup'l, etc.
 M. & S. C. R. R. Co.

Sandusky, Ohio.

RAILROAD IRON.—THE "MONTOUR

Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sts.

43 1y

NEW RAILROAD ROUTE FROM Buffalo to Cincinnati.

Passengers destined for

Columbus and Cincinnati, O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance..... 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance..... 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

TIME.

From Buffalo to Sandusky..... 24 hours.
 Leave Sandusky 5 a.m. to Columbus.... 14 "
 From Columbus to Cincinnati..... 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.

From Buffalo to Sandusky, Cabin.....\$6 00
 " " " " Steerage..... 3 00
 " Sandusky to Columbus..... 4 50
 " " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Sup'l, etc.
 M. & S. C. R. R. Co.

Sandusky City, Ohio.

BALTIMORE AND OHIO RAILROAD.

MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7 1/2 and

Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburg. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburg \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburg \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13yl

THE SUBSCRIBER IS PREPARED TO

execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER, 17 Burling Slip.
 New York.

BALTIMORE AND SUSQUEHANNA

Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger

trains run daily, except Sunday, as follows:
 Leaves Baltimore at.....9 a.m. and 3 1/2 p.m.
 Arrives at.....9 a.m. and 6 1/2 p.m.
 Leaves York at.....5 a.m. and 3 p.m.
 Arrives at.....12 1/2 p.m. and 8 p.m.
 Leaves York for Columbia at...14 p.m. and 8 a.m.
 Leaves Columbia for York at...8 a.m. and 2 p.m.

FARE.

Fare to York.....\$1 50
 " Wrightsville..... 2 00
 " Columbia..... 2 12 1/2

Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg..... \$9
 Or via Lancaster by railroad..... 10
 Through tickets to Harrisburg or Gettysburg... 3
 In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owring's Mill, arriving at the Mills at.....5 1/2 p.m.
 Returning, leaves Owring's Mills at.....7 a.m.
 D. C. H. BORDLEY, Sup'l.
 Ticket Office, 63 North st.

31 1y

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

35 1y

SOUTH CAROLINA RAILROAD.—A

Passenger Train runs daily from Charleston, on the arrival of the boats from

Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50
 Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent.

CENTRAL RAILROAD—FROM SAVAN-

nah to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight.

Rates of Passage, \$8 00. Freight—
 On weight goods generally... 50 cts. per hundred.
 On measurement goods 13 cts. per cubic ft.
 On brls. wet (except molasses and oil).....\$1 50 per barrel.
 On brls. dry (except lime)... 80 cts. per barrel.
 On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
 On hds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.
 On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission.
 THOMAS PURSE,
 Gen'l. Supt. Transportation.

MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburg, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

2v 19 1y

CENTRAL AND MACON AND WESTERN Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad 190 Miles.
 Macon to Atlanta—Macon and Western.....101
 Atlanta to Oothcaloga—Western and Atlantic... 80
 Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20	pr. 100lbs. 35
Crockery, per cubic foot.....	0 15	" " 35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.
 Freight may be paid at Savannah, Atlanta or Oothcaloga.
 F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846.

LITTLE MIAMI RAILROAD.—1846.—
 Summer Arrangement.

Two passenger trains daily.
 On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1½ p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p. m. On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m. Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield. Tickets may be procured at the depot on East Front street.

The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every \$500 in value above that amount.
 W. H. CLEMENT,
 Superintendent.

GREAT SOUTHERN MAIL LINE! VIA
 Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.
 Fare from Baltimore to Charleston.....\$21 00
 " " " Richmond..... 6 60
 For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to
 STOCTON & FALLS, Agents.

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.
 AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

RATES OF FREIGHT.		Between Augusta and Oothcaloga, 250 miles.	Between Charleston and Oothcaloga, 80 miles.
1st class.	Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 25
2d class.	Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	0 90	1 40
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 55	0 75
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 37½	0 62½
	Cotton, per 100 lbs.....	0 45	0 65
	Molasses, per hogshead.....	8 50	13 50
	" " barrel.....	2 00	3 25
	Salt per bushel.....	0 17	
	Salt per Liverpool sack.....		95
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows... 0 75		1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.
 Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.
 J. EDGAR THOMSON,
 Ch. Eng. and Gen. Agent.
 Augusta, Sept. 2d, 1846. *44 1y

THE WESTERN AND ATLANTIC
 Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.
 On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.
 This is the most expeditious route from the east to any of these places.
 CHAS. F. M. GARNETT,
 Chief Engineer.
 Atlanta, Georgia, April 16th, 1846. 1y1

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.
 When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.
 THOMAS & EDMUND GEORGE,
 45 N. E. cor. 12th and Market sts., Philad., Pa.

RAILROAD IRON.—1000 TONS HEAVY
 R H Railroad Iron, 60 lbs. per lineal yard, expected to arrive within the next 30 days. Apply to
 DAVIS, BROOKS & CO.,
 October 9. [1042] 68 Broad St.

LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture and for sale by
 MORRIS TASKER & MORRIS,
 Warehouse S. E. corner 3d and Walnut Sts., Philadelphia

PATENT INDESTRUCTIBLE WATER
 Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.
 J. BALL & CO.
 23rd

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.
 For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,
 142 Front street, New York.
 Orders for the above will be received and promptly attended to at this office. 32 1y

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.
 The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.
 We are prepared to make scales of any size to weigh from five pounds to two hundred tons.
 ELLICOTT & ABBOTT.
 Factory, 9th street, near Coates, cor. Melon st.
 Office, No. 3 North 5th street, Philadelphia, Pa. 1y25

CLEVELAND, COLUMBUS AND CINCINNATI Railroad. In pursuance of a resolution adopted by the Board of Directors, on the 21st October, notice is hereby given, that proposals will be received up to the 1st day of December next, for the Grading, Timbering; Bridges and Culverts on forty miles of the road, commencing at Cleveland. Profiles, Specifications, Terms of Payment, and all other information pertaining to the matter, to be furnished on application at the office of the Company, Merwin Block, Cleveland.
 JOHN W. ALLEN, President.
 A. G. LAWRENCE, Secretary.
 CYRUS WILLIAMS, Engineer.
 Cleveland, October 23, 1846. 45 1m

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. 1y1

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 63,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x33 fe. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 51x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

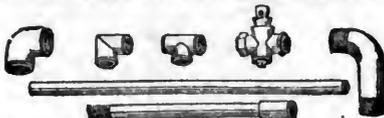
Blacksmith shop, 49 feet long by 20 feet wide. For terms, apply to **HENRY ANDREWS**, 48 State st., or to **CURTIS, LEAVENS & CO.**, 106 State st., Boston, or to **A. & G. RALSTON & Co.**, Philadelphia. ja45

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ½ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.

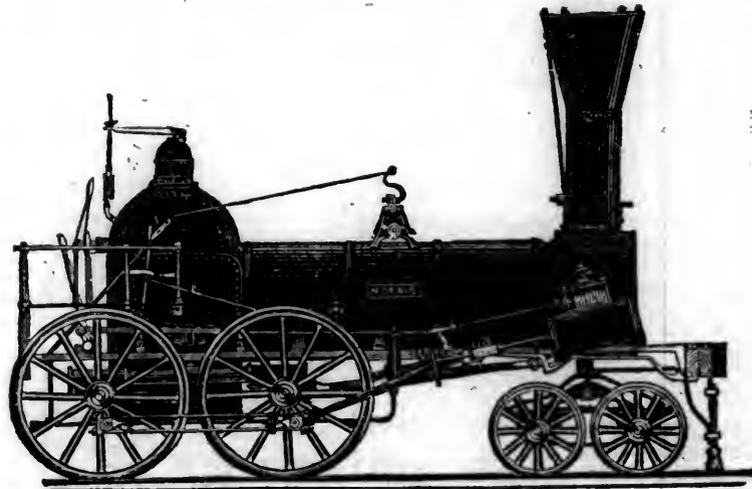
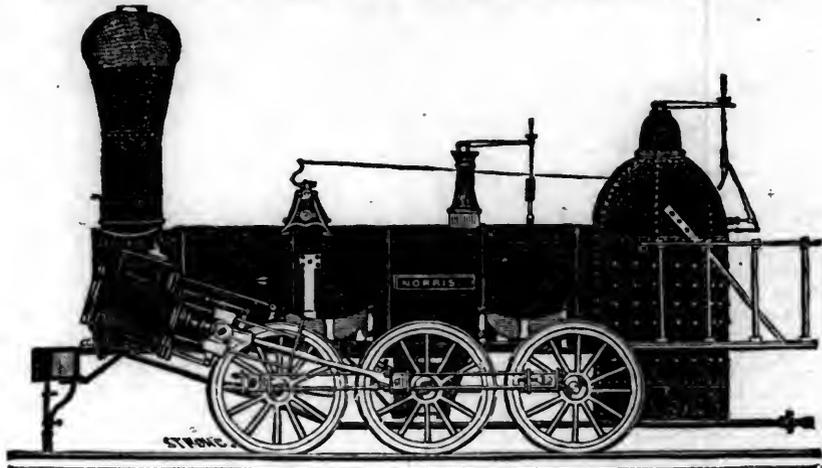


Manufactured and for sale by **MORRIS, TASKER & MORRIS.** Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

RAILROAD IRON.—THE NEW JERSEY Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to **FULLER & BROWN**, Agent, No. 139 Greenwich, corner of Cedar street. September 18, 1846. 10:39

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " × 24 " "
"	3,	14½	" " × 20 " "
"	4,	12½	" " × 20 " "
"	5,	11½	" " × 20 " "
"	6,	10½	" " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del. Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY**, a45 President of the Newcastle Manuf. Co.

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20th 4 South Front St., Philadelphia.

K EARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Allaire, } New York.
- Peter Cooper, } New York.
- Murdock, Leavitt & Co. } New York.
- J. Triplett & Son, Richmond, Va.
- J. R. Anderson, Tredegar Iron Works, Richmond, Va.
- J. Patton, Jr. } Philadelphia, Pa.
- Colwell & Co. } Philadelphia, Pa.
- J. M. L. & W. H. Scovill, Waterbury, Con.
- N. E. Screw Co. } Providence, R. I.
- Eagle Screw Co. } Providence, R. I.
- William Parker, Supt. Best. and Worc. R. R.
- New Jersey Malleable Iron Co., Newark, N. J.
- Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly. 35 1y

South Carolina Railroad Report.

We have received, through the politeness of a friend, a copy of the report of a committee of seven on changing the location of their depot and work shop; and also of their engineer, on the change of location at the western termination, and of the substitution of *locomotive* grades, instead of the present incline planes.

As to the propriety of changing the location of the depot, and work shops, and of securing ample space for the same on the water, at the most favorable point, we cannot understand how there can be a dissenting voice. There should always be ample grounds secured at the most favorable point, for the accommodation of the *business* to be done, by every railroad company. The great fault, or *omission*, has been, in almost every instance, in not obtaining enough ground to *commence* with, consequently in a little time most companies have had to purchase at extravagant prices, or to suffer great inconvenience in the want of space to arrange their shops, and transact their business; and from what we learn from this report, we are led to infer that, in no instance, has there been a greater want of foresight in providing this very important appendage to a well managed railroad, than at Charleston.

We give the report entire, as embodying sound reasons for making the change:

Report of the Committee of seven.

To the stockholders of the South Carolina railroad company.

GENTLEMEN:—The committee of seven, appointed in February, 1845, and continued in February, 1846, by order of the company, to whom was referred the resolutions of the legislature of December, 1844, respecting the termini of the railroad at Charleston and Hamburg, and the inclined plane at Aiken, together with the proceedings of the general assembly of December, 1845, respecting the terminus and depot at Charleston, beg leave to report,

That they have fully considered the same, and appended thereto the results they have attained, in the shape of resolutions, the reason for which, they now proceed to set forth:

1. The depot at Mary street ought to be discontinued. This is the place of which all the produce of the country brought down, is delivered, and all merchandize and so forth, destined for the interior, is received. The area occupied, is 2½ acres, of which 2⅓ belongs to the company, and the remainder is leased land; which lease will expire in a few years, and land cannot now be bought.

The objections to this point, are, that the space is entirely too small for the present business of the company—and looking to the future increase of the business of the road with the western country, by means of the Georgia railroad, will be wholly incompetent for the business expected to be done, and which it cannot be doubted, will be done. In the season of 1844, 1845, the company was compelled to take possession of some vacant lots near by, for the purpose of storing cotton in the open air, until the consignees choose to send for, and remove it. The point is too far from the water; thereby subjecting produce and merchandize to heavy transportation charges by drays, between the water and the depot, unnecessary and unpolicy—injuri-

ous to the planter, hurtful to the commerce of the city, and in violation of the expressed wishes of the legislature of the state for two years in succession—that body being the representatives of the people, who have invested a very large sum of money in this road.

Further, the remoteness from the water, cuts off the company from the reception and transportation of heavy articles, such as salt, groceries, iron, gypsum, coal, lime, lumber, etc., because the heavy charges for transportation of such articles from the water to the depot, amounts to a prohibition to their getting to the road for conveyance; when on other roads, these articles pay a fair profit for transportation, where the depot is in close proximity to the water.

This depot is objectionable also, because it is so removed from the work shops on Line street, near half a mile, thereby subjecting the company to the expense of keeping more officers and servants, than would be necessary, if the two departments were combined, and thereby save the company at least \$10,000 per annum. More land cannot be purchased around this depot at any reasonable price.

The committee unanimously concur in this resolution, however they may differ as to the other recommendations.

2d. That the Citadel square would not answer the purposes of the company as a permanent depot.

Every objection urged against the Mary street depot, applies to this point, with some additional reasons. It would remove the depot of receipt and delivery still further from the work shops, multiply the officers and servants of the company necessarily, and thereby increase expense. The area is but four acres, wholly insufficient to locate the depot and work shops, united, upon, even now, and must be still more so, as the great trade in cotton, hemp, bagging, rope, and all agricultural productions increase upon us, as they must necessarily do, from the opening of the communication by the Georgia railroads with the western country. The space is wholly insufficient. Besides, to occupy this site, the citadel will be divided from it by an alley of thirty feet only, which must destroy the uses of the citadel in a great measure, destroy the parade ground of the school, weaken the defences against an approach to the citadel by an enemy—and almost compel the legislature to discontinue an institution, which was built at great cost, and upon the earnest application of the city of Charleston, to create a point where the citizens could meet, procure arms, and defend themselves, against a foreign or a *domestic foe*. And all this evil is to be done without one counterbalancing benefit to this company, and not reducing the charges upon agricultural productions but in a very small degree less than from the former depot. This square is surrounded on the east, south and west, by three much improved, frequented and travelled streets, to wit: Meeting, Boundary and King streets, which would have to be crossed, to obtain more room, by tracks and cars, and be thus subject to the evil already stated, of dividing the buildings. But further, to obtain this *right of way* from the

present depot to the citadel square, will incur the cost of—

For the square,	\$25,000
The right of way through Mr. Oppenheim's property, he claims that the company shall take the whole at	25,000
New tracks to the square,	3,000
	\$53,000

deducting therefrom whatever portion of Mr. Oppenheim's property, not used for a track, could be sold for, which cannot be estimated by the committee.

There was but one dissenting vote to this resolution in the committee.

If the question should be submitted to a jury to assess the amount to be paid the owner for the right of way through his lands, and thereby necessarily pulling down some of his houses, it is believed, from the past experience of this company in such questions, that very nearly the market value of the whole property would be awarded to Mr. Oppenheim for the right of way.

The other points available for a depot, are upon the water. These the committee examined, by inspection of the places, with enlightened citizens of Charleston, to aid them, and with the reports of the president and engineer before them, going into details. These points are Smith's wharves, and the Laurens marsh.

3d. Smith's wharves contain an area of 7½ acres, and is out of the city, and would form the point for the work shops, as shown in the map and plans, submitted to this committee by the president. Three acres are now filled up and fit for use, and improved with buildings and two more enclosed by palmetto logs, which space can be filled up at a very inconsiderable cost. The marsh land on Boundary street would have to be connected with these wharves, for the depot.— This contains 5½ acres, about half to be filled up, which could readily be done by the company, after the track is laid down to it, at a very small expense. These wharves have the advantage of having deep water, at which any vessel which can come over the bar, may lay, which must and will prove very profitable to the company, by enabling them to receive merchandize from the ship, to be transferred to the interior, which other roads now do with so much profit. Looking to the interests of the company solely, and not to the pursuits and investments and individuals, the majority of the committee are clearly of the opinion, that this site would be the best and most profitable to the company—and therefore, they have concurred in the third resolution. These wharves and the marsh for the depot can be purchased for \$65,000—and from the estimates handed to us, and offers made, the marshes can be filled up for a sum, scarcely exceeding the amount, which the company's lands and houses at Mary street depot, and the work shops, would sell for. The improved portion of this property now rents for \$4,000, and could be so rented, until necessity forced the company to use the buildings, or pull them down. The right of way to come to this point, would

also amount to less, than to go to the next place below, suggested for a permanent depot.

It is objected against this place, that being out of the city, the company would thereby build up a rival town, having the advantage of the capital of the citizens of Charleston invested in the railroad, to injure the business and trade of the city. Not admitting the force of this objection, in the degree claimed for it, by those who alledge it, the committee have sought another place, to wit:

4th. The "Laurens marsh," which is within the city, and contains an area of ten acres, a large portion of which is high and not difficult to fill, and can be purchased for \$24,000. A palmetto barrier must be made on the eastern line, at a cost of \$5,000. As is stated respecting the Smith wharves, so here, the ground and houses of the present depot and work shops, when sold, will nearly defray the expenses of filling up, and so forth. The advantages of this point, are, having the depot, work shops, and warehouses in near connection, having a front on East Bay street, which is paved the whole way, having a wharf to which vessels drawing eight feet water can approach, with the probability of deepening by dredging, to which, drays can come to transport cotton, etc., being near the shipping, and the business side of the city, and not liable to the objection of taking away the capital of the city to a new town. It is believed, that having the use of East Bay street paved, the cost of transportation of agricultural products and merchandize, would be reduced so low, that no one could be found to complain. This place is approved of by six members to one of the committee, over all other places.

The approach to Smith's wharves, or Laurens marsh, would be by breaking off about one and a half mile north of the present work shops, and passing over the marsh around Mr. Tucker's house, and then in a direct line to Smith's wharves. To go on to the Laurens marsh, it would be necessary to pass Boundary street, and through Concord and Marsh streets. The maps will exhibit fully the different lines. The marsh route will be the cheapest, costing but \$22,000, by the offer of Mr. Walker to grade, and 5 or \$6,000 for the right of way through the Blake lands. But it is the most hazardous, being exposed to the river and September storms and gales. The majority of the committee concur, that it would be better to adopt the line through Hamstead, which will cost for right of way, etc. about \$16,000 more than the marsh line, but we should there have property yielding good rent to tenants, and which could be sold off, save the tracks, for the full difference in the expense.

The cost of work shops, etc. are not here stated, because that is an expense which must be incurred, even though no removal is made from Mary street depot, very shortly, and will be the same at any point, save being increased about \$5,000, for piling at Laurens marsh.

The company have the right to come into the city, and establish a depot any where, so long as they use horse power alone, and can

only use steam power within the city, by permission of the city council. If the Laurens marsh are selected as the place of depot, their consent must be asked, and if the council should refuse their assent thereto, the committee would recommend Smith's wharves to be elected. But they cannot suppose that council would refuse such a request. The route through Hampstead, passes over six streets, while the proposed line to the citadel would pass over ten streets, in a more thickly settled and improved portion of the city and neck than Hampstead. No building has been fired by the locomotives since the use of the spark arresters—and it is believed, that no such accident can again occur.

The policy of the depot on the water.

A depot on the water gives the power to receive merchandize direct from the ships, along side the wharf of the company into the cars, without cost of transportation from the ship to the depot, and of course without paying the present charges for receiving and forwarding. The committee suppose, that in this latitude, it is not necessary to advance reasons why commerce should be as free and unshackled as may be possible, and with as few charges as practicable. But it is objected, that you thereby destroy the income of those engaged in receiving and forwarding goods to the interior. This may be granted, in a degree, as being true—but it will be remembered that the Savannah railroad runs to the water, and destroys such charges, and will necessarily cut our road off from the carrying trade for the interior and the west, if our road should continue to incur such charges on merchandize by not having a depot on the water.—The question then is reduced to this: Shall this company, to enable a small number of receiving and forwarding agents in the city, to make 10 or \$15,000 by such charges per annum, destroy her income by transporting such merchandize on our road to double or treble that amount? The committee cannot doubt that the company must look to their own interest first.

It is objected against going to the water, that we shall be using city capital to break down the business and interests of the city: that Charleston capital built the road to Hamburg, and now it is to be turned to destroy her. If such should prove to be the result, the charge may be admitted to be true, but the stockholders of the present company may well say that we paid you for the privilege of doing so, by purchasing out your rights in the Hamburg road at twenty-five per cent. above par, and nearly fifty per cent. above the then market value, and the company ought to be permitted to enjoy a right purchased at so exorbitant a price.

But further, the depot on the water will save the company at least \$600 annually for dray tax in transporting the materials for their own use, which is the interest upon a capital of nearly \$9,000. Further advantages of such a position have herinbefore been indicated. In truth, no one can contemplate the trade and travel which must and will seek this route if we give proper facilities therefor, after the connection with the west and the

North Carolina roads by the way of Camden, (whose branch is now in rapid progress) but must be blind to the interest of the whole city of Charleston not to perceive that it is to her advantage now to seize the opportunity so to accommodate, by facilities, this trade and travel, as to bring the whole of it into her borders. It is now or never.

It is supposed that a depot at Smith's wharves or Laurens marsh will depreciate the value of the wharves in the lower part of the city, and the heavy investments of capital in them. This is not believed to be correct. That it may appreciate some of the property in the neighborhood of the depot in some measure may be true—but the reverse does not follow. The price of transportation from the Laurens marsh to any wharf in the city, either by steam power, or horse power, or by drays, will be so low, (and yet remunerative to the dray owner by the increased quantity of the load, shorter distance and paved way) that no prudent man would change the person he is doing business with, as a factor or otherwise, in the lower part of the city, for such a trifle, or the wharf to which he sends his produce. It is not proposed by the committee that the company should become factors or warehousemen, or draymen, or wharfingers, or weighers. All produce will be delivered at the depot upon arrival, to be carried off to the wharf to which it belongs. Their sole duty would be to deliver it on arrival.—And it would seem that this could not interfere with the rights of any man.

The next question to be considered is, as to the delivery of freight from the depot on the water to the wharves. The committee think that a train of freight cars could not be run down between the docks and the houses adjoining, without an outlay of so large a sum of money to purchase the right of way, as to preclude the possibility of such an undertaking at present. The only other way is by East Bay street.

In pursuance of the wishes of the general assembly, as expressed by the joint resolutions of December, 1845, the committee submitted the same to the city council, whose answer is hereto annexed. The council sets up a contract, made with a committee of the directors of this company, binding the company to take the citadel square as a depot, and never to discontinue the use thereof without the permission of the council; and further, *not to hold any wharf or depot on the water.* This supposed contract will be presently remarked on. The council adds, that they are willing that a track shall be laid down from citadel, along Boundary street, and then along the line of the wharves. It is supposed that steam power is intended, and that as the line between the docks and houses is wholly impracticable at present, as before stated, that council will authorize the track to be laid down in East Bay street, and thereon either to use steam or horse power. The committee regard this as a minor matter, and would recommend the company mainly to consult the wishes of the council on the subject. Draying will answer all practical ends of the company from Laurens marshes to the wharves.

In regard to the supposed contract, the committee are constrained to say that it is not binding on the company, from having never received the signature of the president and secretary as required by the by-laws, and if it had, that as agents the board of directors had no power to make such a contract, binding the company to keep their depot forever at the square, and to hold no wharf or depot on the water. It must require a higher power than the directors to abrogate a chartered right of this company, as is done by bargaining away the right to have a wharf or depot on the water. Nor does it appear to your committee legal that the agent can have the power to bind his principal never to do an act, otherwise legal and competent for him to do. The committee have thought proper to submit this matter to the judgment of disinterested counsel, whose opinion on the law, when received, will accompany this report.

The committee recommend the adoption of the following resolutions by the company:

1. *Resolved*, That the depot on Mary street ought to be discontinued, and a new one substituted.

2. That the citadel square would not answer the purposes of the company as a permanent depot.

3. That Smith's wharf, with the addition of the marsh land adjacent, would make the best site for the depot for the company.

4. That for the purpose of bringing the depot nearer the commercial part of city, the committee recommend the purchase of the Laurens marsh, and its adoption as the permanent site of the depot; provided the same can be purchased at a reasonable price, and lawful authority can be obtained for the passage of locomotives to that point.

5. That should the company fail to obtain the Laurens marsh as above, the committee recommend the adoption of Smith's wharf, and the necessary marsh land below and adjoining, as the permanent depot of the company.

6. That this committee be discharged from the further consideration of the questions relating to the depot at Hamburg, and the passage of the river and the inclined plane.

By order of the committee.

J. M. DESAUSSURE,

Cha'm. com. of seven on depots, etc.

Charleston, 18th April, 1846.

We cannot give the descriptions and estimates, as presented by the president, for the different locations indicated on the map, yet we will take the liberty of saying, "first," that, in our opinion, it would evince a sad lack of foresight to think of remaining "at the present locations," on account of their distance from the shipping, to, and from, which almost the entire freight of the road has to be hauled, over sandy streets, at heavy cost, which amounts to a prohibition of the transportation of many articles.—We will also say, "second," that to change the depot from the present location, to "Citadel square," when a good water front, with ample grounds for depot, work shops, store-houses, and wharves, can be had at any price, would, in our opinion, be a great mistake, even if the "square" was presented to the company as a gift.

It is the duty, an important duty, in our opinion, of the company to adopt measures which facilitate

the business of the community, and the wonder is, that the pioneer work has so long delayed to remove the just complaints of business men, in relation to the expense of transferring freight from the cars to the shipping, and the reverse. It is never too late, however, to remedy an evil, and we are pleased to learn that the company are now disposed to act in the matter, and that ample grounds can be had, on deep water, at fair prices, and that, too, without passing through the thickly populated part of the city.

As to the relative advantages of "Smith's wharf" and the adjoining lots, and the "Laurens marshes," we will not hazard an opinion; but we may be allowed to repeat a remark of the president of the company (see page 15), viz: that "there is no estimating the extent of various articles which will be introduced into general use in the interior by diminishing the cost of transportation." The italics are ours, but the truth of the remark is not appreciated as it ought to be by some others, and we desire to impress it upon all; and there is no one department in railroad management, in which greater errors have been committed, than in the selection, arrangement, and extent of depot grounds; we, therefore, repeat the shrewd and very true remark, of one of the earliest, most constant, and far-seeing friends of the cause—P. P. F. Degrand, Esq., of Boston—in reply to the committee of the Massachusetts legislature, as to "how much land was required for a railroad depot like the Western," he said, "all you can get, Mr. chairman, and then a little more!" We therefore, say to the managers of the South Carolina railroad, that that location is the best for them which has the best water front, and the largest space—no matter what the cost.

We shall take another opportunity of referring to the minority report, in which we find opinions expressed differing widely from those put forth in this document. We shall also notice the report of the engineer, on the policy of dispensing with the incline plane, at the western termination of the road.

Journal of Science and Arts.

From the November number of this valuable work we extract the following article, from the "department of scientific intelligence."

A simple method of protecting from lightning buildings with metallic roofs.—By Prof. Henry, from proceedings of American phil. soc., June 20th, 1845.

On the principle of electrical induction, houses thus covered are evidently more liable to be struck than those furnished either with shingle or tile. Fortunately, however, they admit of very simple means of perfect protection. It is evident, from well established principles of electrical action, that if the outside of a house were encased entirely in a coating of metal, the most violent discharge which might fall upon it from the clouds would pass silently to the earth without damaging the house, or endangering the inmates. It is also evident, that if the house be merely covered with a roof of metal, without projecting chimneys, and this roof were put in metallic connection with the ground, the building would be perfectly protected.—To make a protection, therefore, of this kind, the professor advises that the metallic roof be placed in connection with the ground by means of the tin or copper gutters which serve to lead the water from the roof to the

earth. For this purpose, it is sufficient to solder to the lower end of the gutter a riband of sheet copper, two or three inches wide, surrounding it with charcoal, and continuing it out from the house until it terminates in moist ground. The upper end of these gutters are generally soldered to the roof; but if they are not in metallic connection, the two should be joined by a slip of sheet copper. The only part of the house unprotected by this arrangement will be the chimneys; and in order to secure these, it will only be necessary to erect a short rod against the chimney, soldered at its lower end to the metal of the roof, and extending 15 or 20 inches above the top of the flue.

Considerable discussion in late years have taken place in reference to the transmission of electricity along a conductor; whether it passes through the whole capacity of the rod or is principally confined to the surface.—From a series of experiments presented to the American philosophical society, by Prof. Henry, on this subject, it appears that the electrical discharge passes, or tends to pass, principally at the surface; and as an ordinary sized house is commonly furnished with from two to four perpendicular gutters (generally two in front and two in the rear), the surface of these will be sufficient to conduct, silently the most violent discharge which may fall from the clouds.

Railways in Great Britain.

We find the following very just views, in relation to the ability to construct the numerous new lines of railway which were chartered in 1845 and 1846—amounting to 8,364 miles, in the Mining Journal.

In examining into the details of the statistical data of railway progress, there is certainly much to cause wonderment as to the sources from whence are to be derived, not only the iron wherewith to form them, but the needful capital to cover the enormous outlay. It will be seen, in a small paragraph in another part of this day's Journal, that the amount authorized to be raised by capital and loans in England, Ireland and Scotland, is £120,843,135, for the construction of 4,705 miles of railroad; and the entire amount authorized in the three past sessions is £194,983,767, for 8,364 miles. These are, undoubtedly, startling figures; but we must not suffer the judgment to be taken prisoner, by a too sudden alarm at the largeness of the amounts. We have before endeavored to show, that as these sums are not required at once, but spread over an almost indefinite period of time, commercial benefit, rather than injury, will ensue from such enormous circulation. The largest portions of these funds are paid for labor, which thus acts as a fertilizing stream through the community. As time progresses, portions of lines are opened, traffic increases, and large returns are made—returning to the original advancers, in most cases, a good per centage on the outlay; and as a large portion of this apparently enormous amount will be continually standing in the shape of debentures, loans, etc., it is the yearly interest only which has to be provided for at fixed periods—the principal being paid off as circumstances allow. These remarks will

not apply to iron—in that commodity the formation of the authorized lines is a settled and long continued drag on the market; and though we are not of those who fear the possibility of supplying all the lines for many years after the time allowed for their completion, still we have no doubt there will be delay through a want of supply; and probably a higher than the present price may be obtained, although the present healthy and steady appearance of the market does not indicate a desire on the part of the manufacturers to create exorbitant rates, which can only be followed by a more than corresponding depression. Numerous furnaces will, doubtless be erected, and the make of iron very considerably extended during the next few years; and, as for material, Britain may with reason say "it is inexhaustible."

With respect to railway parliamentary business for next session—it has every probability of being, if not quite so formidable as last, quite sufficient to keep honorable members from going to sleep; 65 of the schemes which were lost last session, are to be renewed in the ensuing one, many of which will be recognized as old friends with new faces; two new lines are projected westward from London, by Oxford and Cheltenham—one by the broad, and the other by the narrow gauge parties—the contest being doubtless for Wales; and we shall probably have another battle of the gauges. For branches and extensions, the Eastern Counties have 6 bills; Great Western, 2; London and South Western, 6; South Eastern, 5; and the Gt. Northern, 5 bills.

(Official) Reading Railroad.

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending—

	Oct. 26, 1844.	Oct. 25, 1845.	Oct. 24, 1846.
Travel.....	\$1,995 68	\$2,163 21	\$2,907 97
Freight on goods.	957 49	1,223 51	2,726 01
" coal...	15,176 17	24,481 28	37,775 03
	\$18,129 34	\$27,868 00	\$43,409 01
Coal trans.—tons.	13,534	19,355	26,727

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending—

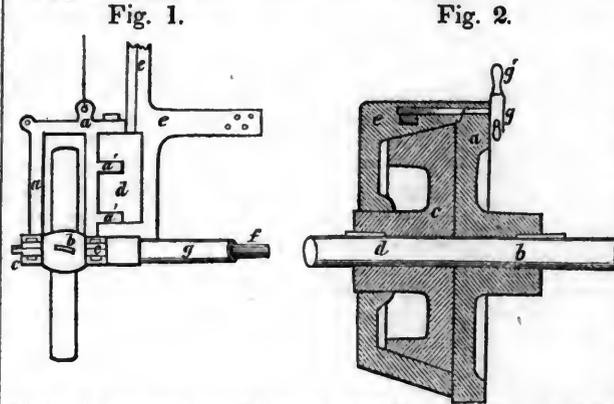
	Nov. 2, 1844.	Nov. 1, 1845.	Oct. 31, 1846.
Travel.....	\$1,384 16	\$2,266 34	\$2,836 35
Freight on goods.	776 74	1,062 81	3,367 70
Do. do. coal...	13,203 70	27,045 88	47,249 34
	\$15,364 70	\$30,375 03	\$53,453 40
Coal trans., tons.	11,861	21,191	31,913

A comparative statement of the business on the Philadelphia and Reading railroad for the month ending Oct. 31st,

	1844.	1845.	1846.
Travel.....	\$8,717 04	\$9,242 26	\$13,857 01
Freight on goods.	3,906 66	4,844 77	12,300 75
Do. do. coal...	62,068 56	116,999 66	198,478 87
Miscell's receipts.	1 00	9 62	78 00
Transp. U.S. mail.	783 33	783 33	783 33
	\$76,476 59	\$131,879 64	\$225,397 97
Coal trans., tons.	55,525	92,415	137,305

Steam Ship Propelling Machinery.

Joseph Maudslay, of the firm of Maudslay and Field, Lambeth, engineers, for "improvements in propelling and propelling machinery."—Granted January 13th; Enrolled, July 13th, 1846.

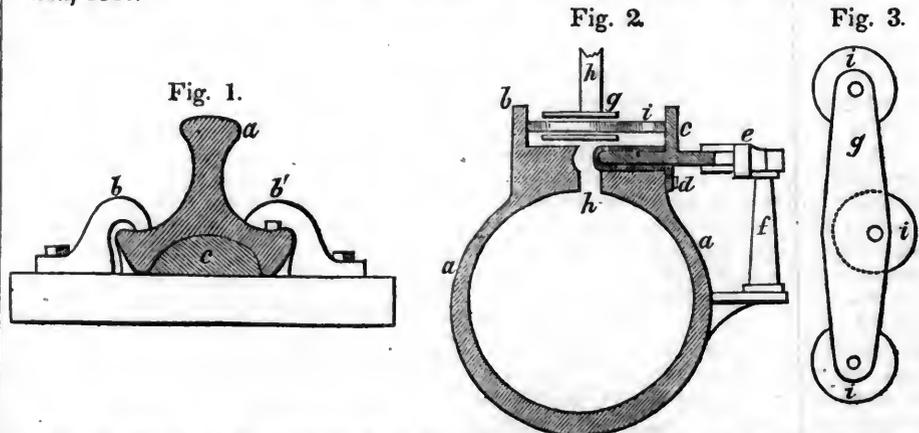


which fit into and are attached to a sliding piece *d*, in a similar manner to a hinge joint. This sliding piece *d d* is capable of moving freely upon a strong frame *e e*, which latter is firmly bolted to the counter of the vessel. *f* is the propeller shaft which passes through a hollow shaft or tube *g*, the propeller shaft being squared at its outer end so as to fit the hole formed in the boss or hollow shaft *b*, which hole is of the same figure. *h* represents a chain, one end of which is attached to the rectangular frame *a*, the other being attached to a capstan or windlass on board the vessel. When it is necessary to raise the propeller, the square end of the shaft *f* is withdrawn from the boss or shaft *b*, then, by giving motion to the windlass, the part *d* will slide upon the frame *e e*, carrying with it the rectangular frame *a a* and propeller. The advantages of this arrangement are stated to be, that the propeller may be placed lower down than heretofore, and consequently a larger propeller may be employed, moreover the water passing from the propeller will meet with less obstruction against the sides of the vessel, and which vessel will be less subject to that tremulous motion caused by the action of the propeller.

The second improvement consists in disconnecting the propelling shaft from the driving shaft, thereby allowing the former to run loose upon its axis when the vessel is required to be worked with sails only, or when she is laying in a tide way. In Fig. 2, *a* is a circular plate of cast iron, firmly keyed on the outer end of the driving shaft *b*; *c* is a casting in the form of a frustrum of a cone, and is firmly keyed upon the inner end of the propeller shaft *d*; upon the periphery of this conical piece there is a hollow casting *e* turned accurately to fit the conical part *c*. On the periphery of the plate *a*, there is cast three "snugs," or projections, through each of which is passed a bolt *f*, (only one of which is shown in the drawing); at the outer end of these bolts there is a winch *g*, or handle, having three projecting arms *g'*, so that one is always uppermost. It will therefore be seen by the above that by screwing the bolts *f*, and the part *c*, the propeller shaft *d* will be driven by the friction of the two conical pieces *c* and *e*, and by unscrewing the conical part *c* and propeller shaft will be allowed to run loose.

Atmospheric Railways.

Charles Wheeler, of Speenhamland, Berkshire, machinist, for "certain improvements in the construction and working of railways."—Granted January 22d; Enrolled July 22d, 1846.



The first part of this invention is for an improved form of railways, shown at Fig. 1, which represents a transverse section of a rail constructed of such a form as to present three different surfaces to the action of the wheels, that is to say, when one surface is worn out, another can be turned up, as will be clearly understood by the following de-

of boats 100 feet long, 17½ feet wide, drawing 6 feet of water, conveying from 200 to 250 tons of freight.

The best freight boats on the Erie canal are 81 feet long, 14 feet 3 inches wide, and draw 3 feet 3 inches of water and carry from 65 to 75 tons of freight.

It is therefore unfair to charge to the finished canals the cost of work on the Erie canal enlargement until that enlargement is complete.

The unfinished work on the Black river and Genesee valley canals and Oneida river improvement is and can be of no use until the canals are completed.

The cost of the finished canals in this state including the finished part of the Genesee valley canal as before given, is \$13,969,011.

The net income as given by Mr. Whitney, for the year 1844, was \$1,803,768, or about 13 per cent. on their cost instead of 6½ per cent. on their cost as stated by Mr. W. in his letter.

There is but one other "pauper canal" in this state, viz, the Delaware and Hudson, which now pays a semi-annual dividend of 8 per cent, and the stock of which sells from 150 to 160 per cent.

Mr. Whitney's statements in regard to railroads in this state are hardly fair.

The total cost of all the finished railroads and of the finished part in use of the unfinished railroads in this state in 1844, was over \$18,000,000, on which the total net income in that year, was less than five per cent.

The net income on the New York canals for the year ending 30th Sept. last, was over \$2,100,000 or more than 15 per cent. on their cost.

His statements as to the relative cost of transportation on canal and railroads are erroneous, but the above is enough for the present. CLINTON.

Trade and tonnage of the New York Canals.
From Hunt's Merchants Mag.

The following tables are compiled from the annual report of the commissioners of the canal fund, on the trade and tonnage of the New York canals.—(Senate document, no. 59, for 1846.)

These tables plainly show that there is an increase in the annual number of lockages on the Erie canal; a rapid increase in the tonnage of products of the forest, and in the total tonnage of the canals.

Table I.—Showing lockages, etc., on the Erie canal.

YEAR.	Number of lockages at each Alexander's lock 3 miles west of Schenectady.	Average for each period of five years.	Number of boats arrived at and cleared from Albany and Troy.	Average for each period of five years.
1824	6,166	...	8,760	...
1825	10,985	...	13,110	...
1826	15,156	...	...	...
1827	13,004	...	...	...
1828	14,579	...	23,662	...
1829	12,619	...	21,490	...
1830	11,674	14,006	23,874	22,000
1831	16,284	...	26,882	...
1832	18,601	...	25,826	...
1833	20,649	...	31,460	...
1834	22,911	...	32,438	...
1835	25,798	20,849	39,690	30,659
1836	25,516	...	34,190	...
1837	21,055	...	31,082	...
1838	25,962	...	32,120	...
1839	24,234	...	31,982	...
1840	26,987	21,751	30,456	31,946
1841	30,320	...	33,782	...
1842	22,869	...	32,840	...
1843	23,184	...	32,826	...
1844	28,219	...	38,786	...
1845	30,452	27,009	40,094	35,665

From an inspection of the above table, it is evident that the number of lockages is increasing, although the capacity of the boats now is double what it was in 1838.

* Estimated, as there are two years uncertain, viz: 1826 and 1827.

Table II.—Showing, in tons, the total movement of articles on all the canals, from 1836 to 1845.

Year	Products of the forest.	Agriculture.	All other articles.	Total.
1836	755,252	225,747	329,808	1,310,807
1837	618,741	208,043	344,512	1,171,296
1838	665,089	255,227	412,695	1,333,011
1839	667,581	266,052	502,080	1,435,713
1840	587,647	303,780	434,619	1,416,046
1841	615,548	391,905	484,208	1,521,661
1842	504,597	401,276	331,058	1,236,932
1843	687,184	455,797	370,458	1,513,439
1844	864,373	509,387	442,826	1,816,586
1845	881,774	555,160	540,631	1,977,565

Total 1st 5 yrs. from '36 to '40 inclusive... 3,394,310. 1,348,848. 2,023,714. 6,666,873

Total 2d 5 yrs. from '41 to '45 inclusive... 3,583,476. 2,313,525. 2,169,181. 8,066,182

Ave. per ann. fm. '36 to '40, inclusive... 658,862. 269,770. 401,743. 1,333,374

Ave. per ann. fm. '41 to '45, inclusive... 716,695. 462,705. 433,836. 1,613,236

Increase in 5 years... 57,833. 192,935. 29,093. 279,862

Inc. per ann... 11,566. 38,587. 5,819. 55,972

From the above it is evident that the tonnage of the canals is rapidly increasing at an average rate of about 56,000 tons per annum. It is also evident that the tonnage of products of the forest is increasing at an average rate of over 11,000 tons per ann.

Table III.—Showing the tonnage arriving at tide water.

Year.	Products of the forest.	Agriculture.	All other articles.	Total.
1836	473,668	173,000	49,679	696,347
1837	385,017	151,469	75,295	611,781
1838	400,877	182,142	57,462	640,841
1839	377,720	163,785	60,623	602,128
1840	321,709	302,356	44,917	669,012
1841	449,095	270,240	54,909	774,334
1842	321,480	293,177	51,969	626,727
1843	416,173	346,140	74,548	836,861
1844	545,202	383,363	102,830	1,031,395
1845	607,930	447,627	149,386	1,204,943

Total 1st 5 yrs. from '36 to '40 inclusive... 1,958,991. 972,752. 288,066. 3,219,749

Total 2d 5 yrs. from '41 to '45 inclusive... 2,339,880. 740,547. 433,732. 4,514,159

Ave. per ann. 1st 5 yrs. from '36 to '40, inclusive... 391,798. 194,550. 57,601. 643,949

Ave. per ann. 2d 5 yrs. from '40 to '46, inclusive... 467,976. 348,109. 86,746. 902,831

Increase in 5 years... 76,178. 153,559. 29,145. 258,882

Ann. increase... 15,235. 30,712. 5,829. 51,776

From the above, it is evident that the total tonnage arriving at tide water, is rapidly increasing, at an average rate of about 52,000 tons per annum. It is also evident that the tonnage from products of the forest arriving at tide water, is increasing at the rate of about 15,000 tons per annum.

Owing to the deposit of sediment from the small streams running into the canal, and various other causes, the capacity of the canal was so much reduced, that, in 1838, the average load of boats with down freight, was but thirty tons.—(See p. 438, vol. xii., Merchants' Magazine.)

In consequence of bringing into use some of the completed work of the Erie canal enlargement, and improving the remaining part of the canal, its capacity has been so increased, that the average load of boats with down freight, in 1845, was over sixty tons.

This increase of load is, in some degree, owing to improvements in the construction of boats, but mainly to the improvements in the canal itself.

The effect of this increased capacity of the boats has been to reduce the cost of transportation about 30 per cent. below what it was in 1838.

New York, May 15th, 1846.

Working Stock of Existing Railways.

We find in the Civil Engineer and Architects Journal for August, the following abstract of the returns made to the railway department of the board of trade, in pursuance of an order of the house of lords, of the "working stock, [engines, carriages and wagons,] belonging to railway companies at present in operation:—"

Name of railway.	Engines.	Passenger carriages.	Luggage vans and trucks.
Arbroath and Forfar	5	12	110
Birmingham and Gloucester	40	46	586
Bristol and Gloucester	11	20	213
Chester and Birkenhead	10	60	36
Dublin and Drogheda	15	69	105
Dundee and Newtyle	7*	9	138
Durham and Sunderland	13†	23	28
Dunfermline and Charlestown	horses... 2	...	189
Eastern counties	66	204	1,142
Edinburg and Dalkeith	horses... 28	...	104
Edinburgh, Leith and Granton	horses... 8	...	...
Glasgow, Paisley, Kilmarnock and Ayr	31	133	1,334
Grand Junction, including Liverpool and Manchester, and Bolton and Leigh	128	343	1,978
Gravesend and Rochester	4	16	6
Great North of England	37	46	717
Great Western	127	232	919
Hartlepool dock and railway	5	8	6
Hayle	7†	6	119
Hull and Selby	17	45	238
Lancaster and Preston Junction	6	37	36
Leicester and Swannington	8	4	13
Llanelly and Llandillo	4	2	454
London and Blackwall	2†	47	9
London and Brighton	44	163	423
London and Croydon	8	56	89
London and Southwestern	47	212	508
Manchester and Birmingham	27	100	961
Manchester, Bolton, and Bury Canal Navigation and railway	12	52	223
Maryport and Carlisle, [including Whitehaven Junction]	8	16	135
Midland	109	251	1,842
Newcastle and Darlington	37	81	2,515
Newcastle-upon-Tyne and North Shields	5	28	124
Newcastle-upon-Tyne and Carlisle	26	67	653
Newtyle and Coupar Angus	1	2	48
Norfolk	18	50	497
North Union	19	49	54
Pontop and South Shields	13	5	2,649
Preston and Wyre	8	40	108
St. Helen's canal and railway	9	—	20
Sheffield, Ashton-under-Lyne, and Manchester	25	105	469
Stockton and Hartlepool, and Clarence	19	23	67
Southeastern	90	409	881
Taff Vale	12	23	328
Ulster	11	34	102
Winshaw and Coltness	11	10	1,016
York and North Midland	48	109	1,050

Connecticut and Passumpsic Railroad.

In the present number of the Journal, will be found the first "Annual report of the directors of Connecticut and Passumpsic rivers railroad company." The directors give, at length, a statement of the condition of this road; and the affairs of the com-

* 3 are stationary engines.

† All are stationary engines.

‡ 2 are stationary engines.

§ Passenger carriages provided by the Newcastle and Darlington company.

H. T.

pany are represented to be in a condition of as rapid progress as may be, with due regard to the certain accomplishment of the route.

The company have secured the services of MILLER FOX, Esq., as chief engineer upon the route, a gentleman of well known experience and ability, who is pushing the work forward as fast as is practicable; and the contractors are now at work, and progressing with all reasonable despatch. The cost of preparing that portion of the road now under contract for the superstructure, will not vary much from \$15,000 per mile. Upwards of \$35,000 have been paid in, upon the capital—a little over \$6,000 of which have been expended. The directors congratulate the stockholders upon the prospects of the company, and the work will be completed as soon as may be. We refer the reader to the report itself.

To the stockholders of the Connecticut and Passumpsic rivers railroad company.

In prosecuting the duties assigned to the board of directors during the brief period which has elapsed since the organization of the corporation, it has been their care to make such preliminary provisions and arrangements as shall secure the certain rather than the speedy accomplishment of the work; and this with a view also to the most rigid economy consistent with a thorough and durable structure.

Considering the importance of this railroad as a part of the great line which is destined to connect the city of Boston and the valley of the Connecticut with Canada and the city of Montreal, the directors have felt the importance of maintaining such correspondence with the railroad interests with which this road is to be connected as shall secure mutual and reciprocal advantages,—and they are happy to say that in this respect the interchange of communications has been most amicable and satisfactory.

The board have considered it of paramount importance to obtain accurate and very thorough surveys prior to a commencement of construction. A preliminary survey of a portion of the line had been made previous to the organization of the company in January last, but that survey was suspended during the winter months.

Early in April the board engaged the services of Miller Fox, Esq. as chief engineer, a gentleman of much practical experience, and in whose abilities, sound judgment and skill, as an engineer, the directors repose entire confidence.

Having employed competent assistants and organized a suitable corps, Mr. Fox commenced the survey and final location of the railroad between Fairlee and Wells river on the 26th day of April, and completed the field operations on the 21st of May.

This portion of the line known as the Wells river division is found highly favorable. The distance is 17.71 miles. There are no curves of a less radius than 1432½ feet, and the maximum inclination of the grade is 26.4 feet per mile. Of the 17.71 miles there are 14.54 miles of straight line, and 8½ miles level. The estimated cost for grading, masonry, bridges, altering roads, making farm roads, and preparing the road

bed for the superstructure or railway is \$15,077 14 per mile.

This division of the road was located by vote of the board August 4th, and on the 21st of the same month so much of the road as lies between the southerly point of Sawyer's mountain in Fairlee, and Peters' point, north of Wait's river, in Bradford, was put under contract at a price not exceeding the estimates of the engineer. The contractors, Messrs. E. Gilmore, & Co., commenced operations on the 7th of September, and are prosecuting the work with a competent force and with reasonable despatch.

The line from Fairlee to White river, has been, surveyed to ascertain the general features of the route, preparatory to a final location; should it be decided not to cross Connecticut river at Oxford.

The distance is 22½ miles. An estimate of the cost of grading this line, based upon the preliminary survey, has been made, which may be regarded as a near approximation to the real cost, and which is \$351,138 52, or \$15,781 51 per mile. There will be no greater inclination than 26.4 feet per mile, and no curve of less radius than 1146 feet.

The survey of the White river division was closed on the 15th of June, since which the engineering department have been employed in extending the survey north, and performing the necessary office work.

The survey as far as St. Johnsbury has been made with care, preparatory to a final location; and the preliminary survey between St. Johnsbury and Derby Lane, has been extended as far as the height of land between the waters of the Passumpsic and those flowing north into Canada.

No serious obstacles to the construction of a railroad have been found to exist; and with the exception of a few points on the St. Johnsbury division, the line as far as the height may be regarded as very favorable.

A letter from the assistant engineer, Mr. D. C. Ruggles, received last evening, states that he has arrived at the summit near "Bean Pond," with the preliminary survey, and ascertained that where Mr. Twining, in his report of 1837, reported grades of 80 feet per mile, he will be able to pass the summit with grades of only 50 to 55 feet per mile. This information must be gratifying to the friends of the road; and while upon a careful examination and final location of the road the inclination of the grades may be still further reduced, it is certain that it cannot exceed 60 feet to the mile.

The treasurer's account as made for the first day of October is as follows:

Capital paid in,	\$35,335 62
Disbursements for altering public roads, machinery and bridges, land damages, grading, engineering and expenses,	6,277 67
Balance,	\$29,057 95

An amount exceeding \$14,000 will have been paid out during the present month for land damages, grading masonry, engineering, etc., making the whole expenditure before the 31st of October, instant, somewhat over \$20,

000, and leaving a balance of about \$15,000—which sum will probably be adequate to the expenditures of the present year.

As it will be important to continue operations at certain points during the winter, preparatory to a more efficient and extended scale of operations the ensuing season, it may be presumed that a second installment will be called for in January next.

The board, at its meeting in January last, adopted a vote to allow interest on all installments from the time when paid in; and for the accommodation of the country stockholders, many of whom own but a small number of shares, the treasurer was instructed to receive on such shares the whole amount, or such portions of the same as may be offered in advance of the assessments—which sums so paid in will be entitled to interest at the legal rate from the time of payment.

It has been remarked that in the preliminary arrangements of the board, the directors have had in view a rigid economy. Hence in part, the fact that no greater portion of the road has, as yet, been put under contract. A heavy expenditure the present year would have involved a loss of interest upon the capital expended, since no part of the road can be profitably used, if completed, until the Northern railroad shall have been extended to Connecticut river.

As, however, it may be safely assumed that railroad will have been completed to the point of junction by the 1st of January, 1848, the directors recommend that during the year 1847 a more vigorous policy should be pursued, and that two divisions of the Connecticut and Passumpsic rivers railroad, as designated above, be in readiness to receive the rails very soon after the completion of the Northern railroad. And it is apprehended that the operations of the present year though limited in amount, will be found greatly to facilitate, and advantageously to affect the scale of operations now recommended for the ensuing year.

It may not be improper to glance at the position of the Connecticut and Passumpsic river railroad, in connection with the progress of the line of railroads at its northern and southern extremities. It is a gratifying fact that nearly coincident with the commencement of constructions upon the Connecticut and Passumpsic rivers railroad, the St. Lawrence and Atlantic railroad company have put under contract the first thirty miles of their road, between Montreal and Sherbrooke, and that the state of their subscriptions is favorable for an early extension of their work to Sherbrooke, and to the province line.

The northern railroad which will connect the C. and P. with the Concord railroad, is in a state of forwardness throughout its whole extent, with the prospect of being completed by the commencement of the year 1848.

A continuous line of railroads is now in operation from Long Island sound to Greenfield, Mass. Charters have been granted for railroads between the latter place and the lower terminus of the C. and P. railroad, and some progress has been made in construction.

It is obvious that so important a line can-

not long remain unoccupied, and when these lines are completed the C. and P. R. railroad will not only become a constituent part of the line from Montreal to Boston, but will be the only railroad avenue from the eastern townships of Canada and northeastern Vermont to the lower valley of the Connecticut and the city of New York.

It is a matter of interest to the public that the Concord and the northern railroad companies are limited by their charters to a dividend of 10 per cent. per annum on their capital. Any increase of business, therefore, upon those roads which shall return an income beyond 10 per cent. per annum, will impose upon those corporations the necessity of reducing their rates of toll.

The annual report of the directors of the Concord railroad mentions the fact that their "tariff for passengers was reduced on the 1st day of November last," and states that "in the opinion of the directors the income of the road for the past year will justify a further reduction of the freight tariff at an early date."

When the connection shall have been formed between the Northern and the Vt. Central railroads at the mouth of White river, and the Connecticut and Passumpsic rivers railroad shall have formed its junction with the Northern railroad, a great reduction may be anticipated in the rates of toll between that point and Boston.

It will be seen, therefore, that prospectively the tariff for freights and passengers on this line must prove very satisfactory to the public, and the effect on the country, will be, to cheapen the articles of import and greatly to increase the value of produce and all articles exported from it.

The Connecticut and Passumpsic rivers railroad in its course up the valley of the Connecticut and Passumpsic rivers to the Canada line, traverses a fertile and well settled country 100 miles in length, and 50 miles by average in breadth, the local business of which is already very considerable. The public lines of stages between the valley of the Passumpsic and Concord, N. H., although nearly quadrupled within the last few years, are altogether inadequate to the comfortable conveyance of the passengers; while the continuous processions of heavy teams loaded with produce and merchandize, indicate at once the desirableness of railroad facilities for the country, and the sufficiency of business to make the investment profitable.

In conclusion the directors congratulate the stockholders and friends of this enterprise, in view of the fact that, notwithstanding the existence, at first, of difficulties and discouragements seemingly insurmountable, the construction of the Connecticut and Passumpsic rivers railroad has been commenced, under circumstances which may well afford assurance that it will be steadily and unremittingly prosecuted, until it shall unite Canada with the Atlantic; and that the investment will prove to be one of the most productive among the New England stocks. All which is respectfully submitted.

Directors of the Connecticut and Passumpsic Rivers Railroad Company.—Erastus Fair-

banks, Benj. B. Mussey, Richard W. Bailey, Fitzhenry Homer, William Thomas, Addison Gilmore, Josiah Stickney, William F. Weld, John P. Simonds, Wm. Walker, Jr., Joseph Sawyer, Asa Low, Henry Keyes, E. B. Chase, Portus Baxter.

At a meeting of the stockholders October 6, 1846, the following gentlemen were elected directors for the year ensuing:

Erastus Fairbanks, St. Johnsbury, Vt.; Fitzhenry Homer, Benja. B. Mussey, Wm. F. Weld, Richard W. Bailey, Addison Gilmore, Josiah Stickney, Wm. Thomas, Nathaniel H. Emmons, Boston, Mass.; Wm. Walker, Jr., Concord, N. H.; Joseph Sawyer, Piermont, N. H.; Asa Low, Bradford, Vt.; Henry Keyes, Newport, Vt.; E. B. Chase, Lyndon, Vt.; Portus Baxter, Derby, Vt.

Erastus Fairbanks, President; Asa Low, Vice President; Josiah Stickney, Treasurer; Henry Keyes, Secretary; Miller Fox, Principal Engineer.

Pennsylvania Railroad.

The Pittsburg Gazette, in an article upon this railroad, gives the annexed account of the rapidly growing trade of that city, which in itself is a weighty argument against diverting the immense traffic of that region from its natural channel. Alluding to the "prosperity of Pittsburg," it says:

Another item going to show the immense business transacted in Pittsburg is the amount of steamboat tonnage in port, and arriving and departing daily. On Wednesday there were 24 large steamers below the bridge, and four above it during the day. Yesterday there were about as many. Their tonnage capacity cannot be short of eight thousand tons! This simple fact is evidence of the extent and value of the shipping interest of this port. We have seen as many as forty-two steamboats in port at one time. These do not include the new boats building, or boats undergoing repairs.

As to new steamers, we have noticed 13 under way at one time last spring. We cannot say exactly how many new boats have been built this year in this city, but we believe we have averaged one per week. An eastern journal, alluding to this branch of our business, humorously inquired "the price of steamboats at the factory?"

The carrying trade to and from Pittsburg, is increasing with marvellous rapidity. The means to accommodate it have increased in the same ratio. It bids fair in time to become of prodigious magnitude. Every year opens up some new feeder to our trade. It was only last year that the Erie extension canal was fairly in operation. This year we have the Sandy and Beaver. Shortly the Allegheny river must be improved as the Monongahela now is. The effect such an improvement would have is conceived by very few.

The growth of the trade on the Monongahely would be but a mere trifle to the enormous strides the Allegheny region would make. The waters of that stream drain a surface of country a dozen times as large as those of the Monongahela. We frequently see boats at our wharves from western New York. The famous Goshen butter and

cheese occasionally came down the Allegheny from the interior of western New York. Its wealth in mineral and lumber is inexhaustable, besides the well known fact that as the country is cleared (and that process is progressing rapidly) agriculture extends.

Next year we shall probably have a railroad partially built towards Cleveland, which will pour a rich volume of wealth into our lap. All these things directly contribute to largely increase the amount of tonnage entered and cleared at this port. We expect, (*Deo volente*) to see the Duquesne way lined with warehouses, put up especially to accommodate the Allegheny trade. And we also expect to see in a few years, many other additions not less notable, to the flourishing commerce of Pittsburg.

Since the above was prepared, we are gratified to learn, from the Philadelphia Pennsylvanian, that the common council, on Tuesday evening, responded fairly to the desire of the business community, by passing an act to subscribe to the stock of the Pennsylvania railroad company. The select council is probably friendly to the same measure. It is then rendered nearly certain, adds that paper, that this great and, to Philadelphia, all-important work, will soon be commenced and completed. The sum of five millions of dollars will enable the company to make a continuous road from Philadelphia to Pittsburg, connecting the Portage road; and thus, in the short space of two years, we may see vast additional amounts of the products of the great west poured into the markets of this city, enriching all its branches of industry.

New York Canal Tolls.

The amount of tolls received upon the New York state canals, for the 3d week of October, 1846 and for the season, the present, and last year, were as follows:—

New York State Canals.—Amount of Tolls.

Third week in October 1846.....	\$121,120 93
Corresponding week in 1845.....	133,926 71
Decrease in 1846.....	\$12,805 78
The breaches in the canals have probably decreased the tolls for the week ending on the 22d of October, in 1846.	
The total amount of tolls on all the canals, from the opening of navigation to the 22d of October, in 1846,	
Was.....	\$2,218,295 54
Total to 22d of October 1845.....	2,080,482 62
Increase.....	\$138,812 72

The increase for the year will not be so large, at this rate as was anticipated. In our previous calculations we made no allowance for such a contingency. The high prices ruling on the seaboard for all descriptions of agricultural products, induces us to think that the rush just before the navigation closes, will swell the increase of tolls much above the present amount. There is not that anxiety and fear in relation to shipping produce on the canal up to the latest moment, which in former years checked the transmission of merchandize, as the laws of this state now give the different railroad companies the privilege of transporting produce during the suspension of navigation; and any quantity, which might, on its way by canal, be arrested on its progress by ice, can be transferred to

a rail car, and reach its destination. In this way, every barrel of flour and bushel of grain is sure of reaching market. Navigation on the Hudson river continues free for several weeks after the canals close; and the supplies of breadstuffs destined for this market, generally comes forward before the river freezes over.

Extensive Iron railway Bridge and Viaduct.—An iron bridge, in size and magnificence, perhaps never before equalled, is about to be erected, with a corresponding viaduct across the Tyne, from Gateshead to Newcastle-upon-Tyne, for the Newcastle and Berwick railway. The iron work contract was let at York; there were a good many tenders, but Messrs. Hawks Crawshaw and Sons of Gateshead, were the successful competitors; Messrs. Losh, Wilson and Bell, of the Walker iron works, and Mr. John Abbott and Co., of the Gateshead iron works, will also take part with them in the construction of the work—Messrs. Hawks taking the castings for the approaches, and the other firms the arches for the bridge. The contractors are to make, supply, and erect all the cast and wrought iron and wood work for bridge and approaches, according to the designs, and under the instructions, of R. Stephenson, Esq.; it is to consist of six cast iron circular arches, with a curved approach at each end, and will, in fact, be a double bridge; the railroad on the summit, and a carriage road and two foot paths suspended from the arches. The span of the arches will be 125 feet, supported on pillars 21½ feet high, and 14 inches square, and the approaches from both Newcastle and Gateshead will be 251 feet in length, and precisely similar. Two courses of 3 inch planking will be placed beneath the rails, between which will be a layer of Borrowdale's patent asphalted felt, to render them water proof; and the carriage road beneath will be paved with wood to prevent vibration, and the foot path planked. Every arch will be completely erected on the contractors' premises by itself, when the engineer will inspect and test its strength and fitness. The quantity of iron required will be about 6,000 tons, and the contract is stated to be £120,000. The entire cost, inclusive of lands and buildings, will be £300,000 and it is to be finished, so as to be available for public traffic by the 1st of August, 1848.—*London Mining Journal.*

Miscellaneous Items.

Extension of the Mansfield and Sandusky City Railroad.—We understand that the route has been surveyed to Mount Vernon, and found quite favorable, increasing the distance between the two places about four miles more than the present travelled road. The question whether the county of Knox should subscribe \$100,000 to a railroad, was submitted to the people on the day of the annual election, and decided in the affirmative by rising of 2000 majority. It is said that the vote was given with special reference to the extension of this road.—*Sandusky Clarion.*

The Housatonic railroad company have received from the manufacturers two large lo-

comotives, intended for operation on their road. They weigh 18 tons each, and are called the "Massachusetts" and "Connecticut."

Rhode Island Legislature.—The act to incorporate the Providence, Warren and Fall River railroad company was finally passed on the 29th ult.

The Barnstable Patriot announces that the building of the Cape Cod branch railroad is actually under contract, and that every endeavor on the part of its directors will be made to expedite its progress and completion.

There is now no doubt of the railroad between Montreal and Troy being speedily constructed, the stock required to be taken up in Montreal having been nearly all subscribed.

The Sandy and Beaver Canal.—The Pittsburg Gazette of Thursday last, says that on that day this work was to be opened and boats pass through from New Lisbon to the Ohio river. It congratulates the friends of the improvement that after so long and severe a struggle it has at length been so far completed. The balance of the canal is fast progressing towards completion, and by next spring the entire line will be opened through to the Ohio canal.

New Railroad Invention.—Mr. Jos. Grenel, of Newark, N. J., has invented and patented an improvement in the method of constructing the rails of railroads, which promises to reduce the cost, and at the same time, increase their stability and security. The plan, among other advantages, allows of the same rail being used on one edge first, and when that is worn on one surface to be changed top and bottom, and again reversed; by this he has four wearing sides or surfaces to one rail. The mode of fastening the ends of the rails together is said to afford perfect security against looseness.

Erie Railroad.—The Commercial Advertiser says that another section of this road, the one from Middletown to Otisville, nine miles, was opened for travel during the present week. The present terminus is near the deep cut at the Shawangunk mountains, of which we furnished a description some 3 months since. Another section of 11 miles, extending to the village of Port Jervis, on the Delaware river, will be ready for travel in the early part of next summer, and the board of directors have now under consideration proposals for the grading, etc., of 130 miles more of the road. Thus this great work goes on slowly but surely towards its completion, and the day is not far distant, we trust, when we shall have through it another channel for the reception here of the treasures of the great west.

A meeting of the friends of the Rutland railroad was held at the Tremont Temple, Tuesday evening, Oct. 27. Only \$200,000 more is wanting to insure the completion of this great enterprise; an enterprise more important to the interests of Boston than any other now under contemplation.

Cape Cod Railroad.—It is stated that the subscription to this road has reached \$300,000, and that the road will be immediately located and placed under contract.

Canal at the Florida Isthmus.—The late destructive gale at Key West, and in the neighborhood of the Florida Keys, will, we hope, says the "Sun," induce congress to direct a survey of the Florida peninsula, for the purpose of commencing and completing a ship canal, uniting the Atlantic with the Gulf of Mexico, and avoiding not only a considerable distance in navigation, but those dangerous reefs, shoals and keys which are spread over the Bahama banks. We do not know at present a more important and valuable project which in saving to underwriters alone will in a few years pay the expense of its construction, without reference to the great preservation of life and property, and the great saving of distance. The St. John's river and the St. Mary's, both navigable to a certain extent, can be used for some distance until connected with the canal, which emptying into Vacasauka bay in the gulf, would make the distance short of 120 miles,

and the excavation over a level country considerably less. Another route may be adopted. The St. John's river is navigable for vessels drawing eight feet of water. Thence to lake George is 107 miles and from there the canal could be extended to the gulf, a short distance. Several routes have been surveyed for the accomplishment of this important project. Making Tampa bay the outlet, would also be securely effectual. At all events, the period has arrived when something must be done for the security of our navigation to New Orleans and the Gulf of Mexico, and it can only be accomplished by a ship canal across the Florida Isthmus.

Worcester and Nashua Railroad.—A meeting was held in this town on Friday, and a junction formed with the Nashua and Groton company, chartered by the legislature of New Hampshire, by which the two companies become one. The following gentlemen were then chosen directors:

John A. Sockwell, Norwich, Conn.; Franklin Haven and Edward Lamb, Boston; Alex. Dewitt, Oxford; Stephen Salisbury and W. A. Wheeler, Worcester; H. W. Bigelow, Lancaster; Asa P. Lawrence, Pepperell; Thos. W. Gillis and Thos. Chase, Nashua; John Davis and Thos. Kinnicut, Worcester; Nathaniel P. Smith, Groton; Jacob Fisher, Lancaster; Cyrus Holbrook, Sterling.

The subscriptions to the capital stock, which are represented as available, and mostly unconditional, amount to \$696,000. The vote of a former meeting which required a subscription of \$700,000, was reconsidered.

The Value of Railroads.—An exchange says that the city of Cincinnati will soon have two railroads stretching from that city to the lakes, besides her canal and many good macadamized roads. The improvements bring trade and business to that city—they bring customers to the mechanics, manufacturers and merchants of that city, and increase its wealth, population and prosperity. The consequence of these enterprises is, that Cincinnati grows rapidly, and her citizens now say, that the population is not less than one hundred thousand.

We are informed, says the Boston Transcript, that the manufacture of railroad iron is becoming a very important branch of labor in our vicinity. At the foundry on the Milldam one day last week, 248 rails, or 42 tons, were turned out in 24 hours.

Peterboro' Railroad.—We have already stated that the directors of this corporation have adopted the route of the Squannacook valley, in preference to the line through the village of Groton, where, it is now supposed, the Nashua and Worcester road will pass. The Peterboro' road will leave the Fitchburg near the present Groton depot, and follow up the stream to Townsend Harbor; thence on a good line to the centre and west villages, a distance of twelve miles. The route is an exceedingly favorable one, easy to construct and of light grades, not exceeding 20 feet to the mile. It will ultimately be continued to the line of the state at Mason, and thence to Peterboro', under a charter from the New Hampshire legislature. The first assessment on the stock, due last Monday, we learn, has been paid up with unusual promptness by the stockholders on the line.

Railroad Meeting.—A large meeting was held at Lynnfield, on Monday afternoon, in favor of renewing the application to the legislature for a railroad from Salem to Lowell, through Danvers, Lynnfield, S. Reading, etc. A committee was chosen to circulate a petition to the legislature, and another committee to confer with the citizens of Lowell and other places in reference to the object.

The Iron Trade.—The last number of Willmer and Smith's European Times says:

"Sir John Guest, of the Dowlais iron works, has just completed a contract to supply two hundred thousand tons of iron rails at £10 per ton; the total value of which will be two millions sterling. The same iron three or four years ago, would have been sold at from £5 to £6 per ton."

Germany has now open to public traffic 37 lines of railroad extending a length of 469½ geographical miles. There are at work on those lines 600 locomotive engines, of which 267 are of English construction, 39 American, 46 Belgian, 16 French, and the remainder German.

Sullivan Railroad.—The Sullivan railroad corporation has been created by the New Hampshire legislature to construct a railroad from the Cheshire railroad at Bellows Falls to the Central railroad at Windsor, a distance of about 27 miles. Ex-Gov. Hubbard, [who presides on the line of the road at Charlestown,] is president of the corporation, and we understand that \$80,000 of the stock has been subscribed in this town. This road will accommodate the business of Claremont, and other towns, on the New Hampshire side of the Connecticut river. Mr. Parker, the engineer, of this town, has just been over the line of the road and finds it highly favorable for the purpose, and we presume that the work will soon be put under contract, so that it may be completed in season to co-operate with the connecting roads. It is an important link in the great chain now in progress from Boston to lake Champlain and Canada, and when completed, cannot fail to be good stock. We understand that a good feeling prevails and it is to be hoped that the balance of stock now required will immediately be taken up.

Fitchburg and Vt. Central Railroads.—We understand that at a meeting of the directors of the Fitchburg railroad, yesterday forenoon, resolutions were passed, the object of which was to bring about measures of harmony between the several railroad lines extending from this vicinity to lake Champlain.—By these resolutions the Central railroad is at liberty to form a connection with the Northern railroad, and the Fitchburg company equal at liberty to assist and connect with the Rutland. The connection between the Fitchburg and Central lines, however, is still to be made, and must be regarded as a very important arrangement for the Cheshire and Fitchburg companies. The Central railroad will undoubtedly be benefited by the new state of things.

Rutland Railroad.—The friends of the Rutland railroad, held a public meeting at the Tremont Temple, on Tuesday evening, at which C. W. Cartwright presided. The meeting was addressed in a very able manner, as we learn, by Judge Follett, Mr. Edwards, of Keene, and E. H. Derby, of Boston.—

The objects and advantages of the proposed enterprise were well presented and enforced, and it is understood, with much effect, as several gentlemen pledged themselves to procure certain portions of the stock. About \$250,000 are necessary to enable the directors to commence the work, and this sum it is supposed, the committee who have the matter in charge, will be able to obtain.

■ The Concord railroad corporation have determined not to build the Souhegan [Amherst,] road, by a majority of 1,726 shares.

Connecticut River Road Extended.—We learn from the Greenfield Gazette, that the Connecticut river railroad company will soon commence surveying a route for the extension of their road from this place into Vermont or New Hampshire, to unite with the Passumpsic and Connecticut rivers railroad. We learn that a union can be effected with that company by building 30 miles. It is the object of the Connecticut river railroad company in this state, to find the most feasible route, either directly north to the Vermont line, or to cross the river near Vernon and run up on the east side. They have a charter to the Vermont line.

RAILWAY IRON.—DAVIS, BROOKS & Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.
Nov. 16, 1846. 46if

RAILROAD IRON.—100 TONS RAIL- road Iron [Bridge pattern] for sale low to close a consignment by
JOHN F. MACKIE,
189 Water street.
November 7th, 1846. 1m45

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.
Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ¼ inch Flat Punched Rails, 20 ft. long.
25 " 2½ x ¼ " Flange Iron Rails.
75 " 1 x ¼ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address
JOAN F. WINSLOW, Agent,
Albany Iron and Nail Works, 1y

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee
G. A. NICOLLS,
Reading, Pa. ja45

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,
45 North Water St., Philadelphia,
or by their Agent, **ROBT. NICHOLS,**
79 Water St., New York. 23tf

THE SUBSCRIBERS, AGENTS FOR the sale of

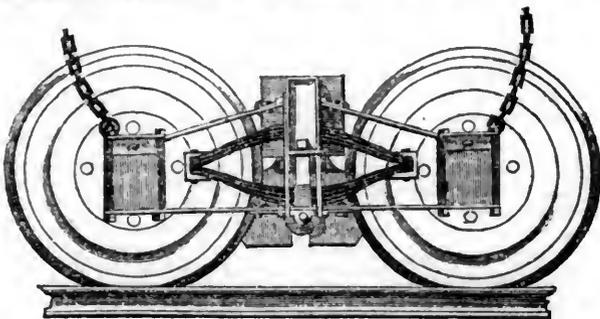
Codorus, Glendon, Spring Mill and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L. KIMBER, & CO.,
59 North Wharves, Philadelphia, Pa.
Jan. 14, 1846. [1y4]

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846. **W. H. CALKINS, and Others.**
To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] **WILLIAM ROE, Sup't of Power.**
I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

[Signed,] **G. A. NICOLL,**
Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] **T. L. SMITH,**
Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

[Signed,] **JOHN LEACH,**
Long Island Railroad Depot, } 1y19
Jamaica November 12, 1845. } Sup't Motive Power.



RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATAILLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 133 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 133 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
133 1/2 Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Supt Hartford and New Haven Railroad; W. R. M'Kee, Supt Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Supt New Jersey Railroad Trans. Co.; J. Elliott, Supt Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Supt Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Supt Macon Railroad, Macon, Ga.; J. H. Cleveland, Supt Southern Railroad, Monroe, Mich.; M. F. Chittenden, Supt M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinchely & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

* * * The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

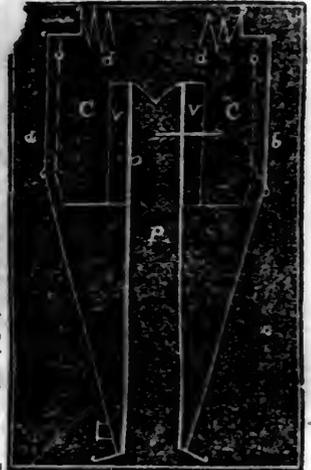
Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery

of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
245 Paterson, N. J., or 60 Wall street, N. York.



PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

* * * Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

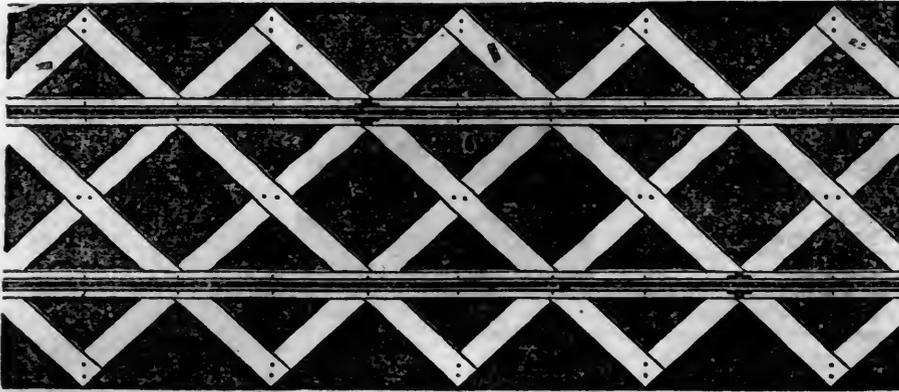
ja45

DAVENPORT & BRIDGES CONTINUE to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

ly1

THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

THE UNDERSIGNED RESPECTFULLY invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,224 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail = \$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.
Civil Engineer and Patentee.
No. 277 South Tenth St., Philadelphia. 33tf

ENGLISH ATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

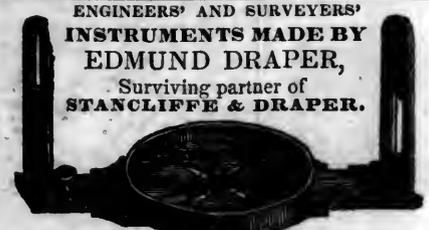
They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.		CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.	
11	4½	13 5	10	24 -	50	15-16	20
13	3½	8 3	8½	16 -	27	11-16	13½
14	3¼	6 11	7½	12 8	17	9-16	10½
15	2½	5 2	6½	9 4	13½	1-2	7½
16	2¼	4 3	6	8 8	10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24



ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY **EDMUND DRAPER,** Surviving partner of **STANCLIFFE & DRAPER.**

No 23 Pear street, below Walnut, Philadelphia, 1y10 near Third,

LAP-WELDED WROUGHT IRON TUBES

FOR **TUBULAR BOILERS,** FROM 1 1-4 TO 6 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee.

1y25 28 Platt street, New York.

ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

THE AMERICAN RAILROAD JOURNAL

is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

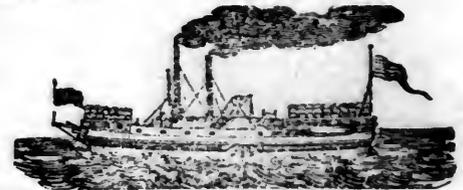
RATES OF ADVERTISING.

One page per annum.....	\$125 00
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One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
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One square " ".....	1 00
Professional notices per annum.....	5 00

AMERICAN RAILROAD JOURNAL,

AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.
SECOND QUARTO SERIES, VOL. II., No. 48.] SATURDAY, NOVEMBER 28, 1846. [WHOLE No. 545, VOL. XIX.

REMOVAL.—It is respectfully requested that all letters, exchange papers, and periodicals, for the RAILROAD JOURNAL, may be sent to PHILADELPHIA, as the Journal will hereafter be published there, and the office will be kept at the FRANKLIN HOUSE, No. 105 Chestnut street.

Owing to preparations for the removal of the printing materials to Philadelphia, and other causes, the last number (47) of the Journal has been delayed a few days, and the present number is issued in advance of its regular day. The next number, and hereafter it will be published in Philadelphia—office 105 Chestnut street, at the FRANKLIN HOUSE.

Those subscribers who are about remitting the amount due on their subscription up to the close of the present year, will please address their letters immediately to PHILADELPHIA, instead of New York, and much oblige the proprietor and editor, D. K. MINOR.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7-20 a.m. and 3½ p.m.

All baggage at the risk of the owners thereof.
31 ly W. RAYMOND LEE, Sup't.

BRANCH RAILROAD and STAGES Connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

BOSTON AND MAINE RAILROAD.

Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Winter Arrangement, 1846-7.

On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted), as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.

Boston for Great Falls at 7½ a.m., 2½ and 3-25 p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 3-25 and 5 p.m.

Boston for Reading at 7½, and 11½ a.m., 2½, 3-25 and 6½ p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 7½, 8½, and 11 a.m. and 3 and 6½ p.m.

Reading for Boston at 7, 8½ and 9½ a.m., 12 m., 1½, 4 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1y31 CHAS. MINOT, Super't.

NEW YORK & HARLEM RAILROAD

CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3, 30, 4, 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3, 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7, 10, 8, 10, 9, 10, 11, 10 a. m., and at 12, 40, 2, 3, 10, 5, 10, 5, 30, 6, 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6, 45, 7, 45, and 10, 45 a. m., and at 12, 15, 2, 45, 4, 45, and 5, 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave Cihite Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams Bridge trains will be regulated according to the state of the weather.

1y18

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.

" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED to \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't.

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Millford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 tf

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars.

J. W. STOWELL, Sup't.

321y

CENTRAL AND MACON AND WESTERN Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad 190
 Macon to Atlanta—Macon and Western 101
 Atlanta to Oothcaloga—Western and Atlantic... 80
 Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings..... \$0 50 To Atlanta \$0 75 To Oothcaloga

Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones..... 0 50 0 62½

On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot..... 0 20 0 26

Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot..... 0 20 pr. 100 lbs. 35

Crockery, per cubic foot..... 0 15 " " 35

Molasses and Oil, per hhd., (smaller casks in proportion). 9 00 12 50

Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each..... 1 25 1 50

Ploughs, (small,) and Wheelbarrows..... 0 80 1 05

Salt, per Liverpool Sack..... 0 70 0 95

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846. 1y34

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6¼ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston..... \$21 00
 " " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to 1y14 STOCTON & FALLS, Agents.

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.
 Factory, 9th street, near Coates, cor. Melon st.
 Office, No. 3 North 5th street, Philadelphia, Pa. 1y25

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

RATES OF FREIGHT.

	Between Augusta and Oothcaloga, 250 miles.	Between Charleston and Oothcaloga, 86 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 25
2d class. Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	0 90	1 40
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 55	0 75
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 37½	0 62½
Cotton, per 100 lbs.....	0 45	0 65
Molasses, per hogshead.....	8 50	13 50
" " barrel.....	2 00	3 25
Salt per bushel.....	0 17	
Salt per Liverpool sack..		95
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows....	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
 Ch. Eng. and Gen. Agent.
 Augusta, Sept. 2d, 1846. *44 1y

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
 Chief Engineer.
 Atlanta, Georgia, April 16th, 1846. 1y1

TWO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,
 a45 E. cor. 12th and Market sts., Philad., Pa.

LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD—Distance 84 miles—connecting at Xenia and Springfield with Messrs. Neil, Moor, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City. via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon... \$1 00
 " " " Xenia..... 1 50
 " " " Springfield.. 2 00
 " " " Columbus... 4 00
 " " " Sandusky city 8 00

The Passenger trains run in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.

W. H. CLEMENT, Sup'l. 47if

LAWRENCE'S ROSENDALE HYDRULIC Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

CLEVELAND, COLUMBUS AND CINCINNATI Railroad. In pursuance of a resolution adopted by the Board of Directors, on the 21st October, notice is hereby given, that proposals will be received up to the 1st day of December next, for the Grading, Timbering, Bridges and Culverts on forty miles of the road, commencing at Cleveland. Profiles, Specifications, Terms of Payment, and all other information pertaining to the matter, to be furnished on application at the office of the Company, Merwin Block, Cleveland.

JOHN W. ALLEN, President.
 A. G. LAWRENCE, Secretary.
 CYRUS WILLIAMS, Engineer.
 Cleveland, October 23, 1846. 45*1m

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long.
 25 " 2½ x ½ " Flange Iron Rails.
 75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

GEOURGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. 1y1

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 63,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 51x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide

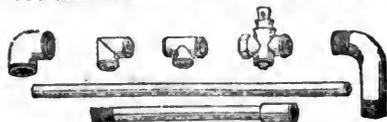
For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja1

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ½ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, Tr. Ls. and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



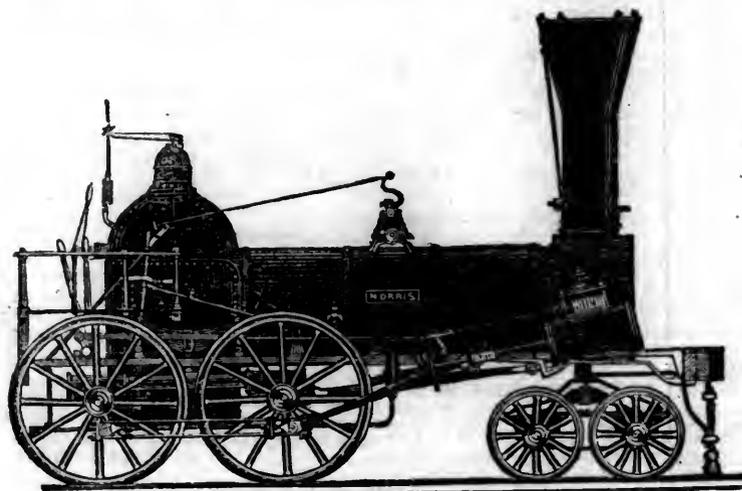
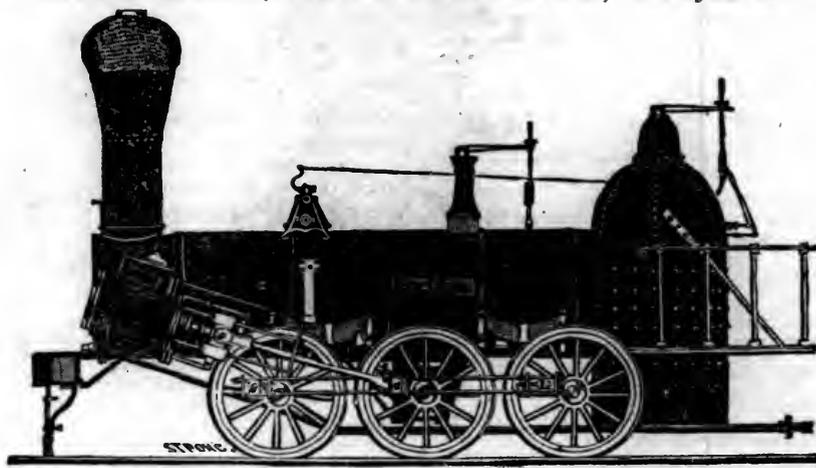
Manufactured and for sale by MORRIS, TASKER & MORRIS. Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

RAILROAD IRON.—THE NEW JERSEY Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to FULLER & BROWN, Agent,

No. 139 Greenwich, corner of Cedar street. September 18, 1846. 1033

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
" 2,	14 " " "	× 24 " "
" 3,	14½ " " "	× 20 " "
" 4,	12½ " " "	× 20 " "
" 5,	11½ " " "	× 20 " "
" 6.	10½ " " "	× 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY, a45 President of the Newcastle Manuf. Co.

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON Mar. 20th 4 South Front St., Philadelphia.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Allaire, } New York.
- Peter Cooper, } New York.
- Murdock, Leavitt & Co. } New York.
- J. Triplett & Son, Richmond, Va.
- J. R. Anderson, Tredegar Iron Works, Richmond, Va.
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- N. E. Screw Co. } Providence, R. I.
- Eagle Screw Co. } Providence, R. I.
- William Parker, Supt. Bost. and Worc. R. R.
- New Jersey Malleable Iron Co., Newark, N. J.
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25,000 to 30,000 made weekly. 35 1y

Railway System.

The following extract is taken from the evidence of Mr. Cubitt before the select committee of the house of lords. Instead of recommending for general adoption the gauge of those railways in which he himself is particularly interested, Mr. Cubitt appears to view the question on its general merits.—He says:

I think an uniform gauge might be made throughout the kingdom, which will be better than either of the present gauges, and at a very moderate cost; at a cost which would be scarcely felt by the railway companies.

Can you make any sort of estimate of what the expense of the alteration would be? Not a decided estimate what it would cost to alter the gauges; but I could state a minimum and a maximum. I would say it would cost from £500 to £1000 per mile to alter the gauges. That is not a large sum.

Will you state how you would propose to alter the gauges? It is a thing very easy to do practically; but there is a little to be cleared away first. Almost all persons think or are taught by a certain class of persons to think, that if we were to alter the narrow gauge to a wider gauge it would be necessary to alter the existing bridges and tunnels, and so on, through which the carriages pass. Now that is not at all necessary; the carriages on the Birmingham line, and the generality of carriages almost, are sufficiently large for any gauge whatever; their postoffice carriages, and their large horse boxes, and the very largest trucks, are sufficiently wide for any gauge that could be a fair workable gauge. They are big enough for the wide gauge, for I believe their postoffice carriages are as large as the Great Western passenger carriages. That being premised, it will be evident that if we take for example the large carriages of the London and Birmingham railway, which now pass upon that line through the bridges and tunnels, and pass within a certain distance of each other, and pass safely, you have only to suppose the carriages to remain unmoved sideways, and simply to imagine that the wheels are slipped right and left, brought out a little, about six or eight inches. A six feet gauge would work with the wheels set within the breadth of those large carriages, and the carriages would run exactly in the track as they did before. Consequently, if you do, that there is no necessity for any alteration of the tunnels, etc., about which so much objection is made. If we want to make the gauge wider we have only to bring the rails out about eight inches on each side, and there is still plenty of room.

You only alter the under carriage? Yes. You put the wheels at a greater distance? Yes; and the wheels will still be within the width of the carriages. Therefore, as the carriages pass each other now at a certain distance, they will still continue to pass each other at the same distance. The gauge will be a better gauge, and it will enable us to bring the centre of gravity of the engine lower down, as well as to widen the gauge.

Do you consider that the bringing the centre of gravity of the engine lower is a very

important point for safety? Yes; but that has never been done yet.

And practically the carriages now in use upon the narrow gauge are of such a width as to allow of that operation? Yes. Since this thing has been rather more upon my mind I have given particular attention to it. I have now the prospect of having some control over nearly 1000 miles of railway between the north and south, in large and direct lines, and I should be most happy if I could see my way open to improve the gauge which might be adopted in the first instance.

You have stated that there is no difficulty as to bridges and tunnels; is there any as to embankments? There is no difficulty as to embankments; no carriage overhangs the embankments.

It ought not to do so? I believe it never does. The means of widening that I should employ would be very simple. The rails are almost all laid upon cross sleepers or upon stone blocks; now with respect to those which are laid upon cross sleepers, it has been stated that it would cost a great deal to alter the railway because of the cost of taking it up and re-laying it altogether. Now I will undertake to widen the gauge, if the road is in good order, in a very little time and at very little cost, and without disturbing a single rail on its chair, or a single chair in its sleeper. I should simply cut with a saw through the sleeper in the middle of the line, and just put each out eight inches, and then nail a short piece of wood in to connect the two parts of the sleeper. The thing would cost very little to do.

Would that leave you with a trustworthy sleeper? Yes. And we will take the case of stone blocks. A great many miles of some of our greatest lines are laid with stone blocks; simply a small block upon the ballast. They will only want removing six or eight inches out.

The alteration, at all events, of the permanent way could be made without stopping the traffic? Certainly. I am now going to re-lay a line entirely; a new set of rails and fixtures altogether, and I shall not stop the traffic; yet there are 80 trains a day on that line, or 40 each way.

Where is that? From London to Croydon.

Do you consider that there is room for great improvement in the permanent way? The permanent way is the most defective part of the railway system.

Are not many of the rails that have been laid down upon the lines at present at work too light? The rails are, many of them, too light; but we can always meet light rails by a different mode of laying them. But the great defect is the want of proper attention to the fastenings of the rails and the chairs. I attribute almost all the accidents that have happened from engines and wagons and carriages getting off lines of railway to the imperfect state of the road; and yet no sooner has an accident happened, than the engineers go to examine the engines, and examine the carriages, to find out what is the matter.—The fact is, the cause is done away with; because it generally happens in most of those

cases from the ends of the rails getting out of the joint chairs, or the end getting loose, that it must inevitably throw off the engine, and throwing off the engine it tears up the line at the place, and we never can see it, because it is done away with. I have seen 100 yards of line torn up entirely from an engine running off the rails.

There was an accident not long ago upon the Brandling Junction, where the engineering officer sent down to report upon it stated that he could discover no cause for it. Do you think that it probably was from some defect of this kind? No doubt of it. I have witnessed an accident upon that very line. The engine and carriages tumbled over one another, and the line was torn up for 100 yards; but I knew from what had taken place just before upon the line, that that was from the defective state of the road.

You think that in the case referred to in the preceding question, when it was clearly proved that there was no fault in the arrangement of the points, or in the engine, in all probability there must have been some fault in the permanent way? Yes. When the permanent way is a little defective the shock becomes very sharp, and the rails resting in an imperfect chair, are apt to work out. I am now having chairs made with a very long socket, to prevent the ends of the rails getting out, for when one of those ends gets loose it jumps up or gets sideways, and it must throw the engine off, and in doing that it must break the chair to pieces.

One of the witnesses has stated, when the gauge commissioners were down near York, the engine they had went off the line, and was upset; and that that was occasioned very much by the great length of the engine; and that they found on the rail the marks showing where it had struck, by the great sway backwards and forwards, till it found a defective rail, and then it went off! I have seen rails and sleepers moved out of their place from the oscillations of an improper engine upon a badly laid road. I mean an engine not well balanced, and having too much play.

Do you think that if it were possible to get the weight lower down, by a greater width of gauge, it would in a great measure obviate that? The difficulty would be obviated altogether by a wider gauge, a better road, and an improved engine. We might then go 100 miles an hour with as great safety as we now do 30; there is nothing to limit the speed.

Is not it from the increased rate of speed that engines so frequently burst? No; it is a small tube that bursts; a tube about two inches diameter. There are about 90 to 126 of them in each boiler. After they have been used some time they wear thin, with the draught and the fine particles of coke; one tube may be a little defective in its making; and when a great pressure of steam and the action of the wear upon them cut them thin, sometimes they will burst, and the water will flow into this tube, and the steam will flow out, and stop the engine going.

Does that ever happen with any but fast trains? Yes; but you do not hear of it. In-

deed it would be rather less likely to occur with an increased rate of speed, because when the engine is driven very fast there is less pressure upon those tubes.*

When the directors of a railway are desirous of remedying the want of power, what is the expedient to which they have recourse? To build larger and more powerful engines. They require to be made either longer or larger to make them more powerful. Some of the engines on some of the lines, I believe are worked up to more than 100-horse power that is an enormous thing in that space.

If for the purpose of increasing the power the expedient adopted is that of lengthening the engine, does not that increase the danger upon the narrow gauge? No; not the lengthening it, but the raising it higher makes it more dangerous. They have to make them higher when they make them larger and more powerful.

A witness stated the other day, that projecting the engine very much over the wheels, if they could not extend on account of the turntables, caused oscillation from the weight being fore and aft? So it does. That was the great defect of the engines on the Eastern counties railway, and caused the late accident on that railway. In making them longer it brings the wheels too far apart, and there was an overhanging weight.

Would not also the great length of the engine be inconvenient in a curve? The longer engines are between the wheels the more they are likely to impinge upon the rails in going round very sharp curves; but that is obviated in America upon another plan, and I recommend the plan very much to the gauge commissioners. I told them that all those things may be overcome with proper arrangements. On narrow gauge railway they cannot go so fast as on broad, because they cannot get as large driving wheels with safety, without carrying the centre of gravity too high. I could make an engine of any length which should be better adapted for going round curves than any engines now are.—For instance, an engine 20 feet long might be made perfectly safe and steady with very large driving wheels upon a narrow gauge, even with wheels as large as the Great Western wheels, simply by having what the Americans call a "bogy" carriage—a small carriage with four low wheels moving upon a centre horizontally. Imagine a small truck with four wheels upon the line; then imagine another small truck behind it with four wheels. Now those wheels and axles would be stronger than the present ones and lighter. Then if we support a very long boiler indeed upon those trucks, the trucks with four wheels can each turn independently at each end.—Then anywhere between those we may have large driving wheels without flanges, there being eight other wheels to take the weight at both ends. We might have the driving wheels of any height; then they would turn round curves very rapidly indeed. I explain this to show that there are no insurmountable

difficulties mechanically, for the wheel might be improved in every respect.

Still you would recommend as the best security for safety, an alteration of the narrow gauge to a wider gauge? Yes; to a reasonable gauge. The lower the centre of gravity the greater the safety.

Will you state what width of gauge you consider the best? A six feet gauge I take to be about the best that could be adopted, or it might be five eleven or six feet one; a few inches more or less is of no consequence, but six feet is about the best gauge; it is an integral measure, it is an even measure, it is an easy measure, and it is of easy reference and well understood.

Is that the gauge which was recommended by the commissioners upon the Irish railways? They recommended six feet two inches; but I do not know why the two inches was put on.

Have you ever made any estimate of the cost of altering the carriages or wagons?—The first, second and third class carriages will cost about the same sum almost to alter. The average passenger carriages may be altered from a four feet eight inches and a half to a six feet gauge at an average cost of £30 each, and I think for less.

By multiplying the number of carriages constituting the stock of the different companies at present at work you could ascertain the total cost of altering the carriages? Yes. And it would cost £350 to £400 to alter an engine and tender, leaving the working parts exactly as they are now.

So that it would be perfectly possible to ascertain the total cost of the alteration. Yes.

Have you ever turned your attention to the means of providing the necessary sums to defray the expense of the alteration? I think it should be paid for partly by time gone by and partly by futurity; that is to say, money might be taken up at a certain rate of interest for doing this work, either from government or by transferable bonds, payable off by lot; anything of that sort. Then the works should be paid for as they were done. Whatever they cost should be apportioned, as nearly as it could be, over about 40 years; that is 20 by gone years, and 20 future years of railway extension; and all the newly made railways should pay their quota of the alteration as the past had paid; so that in 40 years, or 45 or 50 years, the thing should be paid off and the work all done. The work should be all done at once for the sake of the public. It would be paid for in a long time, for the sake of the parties. It would not tax any company harshly to make the alteration, and therefore they could not complain of it in point of expense. All the new railways would have to pay a quota for the same thing, although they would make their gauges right in the first instance. I think that is but fair.

You have no doubt that it would be of considerable advantage to the country in many points of view that there should be but one uniform gauge? There can be no doubt about that.

Both for traffic and for the military defences of the country? Yes; in every respect; I will not make one exception, because I do not think one can be made. But I should be sorry to see other narrow gauge lines granted if there is likely to be an alteration, because there will be many miles of new railway; many more than are made; I think twice as many.

You think this is a good opportunity for making the alteration? I think if the thing is ever to be done, there should not be a season lost, certainly. I think the thing may be easi-

ly done, and economically done, and done without loss to the public and without loss to the companies, and in a very short time, and at a very moderate expense.

You think it is very important that if anything of the kind is contemplated it should be settled with the least possible delay, in consequence of the numerous railways now in progress? I think so. It is a very serious subject, but almost all parties who speak upon the subject are in some way or other interested in this, or the other gauge.

You think it is very important that it should be practicable to go at high speeds on railways for persons who have to go great distances? I think that is evinced every day, for if we put on express trains every day, and advertise to go at 60 miles an hour, people will risk their necks as long as you will carry them, and therefore it is highly necessary for the safety of the public (for people will not take care of themselves) to have all the machinery of the best kind, and if the permanent way is perfect, and the gauge a proper gauge, there is nothing to limit the speed but the resistance of the atmosphere. That I am sure of, as far as safety is concerned there is no danger.

No greater danger in going 60 than in going 30 miles an hour? On a perfect railway there is no more danger in going 60 miles an hour than in going 30.

But the mere alteration of the gauge to the improved width which you propose to make it would not at once attain the increased speed which you hope to attain? It would be the greatest step to it.

Draining of the Lake of Haarlem.

The following description of the engines constructed to drain a lake of 70 square miles, will be read with interest by many.

Gigantic Steam Machinery.—Two more enormous steam engines are now being manufactured at Cornwall, for the Haarlemmeer commissioners, to be employed in draining the lake of Haarlem; they were designed by Messrs. Gibbs and Dean, of Westminster, the engineers to the commission, and are being built at the well known foundries of Messrs. Harvey and Co., of Hayle, and Messrs. Fox and Co., of Perran. The following are some of the leading features of these engines:—Each engine has two steam cylinders—one of 84 inches diameter, placed within another of 144 inches diameter. There are two pistons—the small one plain, and the larger annular (the small cylinder is turned outside, and bored inside.) Those pistons are 28 inches deep, cast with compartments, filled with cast iron plates, to serve as ballast. The pistons are united by five piston rods to a great cross head, having a circular body 9 ft. 3 in. diameter, and 3 ft. deep, with arms 17 ft. between the extremities. The circular body can be filled with plates of iron, if required. The pistons, piston rods, and great cross head, together present a dead weight of nearly 90 tons of iron. The engine house is a circular building, concentric to the cylinders, which are placed on a massive pedestal of masonry. In eight apertures in the wall of the building are placed as many large cast iron balance beams, radiating from the centre of the engine, to connect it with eight pumps of 73 inches diameter each, placed outside the building, four on either side, and opposite to each other. The dead weight of

* It is asked with great deference whether the opinion be quite consistent with known mechanical principles. The pressure on the tube will generally increase with an increase of velocity.—Ed. C. E. & A. J.

90 tons is suspended from the inner end of the balance beams by eight straps, connected to the underside of the cross head, which is furnished with a central guide spindle, working through a stuffing box above. The extremities of the arms are also furnished each with two guide rods. By these means the perfect verticality of the dead weight is maintained at all times, and no parallel motions are required for the pump balances. The length of stroke in cylinders and pumps is 10 feet.

The action of the engine is very simple. The steam is first admitted under the small piston, and lifts the dead weight, and inner ends of pump balances, the pump pistons performing their down stroke: the steam in the small cylinder is then reversed by the equilibrium valve, and passes round upon the upper surfaces of the annular and small pistons—putting the latter in equilibrium, and pressing with two-thirds of its entire force upon the annular piston, beneath which a vacuum is always maintained. The dead weight, aided by the pressure on the annular piston, descends freely, elevating the pump pistons, and consequently bringing up the load of water—which, when the engine is working at its full lift, will be 112 tons net, lifted 10 ft. high per stroke. The steam is used expansively in both cylinders; there are two air pumps of 40 in. diameter, and 5 ft. stroke.

These engines are similar to the Leeghwater engine, with the exception that the latter works 11 pumps of 63 in. diameter, and the others will have only eight, but of 73 in. diameter, also designed by Messrs. Gibbs and Dean, for the Haarlem lake, and manufactured by Messrs. Harvey and Co., and Fox and Co., which has been erected and put to work last year. Its performance has been of a most satisfactory character in all respects.

Hitherto the average consumption of fuel by engines employed in draining land, has been 15 lbs. of coal per net horse power per hour, and, in many cases, even exceeded 20 to 25 lbs. In the Leeghwater engine the expenditure in fuel is reduced to 2½ lbs. per net horse power per hour, or from less than one-sixth to one-tenth only of the former amounts. In the economy of draining land by mechanical means, this is as great an improvement on the old system as is the modern system of railways over the ancient means of locomotion.

The work performed by this engine is unprecedented: it is capable of discharging 1,000,000 tons of water in 25½ hours. When the three engines are established, and at work, they will discharge 2,800,000 tons of water in 24 hours; and as the contents of the lake of Haarlem (which covers a surface of 70 square miles) is estimated at 1,000,000,000 tons of water, the whole, allowing for contingencies, will be pumped out in about 13 months—a feat in hydraulic engineering totally without parallel.

The cost of engines, buildings, fuel, and workmen, to perform this operation, will be £140,000; by the old system of engines, it would have exceeded £240,000; and by windmills, £320,000—the latter requiring

four years to complete the work. Until the Leeghwater was established in Holland, the wind was almost the only prime mover employed to drain the land; a general prejudice existed against the use of steam engines, because of the enormous expenditure of fuel (seldom less than 20 lbs. of coal per horse power per hour) rendered them more expensive than windmills of equal power as regards the cost of annual maintenance—indeed, by the old system of engines, the annual cost of keeping dry the bed of the lake of Haarlem, when once pumped out, would be £5,000 greater than by windmills—although the certainty of always having a sufficient supply of power at command, when required, would have rendered it preferable in other respects; but, by the new system, it will be about £1,000 less per annum than by windmills.—England cannot boast of having made any great advance over the Dutch in the matter of steam land draining engines; for a commission, sent to England in 1840, found that the steam machinery employed in the fens of Cambridge and Lincolnshire, was not superior to that employed in Holland. With one or two exceptions the land drainage engines, hitherto erected, have seldom exceeded 30 horse power.

It is necessary to bear these facts in mind, to appreciate the vast stride made by the Haarlem Meer commissioners, when they determined to erect the largest engines in the world, upon a system for which they had no precedent; not only had they to overcome the difficulties presented by nature, but to resist the numerous and weighty interests connected with the old systems of drainage, whose hostility to any new system was unbounded, as may be easily understood, when it is considered that the windmill system was regarded by nine-tenths of the people as the perfection of mechanical ingenuity; 18,000 of these machines exist in Holland, and represent an average force of 90,000 horses power, of which amount 60,000 are required to keep the country freed from water.

But the commissioners, being fully impressed with the grandeur of the undertaking committed to their care, after a long and laborious investigation of the old systems of steam and wind drainage machinery, determined that, as the drainage of so vast a body of water by mechanical means was unprecedented, so should also be the machinery employed, and the brilliant results obtained show the soundness of their judgment.

The prejudices of the Dutch in favor of their windmills is not without a parallel in England, where, it will be remembered, the economy of fuel in the engines used in Cornwall, over the engines employed elsewhere, was demonstrated during 20 years by daily action of some scores of engines; notwithstanding which, nine-tenths of the English engineers persisted in declaring, that the economy was entirely fabulous; and it was only when a Cornish engine was brought from Cornwall to London, about seven years since, and set up at the East London water works, that their prejudices gave way.

The drainage of the lake of Haarlem was

first proposed in 1621, by a Dutch engineer, of great talent, known by the *soubriquet* of "Leeghwater," (which, in Dutch, signifies "the drier up of water"), from his great success in draining numerous lakes in North Holland. At that period, the proposition to drain the lake of Haarlem by mechanical means was one of great boldness and originality. It was proposed to erect a statue to his memory, when the present works commenced, but it was happily suggested, that a more fitting monument in honor of him could not be found, than the gigantic steam engine about to be erected to consummate the great work originally projected by him more than two centuries before—hence the name "Leeghwater" given to the engine, which also admirably expresses its functions. The other engines are called respectively "Cruquius" and "Van Lynden," after two other worthies, who subsequently proposed plans for the drainage of the lake. It does honor to the generous feelings of the commissioners, that they should thus do homage to the memories of those, who, by their talent and exertions, have been the pioneers of this great and national enterprize.

THE MENAI TUBULAR BRIDGE.—STRENGTH OF TUBES.

Mr. W. Fairbairn, and Mr. E. Hodgkinson, have both been engaged in extensive and independent sets of experiments, to ascertain the best form to give to the beams, to be employed in the construction of the tubular bridge, by which the Chester and Holyhead railway is to be carried over the Menai straits. Mr. Fairbairn's experiments may be said to have only established this general fact—that hollow beams of wrought iron are about three times stronger than solid beams of the same form. Mr. Hodgkinson's experiments had, for their special object, to ascertain what sort of hollow beam is the best—oblong, or square, or cylindrical. From the results which are shown in the following table, it will be seen, that the cylindrical are, [as might have been, and was in fact, anticipated by Mr. Hodgkinson,] the strongest of all, and the square next in degree:

Cylindrical Tube.		
Weight of tube.	External diameter.	Greatest resistance.
47 lbs. 10 ozs.	2.34	31,828 lbs.
45 " 15 "	2.99	37,356 "
59 " 0 "	4.05	47,215 "
64 " 4 "	4.06	49,900 "
Rectangular Tube.		
48 " 14½ "	4.01 x 4.01	19,649 "
65 " 8 "	8.15 x 4.01	23,279 "
82 " 0 "	8.01 x 4.01	43,663 "
91 " 1 "	8.00 x 8.00	27,545 "

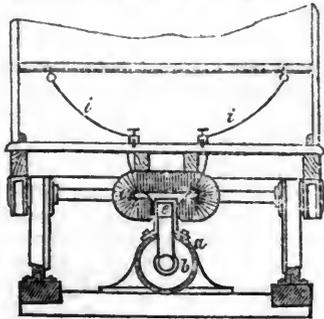
The rectangular tubes were all of plates 1-16th of an inch thick, and all simple rectangles, except the last but one, which had a partition in it, making it into two divisions. On the 14th inst., the railway company contracted for the construction of the first portion of this bridge, which is to be called the Britannia. It is 450 ft. span. The greatest span of any rigid bridge hitherto executed is 240 ft.—*Mechanic's Magazine.*

PROPELLING ON RAILWAYS AND CANALS.

William Hannis Taylor, of Piccadilly, gentleman, and Francis Roubiliac Condor, of Birmingham, civil engineer, for "certain improvements in propelling."—Granted Dec. 20, 1845; Enrolled June 20, 1846.

The object of this invention is to propel a train of carriages by means of electro magnetism in connection with the atmospheric principle, in the following manner; A tube *a* is laid betwixt the rails throughout the whole length of the line, having two pistons *b* mov-

ing within it, similar to the present mode of working atmospheric railways, with this difference, that in place of forming the connection between the piston and leading carriage by means of an arm passing through the longitu-



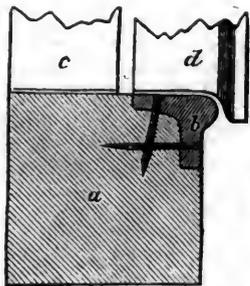
dinal opening, the inventors effect the above by means of powerful magnets *c* attached to one or more of the leading carriages of the train. On the top of the atmospheric tube *a*, which is provided with an opening of about three inches wide, there is firmly fixed a rectangular box of copper *d*, projecting above the tube about three inches, so that the longitudinal opening is covered as it were with an inverted trough. Within this box there is a piece of soft iron *e*, supported from the piston by means of a wood frame and arms *f*. The magnets *e*, are bent of such a form that the two ends or poles approach the sides of the copper box, or covering to the longitudinal opening, and fixed to the underside of the carriage; then being charged with the magnetic influence, by a galvanic battery, are attached by the piece of iron *e*, attached in the manner before described to the piston, so that the connection between the carriage and the piston is effected by means of powerful magnets, in place of an arm passing through the longitudinal opening as heretofore.*

NEW PLAN OF RAILS.

The following plan of rail has been patented by Moses Poole, of London, as we find in the Civil Engineer and Architects Journal, for June.

Moses Poole, of Lincoln's inn, in the county of Middlesex, gentleman, for "improvements in rails for railways." (A communication.) Granted Oct. 6, 1845; Enrolled April 6, 1846.

The invention consists in so constructing rails for railways, that the wheels of the locomotive engines may run on wood, and the wheels of the railway carriages may run on metal, as shown in the annexed figure; *a* is a rail of wood armed with iron *b*, on the inner edge, *c* the wheel of a locomotive, & *d* the wheel of a carriage. The wheels of the locomotive engine being thus removed from off the metal rail will not be so liable to slip, particularly in damp weather, as has been heretofore the case, when the locomotive engines and railway carriages of the train all run on the same metal rails.



* The application of the above principle will be found in the specification of a patent granted to Mr. Henry Pinkus, in the year 1831.

Grand Blast

At the Downhill Tunnels, Londonderry and Coleraine Railway.

The following description of an extraordinary blast may be useful as well as interesting to our readers.

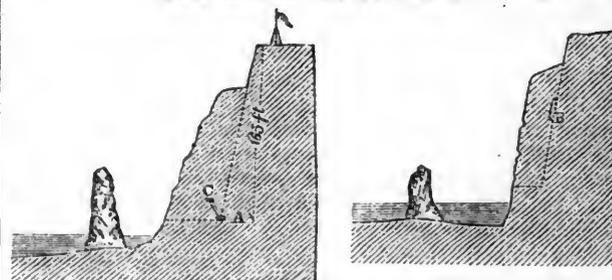
The novel nature of the undertaking proposed by the Londonderry and Coleraine railway company, has, from its first appearance before the public, invested that project with peculiar interest to the scientific and the monetary world.

Lough Foyle, a deep indentation of the sea on the northern coast of Ireland, covers a n area of about 60,000 acres. With the exception of the channel along the Donegal shore, leading up to the port and city of Londonderry, the tide in this lough does not generally rise more than six feet, and, at low water, a large portion of its area is left perfectly dry, exposing a slob formed of the richest alluvial deposit, capable of immediate conversion into valuable soil. The situation of the lough—almost land locked, protected from the swell of the Atlantic by its narrow entrance, and sheltered from the prevailing westerly winds by the mountainous nature of the country on the Donegal coast—is such as at once to suggest the idea of facility for shutting off the sea, and reclaiming a great portion of the slob land. In the session of 1837, an act of parliament, authorizing this reclamation, was obtained, and two enclosures were made, winning from the sea about 4,000 acres, upon part of which luxuriant crops have already been reared. In 1844, public attention became alive to the necessity for establishing railway communication between the important towns of Londonderry and Coleraine. The mountainous nature of the interjacent country, rendered a line inland impracticable, and the idea was conceived of combining the railway and the Foyle reclamation, making one embankment serve for both. With this object a company was formed; terms were arranged with the parties in whom the powers under the act of 1837; and in the session of 1845, the Londonderry and Coleraine railway company obtained its act of incorporation.

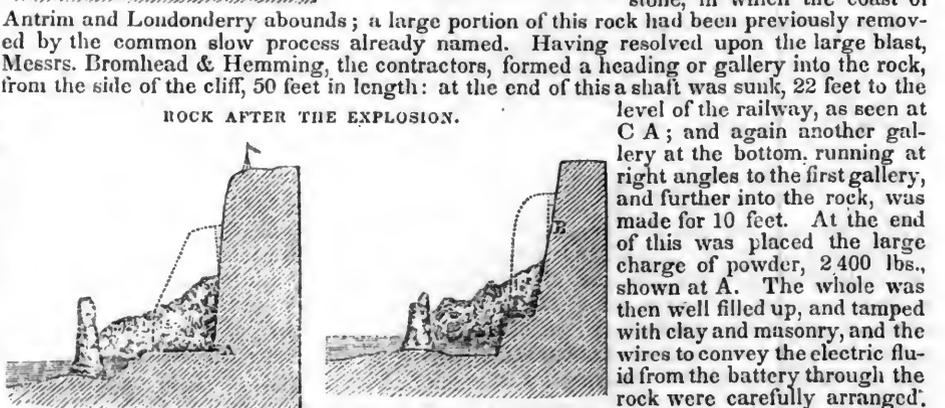
The length of line proposed by this company is 39 miles, including a branch to the town of Newtown-Limavady—15 miles to be constructed on an embankment through Lough Foyle; and by which embankment about 22,000 acres of land will be recovered from the sea. Of this reclaimed land, 12,000 acres are set apart to cover the expenditure on the railway. The works are now so far advanced, that by the end of the present year the directors anticipate being in a position to enclose and sell a portion of the land; and, as the works proceed, like portions may from time to time be enclosed and sold.

This line, after leaving Lough Foyle, proceeds eastward across Magilligan point, and along the coast towards Coleraine. About seven miles from the latter town, and close to Downhill, the beautiful residence of Sir Hervey Bruce, Bt., it passes through the cliffs between Downhill house and the sea by two tunnels, one about 700 yards and the other about 300 yards in length. The works upon those tunnels have been some time in progress by the ordinary process of picking and blasting; but it being deemed necessary to expedite their construction, it was determined to effect the removal of the obstructing rock by one grand blast.

ROCK BEFORE THE EXPLOSION.



ROCK AFTER THE EXPLOSION.



We are indebted to the Illustrated News for the following particulars relative to an extensive blast which took place at Downhill, about seven miles from Coleraine, on the 6th June last: "The mass of rock which it had been originally necessary to remove was at the western mouth of the large tunnel, and measured nearly 60,000 tons, the material being the hard basaltic stone, in which the coast of Antrim and Londonderry abounds; a large portion of this rock had been previously removed by the common slow process already named. Having resolved upon the large blast, Messrs. Bromhead & Hemming, the contractors, formed a heading or gallery into the rock, from the side of the cliff, 50 feet in length: at the end of this a shaft was sunk, 22 feet to the level of the railway, as seen at C A; and again another gallery at the bottom, running at right angles to the first gallery, and further into the rock, was made for 10 feet. At the end of this was placed the large charge of powder, 2 400 lbs., shown at A. The whole was then well filled up, and tamped with clay and masonry, and the wires to convey the electric fluid from the battery through the rock were carefully arranged.

The smaller charge, which was higher up in the rock, and which is seen at B, contained 600 lbs. of powder; and the gallery B F leading to it was about 70 feet in length; this was also tamped in a similar manner to the larger one. The galvanic battery, which stood on a shed on the top of the cliff, was a very powerful one, consisting of 18 cells, each cell about 14 inches square.

The operations were conducted by Mr. Hemming and Mr. Webb superintending engineer to the contractor. Mr. M'Leod, acting under Mr. Robert Stephenson, the engineer of the company, was present, with Mr. Langon, and other civil engineers. There were also seven-

ral royal engineers and scientific gentlemen, who had come from different quarters of the country to witness the explosion.

At the appointed hour some little delay occurred in connecting the wires with the battery; but, at half past three o'clock, the two poles were united, and instantaneously the bottom of the rock was seen to heave out for a moment, the mass of rock above stood trembling, and, cracking in a thousand fissures, rolled into the sea beneath. A deep and hollow sound was heard, like distant thunder, but no report. The quantity of rock removed must be upwards of 30,000 tons. The effect will be seen by referring to the accompanying profiles or sections taken through the lines *a a*, *b b*, in the front view, both before and after the blast. The result, in an engineering point of view, was perfectly successful, and reflects the greatest credit on the gentlemen superintending the operation.

The dotted lines show the quantity of rock to be removed. A is the larger chamber, containing 2,400 lbs. of gunpowder. c, the heading leading to it, which is 50 feet in length.—B, the smaller chamber, containing 600 lbs. of powder. A x, the line of least resistance—50 feet. From A to the top of the cliff—165 feet.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

Published by D. K. MINOR, 105 Chestnut St., Philadelphia.

Saturday, November 28, 1846.

ENGINEER'S OFFICE PHILA. WIL. & BALT. R. R. }
Wilmington, Del., November 18, 1846. }

PROPOSALS ARE INVITED FOR THE manufacture and delivery in Wilmington, of One Thousand Tons of Rails—to be made of the best iron used for rails, i. e., combining stiffness and toughness—and rolled so as to be perfectly sound, and exempt from flaws and liability to split at ends or intermediate points, or to crush or "spawl off," on the top surface.

Credits from delivery of six, nine, and twelve months—or discount of six per cent. for cash. Iron for wrought iron fastenings at ends to be included in the price of rails, viz: bars about 2 x 1/4 inch and 1/2 round iron, of best quality, for bolts.

Special contracts to be made on bills being accepted—rails of T form, about 62 lbs. per yard, and in lengths as follows:

80 per cent. of the whole.	20 feet.
10 " " " "	18 "
5 " " " "	16 "
5 " " " "	14 to 15 feet.

The inferior lengths are allowed, to work up such bars as may be defective at ends, Rails, etc., to be subject to inspection.

Proposals to be sent to the undersigned on or before the 10th day of December next.

J. R. TRIMBLE,

Engineer and Superintendent.

4448

Addison Gilmore, Esq., having resigned the office of treasurer of the Old Colony railroad, the directors made choice on the 2nd inst., of Uriel Crocker, Esq.

For the American Railroad Journal.

U. S. Hotel, Boston, Nov. 14th, 1846.

MY DEAR SIR: Knowing that you are desirous to obtain early intelligence in relation to improvements in railroad machinery, I avail myself of the present opportunity to examine and speak of the cars and locomotive engines built in the immediate vicinity of Boston.

I have often heard of the car establishment of Davenport and Bridges, of Cambridgeport, and made a short visit yesterday, that I might see for myself what they are doing. On my arrival at the place I found a variety of machinery in full operation, by which the various parts, as well the wood as the iron work, of a car are prepared. I then examined several cars which were in various stages of construction, and found their mode of putting their work together, well calculated to insure durability and economy in repairs. From the manner in which the sides are braced, stayed and covered on the inside, I am of opinion that there can be no sagging in the centre.

I saw several beautiful cars just completed, and ready for shipment to Havana, for one of the Cuba roads. They are fitted up with cane bottoms and backs to the seats, and are otherwise prepared for a hot climate, by having the windows fitted to drop down, so as to allow a much larger opening than is usual. The greatest recommendation however, of these cars, is to be found in their ease of motion on the road when under rapid way. This great advantage to the road as well as comfort to the passenger, is to be attributed to the peculiar construction of the truck, and manner in which it is connected to the body, which allows the body to move sideways without carrying the truck with it. I am told that several of these cars have been introduced on the Eastern road, and that there are two of them on the Boston and Concord, N. H., road, where they are highly approved. Would it not be well for the interest of other railroads to introduce these cars into general use? It would certainly be for the comfort of those who use them.

When I commenced this letter, I intended to refer also to the locomotive manufactory of Messrs. Hinckly and Drury, who have turned out some of the best locomotives built in this country, but find that I must defer it until another opportunity—and am sir very truly yours, H. C.

For the American Railroad Journal.

Railroad to the Pacific.

The adjustment of the Oregon question, the continued movement of emigrants towards the Western ocean, the conquest of California, and the prospect that the northern provinces of Mexico may eventually form part of the Union, lend new importance to the idea of a railroad between the Atlantic and the Pacific. The favor with which the plan of Mr. Whitney has been received in various sections of the Union, as well as at Washington, clearly indicate that some line will, ere long, be commenced, but the question remains, what route between the two oceans will be the most useful and beneficial.

Bold and comprehensive as is the plan of Mr. Whitney, some serious objections to it occur at the outset.

The first is the great length of the line from the Mississippi to the Pacific, by the route he proposes, the air line is at least 1,600 miles, and by any course feasible for a railroad must exceed 2,000 miles, while the entire distance between the Atlantic and the Pacific will exceed 3,000 miles.

The lowest charge at which goods are transported on our best railroads is \$1 50 per ton a hundred

miles, the average charge is much higher, but assume the lowest rate and the freight by railroad from the Pacific to the Atlantic, on a low estimate of distance, will amount to \$45 per ton.

How would such a charge operate on the trade of the Atlantic coast, and Europe with China?—Would it not be almost prohibitory?

A transshipment must be made on the Pacific—a further charge of at least \$15 per ton must be made, between China and Oregon, and the aggregate of \$60 per ton would be more than double the actual charge on the present route by water.

This necessary consequence would follow, that the commerce would be confined to the limited number of costly articles, like silk, specie, and valuable drugs, the saving insurance on whose value would counterbalance the excess of railroad freight. Passengers would doubtless avail of this direction, a few costly teas, a moderate amount of dry goods might occasionally be sent, but the great bulk of articles would still make the circuit of the cape of Good Hope.

Great as has been the progress of railway improvement it cannot yet compete with the flowing sheet and glancing keel on the open sea, for a great distance.

Compare the freight between Boston and Liverpool, a distance of 3,000 miles, with the lowest rates by railroad; while on the first route the average charge does not exceed \$6 per ton, or one-fifth of a dollar per ton for each hundred miles, the lowest rates by railway are at least seven fold that amount.

Or glance for a moment at the ocean steamers, between the Old and New World, and compare the few hundred tons of costly merchandize which they convey, at rates not materially varying from those of railways, viz: £7 to £10 per ton, (measurement ton), with the millions of bales of cotton, barrels of flour, bushels of wheat, corn and rye, and the vast masses of tobacco, iron, salt, and general merchandize impelled by sails across the atlantic.

If we cannot secure the patronage of American merchants to this route, how are we to attract that of Europe, or make it, as has been suggested, the great thoroughfare between Europe and China. The European merchant must add to the \$60, to which we have adverted, the further charge of \$6 by ship, or £7 to £10 by steamer, and the aggregate must be so disproportioned to the current rates by ship between Europe and China, as to deter him from any considerable patronage.

The object of government in constructing or aiding in the construction of a great highway, should doubtless be to accommodate the great masses of merchandize, and its preference must be accorded to such a route as shall secure such important advantages, and if there be a superior route, which can make the ports it unites, like ancient Tyre, Alexandria, Constantinople and Venice, the points of deposit of the commerce between Europe and the Oriental regions, that route must command the preference.

A second objection to the route of Mr. Whitney is, the fact that it passes, for 2,000 miles, through a wilderness, and cannot for many years build up a remunerating local traffic. The lines in this country which transport at low rates are enabled to do so by a large local business; but this long line must for years be denied this advantage, and thus be crippled in its power to transport merchandize at low rates, and unless extended from the Mississippi to the Atlantic, must be dependent for its connection with the eastern coast, on a combined

system of canals, railroads, and lakes and river navigation, interrupted often by ice or drought.

A third objection to the Whitney enterprize is, the vast capital it must absorb. For such an enterprize, including bridges and viaducts, cars and engines \$30,000 a mile, or ninety to a hundred millions, is a moderate estimate; and whether paid for in lands or money, the absorption of capital to such an extent is a matter of serious moment, if a cheaper route can be presented. I will not say such sum alone should deter a great nation from a great object, but it is not to be disregarded in a new country where capital has not yet accumulated, and has still so much to accomplish.

A superior route from the Atlantic to the Pacific, follows as near as may be, the tropic of Cancer across the continent. This line protracted, sweeps by the southern capes of the two great peninsulas Florida and California, and crosses the American continent at a point where it is less than 480 miles in width; a distance just adequate to surmount the table land by a railroad with moderate grades.

The tropic of Cancer passes nearly over the Havana, strikes the coast of Mexico a little to the north of Tampico, crosses the northern provinces between Zacatecas, Chihuahua, thence nearly over Mazatlan, a sea port on the Pacific much resorted to by our ships of war, thence passes over the Sandwich Islands, the great resort of our whale ships, and proceeding westward between Manilla and the Japan islands, strikes China close to its principal entrepot, the great city of Canton. The route would be nearly direct from *New Orleans to Canton*.

Assuming that the length of a railroad would exceed the air line twenty-five per cent, the whole length of the proposed line would not exceed 600 miles; and assuming the same cost per mile allowed for Whitney's road, or \$30,000, the entire cost would not exceed \$18,000,000, or less than one-fifth the cost of the Whitney railroad.

The charge for freight at the rate conceded to the Whitney railroad, would be \$9 per ton. Assuming an average freight from New Orleans to the eastern terminus of \$2 50 per ton, and a freight of \$16 per ton from Mazatlan to Canton, and we have an aggregate freight of \$27 50 per ton from New Orleans to Canton in place of \$60 by the Whitney road, from the Atlantic coast to Canton. The average freight between New Orleans and Europe does not materially vary from \$10 per ton; outward it is more, and inward materially less, as ships often return in ballast. If we add this to the \$27 50, we have an aggregate of \$37 50 between China and Europe.

At this rate a large portion of the trade between Europe and China, California, Oregon and Peru, induced by the saving of time and insurance, must eventually take this course, while the major part of the commerce between the United States, the British Provinces, West Indies, and South America on the one side, and China, Manilla, Chili, Peru, California, and Oregon must fall into this channel.—By the route proposed, a passenger taking steam at New Orleans, may in four days reach Tampico or New Santander, in two more Mazatlan and by steam packets, Canton in thirty-four more, in all forty days. Starting from St. Louis, the future centre of the west, four days carries him to New Orleans.—And before the proposed line can be finished the completion of a chain of railroads must bring Boston the gateway to Europe, within five and perhaps four days of New Orleans.

From Mazatlan to San Francisco a line of steam packets may convey a passenger in 5 days, so that

the weary emigrant, who is now from May to October, on his journey to California, may in fifteen days from St. Louis, reach the land of promise.

Another effect of the line would be an easy access to Chihuahua and Zacatecas, reputed to be the richest mining districts of Mexico and open an inlet for our manufactures into the heart of Mexico itself, by the great inland road, along the table land from Monterey to Mexico, a connection which would doubtless, repay us for all the expenses of the present war.

Another advantage, common however, to both lines would be secured. American ships now excluded from the direct trade between China and most countries in Europe, could transport goods between China and the western terminus of the railroad, and thus command a vast freighting business.

The route suggested might commence either at Tampico, Santander, or Brazos, Santiago, as the face of the country should prove most inviting, or the greatest facilities exist for forming a good harbor, and in case the country south of Chihuahua should in the settlement with Mexico, be released to that country, a route a little longer, but possessing most of the advantages of that proposed, might be opened from Corpus Christi or Aransas to Gnyamas one of the most eligible ports on the Pacific.

In addition to this, if the railroad of Mr. Whitney can be built with the proceeds from the contiguous land, the territory on the borders of this route may be made to contribute to the cost without impairing the fund flowing from our public sales.

But it may be urged that a more southern route might be adopted, crossing the isthmus of Darien by a shorter passage. Granted, but this line lies 1,500 miles to the south of the direct route from cape Florida to Canton, and vessels bound from the ports of the Union to Canton or California, must if this line be taken, sail an extra distance of several thousand miles, and make the transit at a port almost beneath the line, and nearly 2,000 miles distant from the southern border of the Union. These are serious drawbacks, and must have weight in deciding this question.

But it may be urged that the route proposed, is through Mexico, and not through land of the United States. Granted, but for this reason it now demands the consideration of the public.

Nearly all the country in question is now in our possession. Large claims exist against Mexico, which she cannot liquidate, except by land.

The country is thinly populated north of a line from Tampico to Mazatlan, less than 700,000 people exist, nearly half Indians, and retrograding in numbers.

The country is in great part adapted to the vine, to raising of cattle and sheep, abounds in mines and minerals, and will furnish a vast reservoir to absorb our increasing numbers and restless spirits. The acquisition of these provinces will give us a front on the Pacific equal to our front on the Atlantic, many noble ports of infinite value to our commerce, nurseries of seamen and of trade in peace, and safe harbors of refuge in war.

Our great rival, England, has ports and fortresses in every commanding position on the globe except the Pacific.

It has been her policy, both by wars, treaties and discoveries, to secure such salient points. In our wars and in our treaties with Mexico let it be the policy of the Union, as far as may be consistent with justice, to secure such positions and such territory as shall give us means for future development and improvement, which shall enable us by the mighty power of

steam, and the electric wire, to bind together the sinews of this great empire.

Welcome then will be peace, if millions have been expended, great objects will have been accomplished, and our armies beating their swords and bayonets into the spade, and the pick may move onward in the path of improvement instead of blood, and rival the armies of Great Britain, France and Germany, who now, to the number of 200,000 are waging war on physical obstacles, whose steel glances upon the rock or buries itself in the earth, whose artillery echoes from the ledge, whose music, instead of the ear piercing fife and spirit stirring drum, is the shrill whistle of the locomotive. Before whom the mountains bow, and the vallies are exalted, in whose train art, science, and civilization are triumphant attendants.

E. H. DERBY.

English Iron Trade.

By the late arrivals we have our foreign journals to the 31st October, inclusive, from which we gather the following in relation to the iron trade.

The Mining Journal, of October 24th, says that "a fair business is doing in all descriptions. Scotch pigs gave way a little during the week, but have recovered, and holders ask rather better prices."

LONDON, OCTOBER 23, 1846.

	£.	s.	£.	s.	d.
Bar a Wales—ton	8	15	9	0	0
" London	0	0	10	0	0
Nail rods	0	0	10	15	0
Hoop (staf.)	11	5	11	10	0
Sheet	0	0	13	0	0
Bars	11	0	11	10	0
Welsh cold blast foundrey pig	5	5	5	10	0
Scotch pig b Clyde	3	10	3	12	0
Rails, average	0	0	10	0	0
Russian, CCND c	0	0	0	0	0
" PSI	0	0	0	0	0
" Gonrieff	0	0	0	0	0
" Archangel	0	0	13	10	0
Swedish d, on the spot	0	0	11	10	0
" Steel, fagt	0	0	16	0	0
" kegs e	14	0	14	10	0

a, discount 2½ per cent.; b, net cash; c, discount 2½ per cent.; d, ditto; e, in kegs ½ and ¾ inch.

To the Editor of the Mining Journal.

Glasgow Pig Iron Trade.—Sir: The market, since our last, has maintained its firmness. A large business has been done at price little varying from the quotations then given. Today the market is firmer, and the prices may be quoted 71s. for mixed Nos., and 72s. 6d. for No. 1. DOUGLAS & HILL, Metal Brokers. Glasgow, October 21.

The business of quarter day is now fairly brought to a close, and the prices at which iron is to be purchased for the ensuing quarter pretty well understood. We will, therefore, this week, endeavor to record them, as near as we are able, for the use of our own immediate district. That a greater amount of business has been transacted upon the like occasions, we do not wish to dispute—particularly at the closing meeting at Dudley, on Saturday evening; nor do we think this a circumstance at all indicating any unsatisfactory state of the market, accompanied as it was by the easy and satisfactory arrangement of all the transactions then entered into, but merely the result of a superabundance of orders previously upon the manufacturers' books, and a legitimate caution on the part of those who are fondly anticipating higher prices. From the most accurate information to which we have access, the best cold blast melting pigs No. 1 are realizing upon an average £5 15s.,

and are exceedingly scarce in the market—as are No. 2 of the same description at 5s. less. The same quality of pigs for forge purposes may also be quoted at £5 5s. on the average. This article is growing quite antiquated, and bids fair shortly to become a thing of by-gone times, while it is being superseded by the produce of furnaces where one or more hot air tuyeres are introduced, and which is now fetching about £5 per ton. As for the hot air, raw coal, north Staffordshire mine, and cinder pigs they take their appropriate gradations in the downward scale—the lowest price at which we have heard of a sale of this amalgamation metal being £4 3s. 4d. In manufactured iron we still find merchant bars have been bought a shade under £10., as also rails, which, being generally purchased in large quantities, bear a lower proportionate price than other sorts of iron. Hoops at about £11 10s., and sheets and plates from £12 to £13; and lastly, nail rods, to which formerly a very considerable portion of the iron manufacturer in this district was appropriated, will be found to average £9 15s. Considerable parcels of these are yet in the hands of speculators, but the warehouses of the nail masters are far from that state which would, by medical men, be designated repletion. The same remark will also apply to most other descriptions of iron and steel, the stocks in the hands of the manufacturers of hardware articles of every description being very light.

The reports of October 30th are not quite as favorable, rails being quoted at £9 10 and £9 15 per ton—other kinds remaining about the same as last week's quotations, with a moderate demand.

Railroad Improvements.

Under this caption, we notice in an eastern paper that the parties interested in the charter for a railroad from the New Hampshire line to Portland, [Me.,] and connecting with the Boston and Maine, road, have made arrangements for the survey of a route. The survey was to be commenced yesterday, by Jas. Hall, Esq., late of this city, beginning at the village of Great Falls, thence to continue through or near the villages of Sandford, Alfred and Gorham to Portland.

The Portland Advertiser says they are informed also, that early proceedings are contemplated under the charter of the Kennebec and Androscoggin road. This important route, extending from near Lewiston to Waterville, will command great attention, when its position and relations are fully understood. We published a notice of a meeting of the corporators a short time since, and we learn that active measures are in progress along the line to secure subscriptions to the stock, preliminary to an organization. From the spirit manifested by those immediately concerned, great confidence is felt that the present efforts will be successful.

"An editorial in the Bath Tribune," says the Advertiser, "notices some former remarks of ours, in relation to this Lewiston road, and enters into a comparison showing the superior necessity and importance of a railroad for the river towns, as they are called.

"We have no intention, and never had, to deny that the populous towns on the Kennebec river, are entitled to seek a railroad communication westward. We contemplate no such thing as the separation of those towns from the benefit of a proper railroad system, as the Tribune will perceive, by reference to the article on which it comments.—But we indicated methods by which Gardiner and

Bath might enjoy the benefit of railroad to Portland and Boston, without the heavy and utterly unproductive expenditure necessary to build the 20 miles of road between those two places. We are convinced that this is a point which needs more attention in some quarters. All must admit, that steamboat competition will be a heavy drawback upon the energies of Bath, Gardiner, and the neighboring towns, in whatever attempts they make to construct railroads, and why they should exhaust any part of their resources in the unnecessary and unprofitable outlay upon the margin of the river between Bath and Gardiner, is a point that has not yet been demonstrated."

The Magnetic Telegraph.

HON. AMOS KENDALL publishes a letter in the Washington papers, giving the following in reference to the telegraph. He says that:

"Lines are now in operation from this point to Washington, Buffalo and Boston; making an aggregate, as the wires run, of about 1,030 miles. The result of the late election in Buffalo was known here before it was ascertained from a single ward in this city and was published the next morning in Boston and Philadelphia, and at Washington that evening.

"The conviction is now general, that the telegraph must have stronger conductors than copper wires; and the Washington and Boston companies are preparing to cover their lines with iron. An iron cord has been up during the season, from Philadelphia to Baltimore, and with far superior strength is found in every other respect to answer the purpose as well as copper.

"Lines have been built from Boston to Lowell; from Troy to Saratoga; from Syracuse to Oswego; from Auburn to Ithaca, which is progressing to Elmira; from Buffalo to Lockport, which is to be extended to Lewiston, to be connected across the Niagara, with a line to Toronto; from Philadelphia to Harrisburg, to be extended to the west. This is covered with a beautiful cord. The length of the lines now constructed, is about 1,300 miles.

"A line is in progress from Boston to Portland.—Preliminary steps have been taken for the construction of a line from Buffalo to Detroit, and thence through Chicago to Milwaukee, a distance of about 800 miles, to be finished in 15 months. The New York and Washington company having obtained the right of way along the railroads through New Jersey, are rebuilding their line on the direct route, and expect in two months to have up two good iron wires from New York to Baltimore.

"A line will be immediately put up from Washington to Petersburg, Va., if there be no difficulty about the right of way; and none is apprehended.—An effort will be made immediately to raise the necessary funds to carry the southern line through to New Orleans next season.

"To us who know the capabilities of this invention, it is strange that the government has not seized hold of it as a most powerful auxiliary in the war with Mexico. I do not hesitate to say that, by a line to New Orleans, not costing more than two hundred thousand dollars, more than one million of dollars could have been saved since this war broke out, and greater activity given to many of its operations.—The armistice of Monterey could have been shortened two weeks or more; and within that time, in all probability, Saltillo captured, and progress made towards peace. And when peace comes, how many lives may be saved by gaining a week in communicating the intelligence to the army and navy!

"The people of the west are becoming zealous in favor of the telegraph, and another season will not pass before it will reach Cincinnati, and be on its way to St. Louis. A line from New Orleans to connect with this at Louisville, and a line to connect both with the lake telegraph, will be very valuable, and will complete the main sinews of the system of telegraph for these United States.

"With high consideration, your obedient servant,
"AMOS KENDALL."

Explosive Cotton.

A good deal has been said of a "recently discovered invention" in the shape of "gun-cotton," or "cotton gunpowder." The Washington Union of a late

date, says that "experiments have been made at the arsenal in this city, this morning, with the 'ballistic pendulum,' in presence of the intelligent officers of that institution, the secretary of war and some of his officers, and some of the officers of the army, under the auspices of Col. Talcott."

An exchange informs us that Mr. Robertson, the American consul at Bremen, who returned to this city in the Britannia, and has just arrived at Washington, has, "brought out a sealed packet from Prof. Schonbein, with an admonition that it was to be opened only in the presence of the president of the United States. It contained some specimens of the gun or prepared cotton, with hints about the mode of preparing it. The discovery gains additional confidence throughout Europe."

The N. Y. Courier and Enquirer has the following, in relation to the matter.

"The discovery is claimed by several scientific men abroad, though it was introduced to the British association, by Prof. Schonbein, 'gun cotton.' This is a substitute for common gunpowder, which is composed of 75 parts of nitre, 15 of charcoal, and 10 of sulphur; the latter ignites and fires the charcoal, which generates heat sufficient to turn the nitre [or saltpetre,] into gas, many thousand times its own bulk, thus exerting a prodigious explosive force.—The only use of the sulphur is to convey the flame through the mass; the gas, or explosive force, coming entirely from the heated nitre. Common cotton is nothing more than wood in an excessively minute fibrous state, and dipping this substance into nitrous acid, the acid converts it instantly into charcoal, which, after frequent immersion the acid is withdrawn and the charcoal remains strongly impregnated with nitre. This then, is genuine gunpowder of the best kind, for the fibres are so minute and regular that the flame once applied, passes immediately through them, which is all that is wanted, and which is the great desideratum in common powder, the aim being to get the grains round in form and of the same size, the sulphur being mingled merely to convey the flame all through the different parts. This sulphur is not needed with the cotton, as the fibres are so uniform and the saturation of the nitre so perfect, that flame when once applied is disseminated in an instant, and gas is engendered of immense explosive power."

A letter in the Boston Courier thus accounts for this "mysterious invention."

"The preparation is said to be much stronger than powder, and possess the great advantage of not soiling the gun barrel. Prof. Otto, of Brunswick, has disclosed the mystery; saying that as soon as he heard of it, he went to experimenting, and having succeeded in his researches, he publishes the results immediately, in detestation of a scientific man, who would make science venal: All that is necessary is to soak the cotton in fuming nitric acid; then wash all the acid off by rinsing the cotton two or three times in water, and dry it. This is all. The cotton becomes as explosive as gunpowder, and if fine and well prepared, it will explode by being struck with a hammer upon an anvil."

Cleveland Railroad.

We understand that a committee have arrived in Baltimore from Cleveland, for the purpose of opening the books for subscription to the stock of the Cleveland and Pittsburgh road. The Gazette, in an article, enumerating the advantages which must accrue from the establishment of this route, holds the following language:—

"We wish to call the attention of our Baltimore friends to the cheering prospects which this road opens up to them when they shall have, with us, carried the Conneville road to a completion, and shall have united by this means, the waters of the Chesapeake with those of the Ohio.

"This Pittsburgh and Cleveland road passes through Columbiana county, Ohio, within about 43 miles of Wooster, which is on the route of the great Cincinnati, Columbus, and Cleveland railroad passing through the centre and richest part of Ohio. When these contemplated roads are finished, there-

Concessions authorised, but not completed.—Four grants authorised in 1845 and 1846, remain to be completed: Corbeil and Melun, Dijon and Mulhouse, Auxonne Branch, Montbeillard Branch, Dole and Salins, St. Dizier and Gray. Total length 476 kilometres (296 miles.) It is estimated that the state will contribute 20,000,000f. towards the completion of each of the two principal lines. The capital is intended to be supplied as follows:—

Share capital.....108,000,000f.
Subscription in money by the state. 20,000,000
Subscription in works by do. . 20,000,000

Total.....(£5,920,000)....148,000,000f.
Estimated cost per mile, £20,000.

Concessions to be made.—The central sections of Chateauroux to Limoges, from Bec d'Allier to Clermont and Nevers branch. The Bordeaux and Bayonne, with branches. These are likely to be granted in 1847. Aggregate length of both lines 520 kilometres, [324 miles] will be carried into execution according to the conditions of the law of 1842; the expense is estimated as follows:—

Share capital.....70,000,000f.
Subscription in works by the state. 82,900,000

Total.....[£6,116,000]...152,900,000f.
Estimated cost per mile, £18,877.

The following is a synopsis of the preceding:—

Lines in operation	Length of Lines, English miles.	Estimated Expense.
“ partial operation.	523.....	£12,152,000
“ shortly to be in operation.....	673.....	12,600,000
“ constructing.....	351.....	8,380,000
“ lately conceded.....	958.....	21,720,000
“ authorised to be conceded.....	1,040.....	23,120,000
“ not yet authorised	296.....	5,920,000
“	323.....	6,116,000

Total.....4,164.....£90,008,000
Estimated average cost per mile, £21,617.

Of the 90 millions above stated, the French government are to contribute £3,200,000 in money, and £16,436,000 in works; total, £19,636,000, as an inducement to carry out the great lines of railway communication in France, nearly the whole of which, by the contrivance of the government, will be gradually absorbed by the state in the course of 30 or 40 years.—*Journal des Chemin de Fer.*

“Mammoth Engines.”

In 1829 a locomotive engine weighing over five tons, was considered so much of a “mammoth,” that it was not allowed to compete for the prize, but now it requires a 25 to a 36 ton engine to be called a mammoth! as will be seen by the following paragraph from the London Mining Journal.

“The Great Western company continue to turn out new engines even of more stupendous build than any before. A splendid one, the *Elk*, has just been slipped off the anvil, to be specially employed in the express train service. The *Elk* was designed by Mr. Brunel, under the superintendence of Mr. Gooch; her dimensions are—driving wheels 7 ft. diameter, stroke 18 in., cylinder 16 in., boiler 14 ft.; weight of engine, without water, 25 tons; weight of tender, without coke or water, 9 tons. Though the machine cannot be expected to be as yet in proper working order, she was attached to an express train with six carriages, and performed a distance of 77 miles, [from Swindon to Paddington,] in 1h. 20m. The down journey was not so rapid, having been 1h. and 31m. performing it. Besides the *Elk*, the following large locomotives are in working—the *Great Western*, diameter of driving wheels 8 ft., cylinder 18 in., stroke 24 in., boiler 16 ft.; weight of engine, without water, 36 tons; weight of tender, without fuel or water, 10 tons—making a total of 46 tons: this engine was built for passenger trains upon the same plan as the *Elk*. The *Prince* and the *Queen* engines are of the same dimensions, and are also for passenger trains. The *Bellerophon* and the *Premier* are luggage engines, having 6 wheels of 5 ft. in diameter, connected; the dimensions in other respects, and their respective weights, being similar to the *Great Western* passenger engine. These luggage engines are decidedly the most powerful, and surpass in power and speed the *Hercules*, which impel-

led a train weighing 406 tons, in the experimental trip with the gauge commissioners.”

Will some one tell us what will in the year 1866, constitute a “mammoth engine?”

Miscellaneous Items.

East Shore Railroad.—The Hampshire Gazette informs us that the Hampshire and Franklin railroad company, and the Mount Holyoke railroad company have severally voted to accept their charters, and have been organized, the former by the choice of John Leland and Chas. Adams, of Amherst, Horace Henderson, of Sunderland, John S. Ward, of Montague, and Sam'l Powers, of Hadley, directors; Hon. John Leland, president, and John S. Adams, clerk and treasurer; the latter by the choice of Wm. Bowdoin, Alonzo Bardwell, Erasmus T. Smith, Moses Montague, and Hiram Smith, all of South Hadley, directors; Hon. Wm. Bowdoin, president, and E. G. Bowdoin, Esq., clerk.

Meetings of the two corporations are to be held on Wednesday, the 4th of November, to act upon a proposition to unite the two companies under the name of the Hampshire and Franklin railroad company, according to the provisions of the charter of the Mount Holyoke company. The Amherst Express says, that A. F. Edwards, of Fitchburg, engineer of the Vermont and Massachusetts railroad has been appointed engineer, and explorations and surveys, preparatory to a location of the road, will be commenced this week.

Souhegan Railroad.—The Concord Patriot states that the “Concord, [N. H.] railroad corporation has indefinitely postponed the consideration of assuming the construction of the Souhegan railroad. The subject has created a good deal of excitement among the stockholders, and 17,000 out of 20,900 shares were represented on the occasion. The majority for indefinite postponement was 1,726. The Concord road has been one of the most successful enterprizes of the kind that was ever established in this country. It divides 10 per cent. annually, and its shares readily command over 30 per cent. premium in the market. The gross earnings last year were \$223,479; expenses \$135,050—leaving \$73,429 net, out of which, two dividends, of 5 per cent. each, were paid on 16,000 shares, the par value being \$50 each, and \$13,424 added to the contingent fund. The second track laid down by the Nashua and Lowell railroad, the past year, has greatly facilitated the business of the line, which has induced the directors of the Concord road to construct a continuation of it between Nashville and Manchester, and for this purpose 4,000 new shares have been created and taken by the stockholders, the premium upon which has been an extra dividend in effect.

Cheshire Railroad.—The work on the Cheshire railroad, we are happy to hear, is being pushed forward with a strong force. A large number of hands are at work on the summit cutting beyond Keene and at other difficult points. It will be a magnificent enterprize when completed, and will afford to the traveller, from the elevation of various portions of the road, some of the most picturesque and beautiful views in the country.

Vermont Central Railroad.—The work on the Central railroad, we hear, is progressing in the most satisfactory manner, under the personal superintendence of Gen. Belknap. Those wonderful machines the steam excavators, are still at work in the great cut at the Hour Glass, in Windsor, and will get through in about four weeks. The masonry on the line is also in progress, and the grading between Montpelier and Burlington, now under the immediate charge of Mr. Belknap, is also going on favorably.

Phoenixville Rolling Mill.—The extensive rolling mill belonging to Messrs. Reeves, Buck & Co., at Phoenixville, Chester county, is almost completed and will go into operation in a few days. This rolling mill is intended for the manufacture of railroad iron, and is one of the largest in the country. It will produce about 9,000 tons per annum.—*Miner's Journal.*

The Bangor Gazette says the progress of the Atlantic and St. Lawrence railroad has awakened the attention of the people in the interior and seaboard west of the Kennebeck to carry forward the project

for the routes, one from Portland to Augusta, the other from Lewiston to Waterville. This latter is an important and feasible plan, as it connects with the Atlantic and St. Lawrence, runs through fine interior towns, on an easy grade, and aims directly for this city by the best and directest line. From Waterville to Bangor the track was surveyed years ago and was found to be not only feasible, but one of the most practicable ever surveyed. Very little excavating or raising is necessary in the whole distance.

Railroad Election.—An election for directors of the Mad river and lake Erie railroad company was held at Bellefontaine on the 19th inst., which resulted in the choice of the following gentlemen:

Sam'l Keener, Erastus Sheldon, Champaign; F. M. Follett, D. C. Henderson, Erie; S. G. Harkness, Huron; R. W. Shawan, Seneca; S. M. M'Connell, Hardin; R. E. Runkle, Logan; Wm. Hunt, Clark county.

Appointed by the governor.—Samson Mason, Clark; Elutherus Cooke, Erie; Moses B. Corwin, Champaign county.

Wm. Hunt, of Clark county, was unanimously elected president of the board.

We understand that the road will be finished to Urbana by the opening of navigation in the spring. The work north of Bellefontaine has been somewhat retarded, in consequence of the ability of the company to bring down the iron, as it requires the entire locomotive force of the company to carry off the produce along the line and bring down the freight from the lake.—*Urbana Citizen.*

New York and New Haven Railroad.—The Journal of Commerce furnishes the following gratifying intelligence relative to the contemplated railroad between New York and New Haven.

We are most happy to announce that such a contract has actually been made, and \$1,900,000 of the stock taken without reserve, on condition that the remaining \$600,000 shall be subscribed within a specified period.

The terms of the contract require the entire work to be completed in one year from the 1st of January next. A shorter period would have been insisted on but for the physical necessity of occupying nearly or quite a year in the construction of the bridge over the Housatonic river.

New Haven, Hartford and Springfield Railway.—A large force is employed in rebuilding the bridge over the Connecticut river at Windsor locks; and the piers, which were uninjured by the storm, are already surmounted with the greater portion of the frame work. In a few weeks the cars will run without interruption over the whole line. At present passengers are transported through the canal around the Enfield falls, in the smart little steamer S. B. Stone; and in fine weather, the pleasant relief thus afforded to the monotony of the railway car, amply compensates the traveller for the trifling retardation incident to the change.

The business of this road is managed with a degree of promptness and despatch that might be imitated with advantage on some of the lines in our state.

An act to incorporate the Providence, Warren and Fall river railroad, has passed the Rhode Island legislature.

Little Schuylkill Railroad.—We are pleased to learn that the wooden track of this road is about being replaced with a heavy iron T rail. The contractor is Mr. Bernard Flynn, and the rails will be made at the new rolling mill of Messrs. Reeves, Buck & Co., at Phoenixville, which will be in operation in a few days. The coal trade from that quarter, which will reach nearly 100,000 tons this year, will be largely increased by substituting a good iron road for the present delapidated concern.—*Pottsville Journal.*

Central Railroad.—The Buffalo Advertiser remarks that people abroad may form some idea of the amount of the business on the Central railroad, and of the amount of the produce exported from Michigan, the Detroit Advertiser states that there were brought to that city over the road, on Friday last, no less than 4,400 bbls. of flour, and wheat enough to make the amount 5,000 bbls. Each of the locomotives brought in a train of 50 cars, loaded down.

Improvements in Locomotive Engines.—Messrs. G. Stephenson and W. Howe's improvement in locomotive steam engines consists in the application of three steam cylinders to locomotive engines—two to be of the same diameter and capacity, and together to be equal in capacity to one large cylinder. The pistons of all the three cylinders are to move simultaneously in the same direction; the large cylinder is to be placed exactly in the longitudinal central line of the engine, and the other two cylinders on each side at equal distances from it. The piston of the centre cylinder is to drive a crank on the axle of the impelling wheels, and the pistons of the two smaller cylinders are to be connected with crank pins fixed on the navies of the driving wheels; the crank to be fixed at right angles to the crank pins. The intention of this arrangement is to neutralise any tendency that the oblique action of the connecting rods on their crank pins may have to produce a lateral vibration on the supporting springs of a locomotive when travelling very rapidly.—*Mining Jour.*

Canal and River Navigation.—A new method of propelling canal boats has been recently patented, which consists of a combination of steam power and warping. In the middle of a flat bottomed barge, with rudder at both ends, (Janus fashion,) there is placed a steam engine, which causes two rollers or drums, fixed in bearings at opposite ends of the vessel, to revolve; these are alternately employed to wind upon a wire rope, either laid at the bottom of the canal attached to moorings, or fixed to posts at the side. Experiments were recently made at the Maida hill tunnel, and were quite successful. The steam-tug drew at a speed of nearly 6 miles an hour several heavily laden barges, without causing any greater swell than that usually occasioned by the passage of a single barge. To all interested in canals, this discovery is of the utmost importance, since the extension of railroads threatens to render canals almost useless, it being impossible for animal power successfully to compete with steam, and the common steam-tug, with paddles, being unavailable for the purpose, on account of the great swell they cause destroying the banks.—*Mining Journal.*

RAILWAY IRON.—DAVIS, BROOKS & Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.
Nov. 16, 1846.

RAILROAD IRON.—100 TONS RAILROAD IRON [Bridge pattern] for sale low to close a consignment by
JOHN F. MACKIE,
189 Water street.
November 7th, 1846. 1m45

RAILROAD IRON.—1000 TONS HEAVY H Railroad Iron, 60 lbs. per lineal yard, expected to arrive within the next 30 days. Apply to
DAVIS, BROOKS & CO.,
October 9. [10142] 68 Broad St.

LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by
MORRIS TASKER & MORRIS,
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 1tf

PATENT INDESTRUCTIBLE WATER PIPES. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.
J. BALL & CO. 28tf

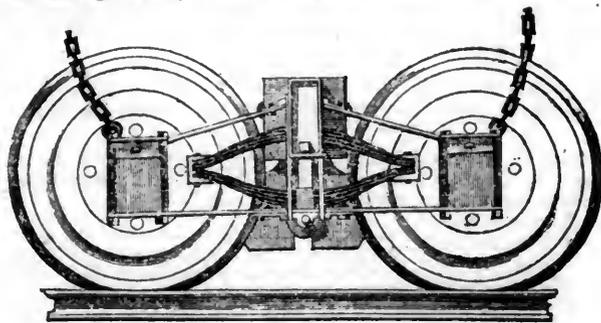
SPRING STEEL FOR LOCOMOTIVES, TENDERS AND CARS. The Subscriber is engaged in manufacturing Spring Steel from 1 1/4 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address
JOAN F. WINSLOW, Agent,
[Albany Iron and Nail Works,
46tf] 46tf

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them. It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable. Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York. Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee
G. A. NICOLLS,
ja45 Reading, Pa.

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons of finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported. PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.
REEVES, BUCK & CO.,
45 North Water St., Philadelphia,
or by their Agent, ROBT. NICHOLS,
79 Water St., New York. 28tf

THE SUBSCRIBERS, AGENTS FOR the sale of
Codorus,
Glendon,
Spring Mill and Valley, } Pig Iron.
Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted. They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.
SAML. KIMBER, & CO.,
59 North Wharves,
Jan. 14, 1846. [1y4] Philadelphia, Pa.

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846. W. H. CALKINS, and Others.
To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] WILLIAM ROE, Sup't of Power.
I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.
Reading, Pa., October 6, 1845. [Signed,] G. A. NICOLL,
Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.
[Signed,] T. L. SMITH,
Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.
Long Island Railroad Depot, } [Signed,] JOHN LEACH,
Jamaica November 12, 1845. } 1y19 Sup't Motive Power.



RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open.

JOHN BATAILLE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was preched by the extreme heat.

RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed,)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138 1/2 Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

** The letters in the figures refer to the article given in the Journal of June, 1844. ja45

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J., or 60 Wall street, N. York.



PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

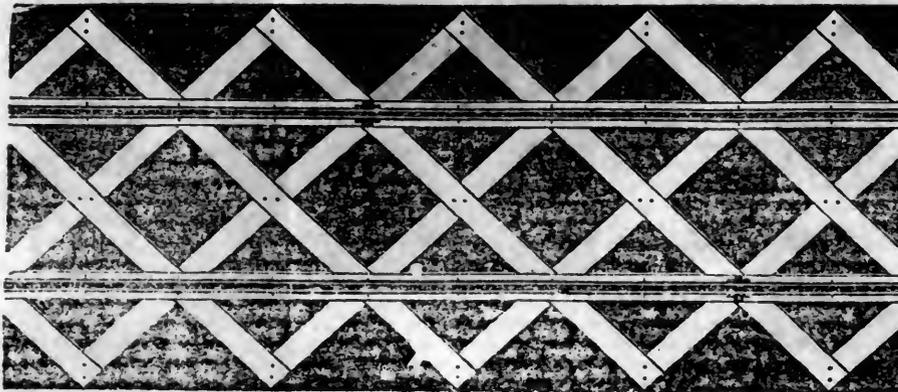
ja45

DAVENPORT & BRIDGES CONTINUE to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

ly1

THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

THE UNDERSIGNED RESPECTFULLY invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.	
4,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 = \$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 = 57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge. =	600 00

Cost of one mile including the laying of the Rail. \$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.
Civil Engineer and Patentee.
No. 277 South Tenth St., Philadelphia. 33tf

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

Wire gauge number.	WIRE ROPES.		HEMPEN ROPES.		CHAINS.		STRENGTH Tons.
	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.	
11	4½	13 5	10	24 -	50	15-16	20
13	3½	8 3	8½	16 -	27	11-16	13½
14	3½	6 11	7½	12 8	17	9-16	10½
15	2½	5 2	6½	9 4	13½	1-2	7½
16	2½	4 3	6	8 8	10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut, Philadelphia, 1y10 near Third,

LAP-WELDED WROUGHT IRON TUBES

FOR TUBULAR BOILERS, FROM 1 1-4 TO 6 INCHES DIAMETER, and ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee. 1y25 28 Platt street, New York.

ENGINEERS and MACHINISTS.

- THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)
- J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)
- TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
- ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)
- S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
- NORRIS, BROTHERS, Philadelphia Pa. (See adv.)
- FRENCH & BAIRD, Philadelphia. (See Adv.)
- NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
- ROSS WINANS, Baltimore, Md.
- CYRUS ALGER & Co., South Boston Iron Co.
- SETH ADAMS, Engineer, South Boston.
- STILLMAN, ALLEN & Co., N. Y.
- JAS. P. ALLAIRE, N. Y.
- PHENIX FOUNDRY, N. Y.
- ANDREW MENEELY, West Troy.
- JOHN F. STARR, Philadelphia, Pa.
- MERRICK & TOWNE, do.
- HINCKLEY & DRURY, Boston.
- C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

THE AMERICAN RAILROAD JOURNAL

is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

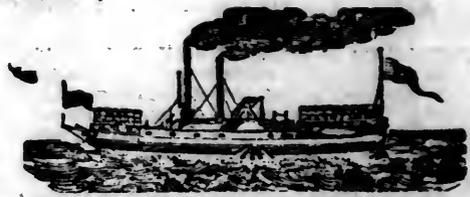
One page per annum.	\$125 00
One column "	50 00
One square "	15 00
One page per month.	20 00
One column "	8 00
One square "	2 50
One page, single insertion.	8 00
One column " "	3 00
One square " "	1 00
Professional notices per annum.	

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 49]

SATURDAY, DECEMBER 5, 1846.

[WHOLE No. 546, VOL. XIX.]

REMOVAL.—It is respectfully requested that all letters, exchange papers and periodicals, for the RAILROAD JOURNAL, may be sent to PHILADELPHIA, as the Journal will hereafter be published there, and the office will be kept at the FRANKLIN HOUSE, No. 105 Chestnut street.

It has required more time than we anticipated to effect the removal and arrangement of our office, consequently this number and the next also, will be somewhat delayed, but we hope to get arranged and up to time soon.

Those subscribers who are about remitting the amount due on their subscription up to the close of the present year, will please address their letters immediately to PHILADELPHIA, instead of New York, and much oblige the proprietor and editor, D. K. MINOR.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:
For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.
Accommodation Trains, leave Boston at 7 1/2 a.m. and 4 p.m.; and Providence at 8 a.m. and 4 1/2 p.m.
Dedham trains, leave Boston at 8 a.m., 12 1/2 m., 3 1/2 p.m., and 6 1/2 p.m. Leave Dedham at 9 a.m. and 9 1/2 a.m. and 2 1/2 and 5 1/2 p.m.
Stoughton trains, leave Boston at 11 1/2 a.m. and 5 1/2 p.m. Leave Stoughton at 7 20 a.m. and 3 1/2 p.m.
All baggage at the risk of the owner.
W. RAYMOND LEE, Supt.

BRANCH RAILROAD AND STAGES connecting with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Winter Arrangement, 1846-7.
On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:
Boston for Portland at 7 1/2 a.m. and 2 1/2 p.m.
Boston for Great Falls at 7 1/2 a.m., 2 1/2 and 3-25 p.m.
Boston for Haverhill at 7 1/2 and 11 1/2 a.m., 2 1/2, 3-25 and 5 p.m.
Boston for Reading at 7 1/2 and 11 1/2 a.m., 2 1/2, 3-25 and 6 1/2 p.m.
Portland for Boston at 7 1/2 a.m., and 3 p.m.
Great Falls for Boston at 6 1/2 and 9 1/2 a.m., and 4 1/2 p.m.
Haverhill for Boston at 7 1/2, 8 1/2, and 11 a.m. and 3 and 6 1/2 p.m.
Reading for Boston at 7, 8 1/2 and 9 1/2 a.m., 12 m., 1 1/2, 4 and 7 1/2 p.m.
The Depot in Boston is on Haymarket Square.
Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.
CHAS. MINOT, Supt.

THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.
Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.
Fare from Cincinnati to Sandusky \$3 00
" " Sandusky to Buffalo, Cabin 6 00
" " " " Steerage 4 50
Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.
Leave Cincinnati in the morning, arrive at Columbus at night.
Leave Columbus in the morning, arrive at Sandusky same day.
Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.
Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.
Fares on the New York railroads are about to be reduced.
B. HIGGINS, Supt., etc.
Sandusky, Ohio. M. & S. C. R. R. Co.

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A. M. and 4 P. M.
" Middletown at 6 1/2 A. M. and 5 1/2 P. M.
FARE REDUCED to \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P. M.
" Middletown at 12 M.
The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Supt. March 25th, 1846.
Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 if

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4 1/2 p.m. Leave Worcester, at 10 a.m., and 4 1/2 p.m.
The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1 1/2 p.m. train from Boston.
New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 4 p.m., daily, except Sunday.
Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.
New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.
Leave Worcester for New York, upon the arrival of the train from Boston, at about 4 1/2 p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.
Fares are Less when paid for Tickets than when paid in the Cars.
J. W. STOWELL, Supt.

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston. Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail— which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

TROY AND SARATOGA RAILROAD.
THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug 3, 1846.

ly 32

BALTIMORE AND OHIO RAILROAD.
MAIN STEM. The Train carrying the

Great Western Mail leaves Baltimore every morning at 7 1/2 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER, 17 Burling Slip.

ly10

New York.

NEW RAILROAD ROUTE FROM BUFFALO to Cincinnati.

Passengers destined for Columbus and Cincinnati, O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance..... 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy Iron,] to Mansfield, distance..... 56 " Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 " Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance..... 65 "

TIME.
From Buffalo to Sandusky..... 24 hours.
Leave Sandusky 5 a.m. to Columbus.... 14 "
From Columbus to Cincinnati..... 15 "
Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.
From Buffalo to Sandusky, Cabin.....\$6 00
" " " Steerage..... 3 00
" Sandusky to Columbus..... 4 50
" " " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Sup't, etc.
M. & S. C. R. R. Co.

Sandusky City, Ohio.

NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrianna, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisania only.

Leave City Hall for Harlem, Morrisania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] and 3 45 p.m.

RETURNING.

Leave Pleasantville, at 8, 10, [freight train,] and 11, a.m.; 1 20, and 4, p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20, a.m.; 1 50, and 4 20, p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35, a.m.; 2 05, and 4 25, p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 10, 4, and 4 50 p.m.

Leave Morrisania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. ly49

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger

trains run daily, except Sunday, as follows: Leaves Baltimore at..... 9 a.m. and 3 1/2 p.m. Arrives at..... 9 a.m. and 6 1/2 p.m. Leaves York at..... 5 a.m. and 3 p.m. Arrives at..... 12 1/2 p.m. and 8 p.m. Leaves York for Columbia at.. 1 1/2 p.m. and 8 a.m. Leaves Columbia for York at.. 8 a.m. and 2 p.m.

FARE.

Fare to York.....\$1 50
" Wrightsville..... 2 00
" Columbia..... 2 12 1/2

Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg..... \$9
Or via Lancaster by railroad..... 10
Through tickets to Harrisburg or Gettysburg.. 3
In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at..... 5 1/2 p.m.
Returning, leaves Owing's Mills at..... 7 a.m.
D. C. H. BORDLEY, Sup't.
31 ly Ticket Office, 63 North st.

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m. Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

SOUTH CAROLINA RAILROAD.—A

Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculumbia Railroad in N. Alabama. Fare through from Charleston to Montgomery daily..... \$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent.

CENTRAL RAILROAD-FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.
On measurement goods..... 13 cts. per cubic ft.
On brls. wet (except molasses and oil).....\$1 50 per barrel.
On brls. dry (except lime).... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
On hdds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.
On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 ly

CENTRAL AND MACON AND WESTERN Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad 190 Miles.
Macon to Atlanta—Macon and Western..... 101
Atlanta to Oothcaloga—Western and Atlantic... 80
Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings..... \$0 50 To Atlanta. \$0 75 To Oothcaloga.
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones..... 0 50 0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot..... 0 20 0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot..... 0 20 pr. 100 lbs. 35
Crockery, per cubic foot..... 0 15 " 35
Molasses and Oil, per hhd., (smaller casks in proportion). 9 00 12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each..... 1 25 1 50
Ploughs, (small,) and Wheelbarrows..... 0 80 1 05
Salt, per Liverpool Sack..... 0 70 0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.
Goods consigned to the subscriber will be forwarded free of Commissions.
Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846. 1v34

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston..... \$21 00
" " " " Richmond..... 6 60
For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to 1v14 STOCTON & FALLS, Agents.

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schnylkill Haven Railroad.
We are prepared to make scales of any size to weigh from five pounds to two hundred tons.
ELLICOTT & ABBOTT.
Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street, Philadelphia, Pa. 1v25

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

RATES OF FREIGHT.

	Between Augusta and Oothcaloga, 250 miles.	Between Charleston and Oothcaloga, 336 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 25
2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	0 90	1 40
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 55	0 75
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 37½	0 62½
Cotton, per 100 lbs.....	0 45	0 65
Molasses per hogshead.....	8 50	13 50
" " barrel.....	2 00	3 25
Salt per bushel.....	0 17	95
Salt per Liverpool sack.....		
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows... 0 75		1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.
J. EDGAR THOMSON,
Ch. Eng. and Gen. Agent.
Augusta, Sept. 2d, 1846. *44 1y

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.
CHAS. F. M. GARNETT,
Chief Engineer.
Atlanta, Georgia, April 16th, 1846. 1v1

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.
THOMAS & EDMUND GEORGE,
a45 E. cor. 12th and Market sts., Philad., Pa.

LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD—Distance 84 miles—

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Millford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon.... \$1 00
" " " Xenia..... 1 50
" " " Springfield... 2 00
" " " Columbus... 4 00
" " " Sandusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.
W. H. CLEMENT, Sup't.

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-ea barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

CLEVELAND, COLUMBUS AND CINCINNATI Railroad. In pursuance of a resolution adopted by the Board of Directors, on the 21st October, notice is hereby given, that proposals will be received up to the 1st day of December next, for the Grading, Timbering, Bridges and Culverts on forty miles of the road, commencing at Cleveland. Profiles, Specifications, Terms of Payment, and all other information pertaining to the matter, to be furnished on application at the office of the Company, Merwin Block, Cleveland.

JOHN W. ALLEN, President.
A. G. LAWRENCE, Secretary.
Cyrus WILLIAMS, Engineer.
Cleveland, October 23, 1846. 45*1m

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

A. & G. RALSTON & CO., NO. 4 South Front St, Philadelphia, Pa.
Have now on hand, for sale, Railroad Iron, viz:
180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long.
25 " 2½ x ½ " Flange Iron Rails.
75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engines and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. 1yl

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 feet, with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 30 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

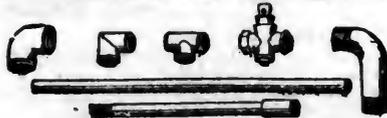
For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to 48 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.

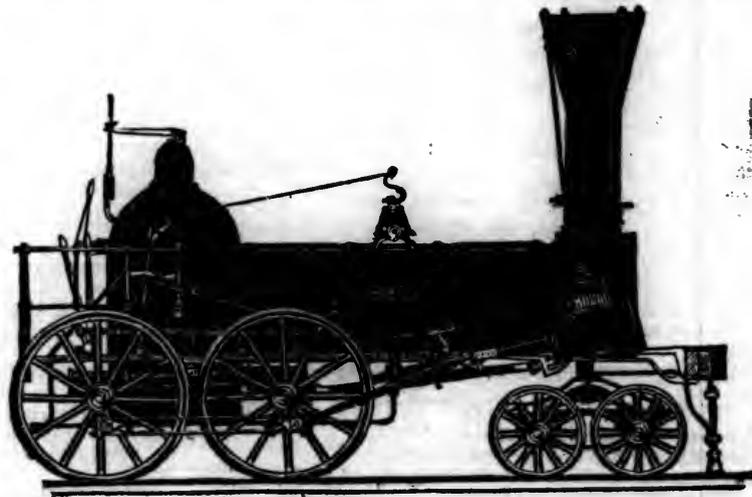
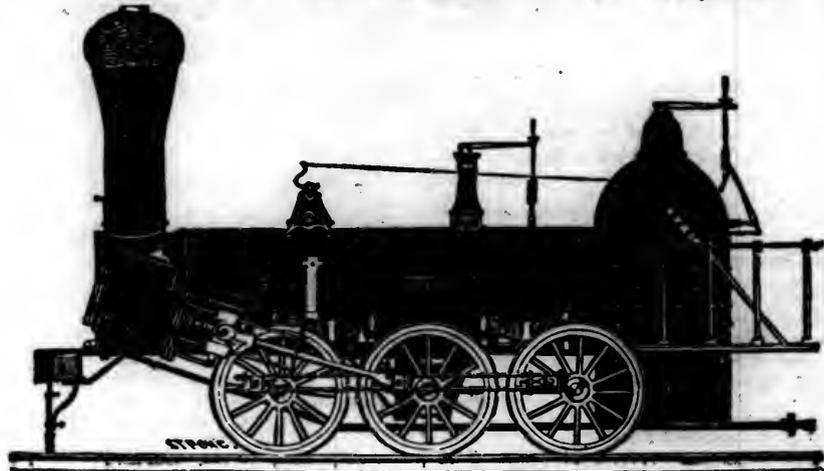


Manufactured and for sale by **MORRIS, TASKER & MORRIS.** Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

RAILROAD IRON.—THE NEW JERSEY Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to **FULLER & BROWN, Agent,** No. 139 Greenwich, corner of Cedar street.

September 18, 1846. 10/39

NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following description, viz:

Class 1,	15 inches	Diameter of Cylinder,	× 20 inches	Stroke,
" 2,	14	"	"	× 24 " "
" 3,	14½	"	"	× 20 " "
" 4,	12½	"	"	× 20 " "
" 5,	11½	"	"	× 20 " "
" 6,	10½	"	"	× 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion, Castings of all kinds made to order; and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** a45 President of the Newcastle Manuf. Co.

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20/4 4 South Front St., Philadelphia.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Altaire, } New York.
- Peter Cooper, }
- Murdock, Leavitt & Co. }
- J. Triplett & Son, Richmond, Va.
- J. R. Anderson, Tredegar Iron Works, Richmond, Va.
- J. Patton, Jr. } Philadelphia, Pa.
- Colwell & Co. }
- J. M. L. & W. H. Scovill, Waterbury, Con.
- N. E. Screw Co. } Providence, R. I.
- Eagle Screw Co. }
- William Parker, Supt. Bost. and Worc. R. R.
- New Jersey Malleable Iron Co., Newark, N. J.
- Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly. 36

GUN-COTTON FOR MINING PURPOSES.—This new discovery has given rise to much remark and speculation. The following article in relation to its application to mining purposes is from the London Mining Journal of October 31st; we give it for the benefit of our readers who are engaged in mining operations.

In the *Mining Journal* of last week, says the editor, we inserted a letter from a correspondent, signing himself "Tammer," on this interesting subject, in which he endeavored to show that it can never be used economically in blasting, it being (even allowing it double strength) twice the cost of gunpowder. As Mr. R. Taylor, in the account given by him before the annual meeting of the Royal Geological Society of Cornwall, of his experiments in various mines, gives such different results, we shall, in giving that statement, just compare notes, and it will be seen that, not only is the cotton as economical in use, although three or four times the price of powder—as *one-fourth* (and not *one-half*, as stated by "Tammer.") by weight of the powder used, is sufficient—but it is free from all pernicious consequences afterwards; and instead of the men not being able to return to their work after a blast for an hour, as is the case with gunpowder, they can enter immediately after the cotton has exploded—thus the air of the levels is never deteriorated, and an amazing amount of time and labour saved in the aggregate. Another advantage of the explosive cotton is, that it is never injured by water, and has lain six months in it, and, when dry, recovers its explosive properties; it can thus be kept in tanks for security, and without any danger of accidental explosion. Another error, which our correspondent appears to have made, is in its compressibility, stating "that 4 ozs. of powder occupies 8 cubic inches, and that 2 ozs. of cotton considerably compressed, occupy 27 inches." Now, Mr. Taylor states that he could compress the cotton into a much smaller space than gunpowder; and thus leave more room for tamping; and, as to spontaneous combustion at 30°, there appears no danger of the kind. We will, however, allow Mr. Taylor to speak for himself; he says:—"The first experiment was made in a granite quarry near Penryn, at Spargo; and he and Professor Schonbein were accompanied on that occasion by Messrs. R. W. Fox, C. Fox, B. Fox, Mr. Hoskin (the owner of the quarry,) and several other gentlemen. The surprise and incredulity of the workmen were very great, and highly amusing. When he charged a hole with some of the cotton, they thought he was doing a very absurd thing, and one of the men offered to sit on the hole for a pint of beer: but he advised him to see the result of the first explosion, before he tried that experiment. They then had two holes prepared; the quarrymen weighed out the quantity of powder required to charge their hole, and he weighed out one-quarter of that weight of the cotton. Their charge (said Mr. Taylor) was fired, and produced its effect completely; our charge was fired, and, to their great amazement, tore the rock to fragments—in fact, doing more than was required, the charge being too great.—

They had next two strong holes bored in a very compact part of the rock. It required 13½ ozs. of powder, and we charged the corresponding hole with 3 ozs. of the cotton; their charge was fired first, and did its work well—and the cotton being fired, did its work well also, the men saying that it could not have been done better. In another experiment, with a smaller quantity, he found that one-sixth part of the cotton did its work; but he did not place much reliance upon that result, as possibly the men might have over-rated their charge. They tried some other experiments with the use of sand and wedges, and he might say that the whole of the experiments were uniformly successful when the charge of cotton was equal to one-fourth the requisite weight of powder. So far the strength of the cotton was demonstrated, but he was then anxious to make experiments in regard to its effect on the air of the mine; and the iron mine of Restormel was selected, on account of its being easy of access, so that the professor might accompany him without fatigue. From its being on hard ground, and having the adit level driven a considerable distance into the hill, the end of that level was very close, and presented great difficulty in the escape of the smoke of gunpowder.—They first tried an experiment in the extreme end of the adit level, six or seven hundred fathoms from the entrance. The miners prepared two holes, but they did not use gunpowder on this occasion, as it would have interfered with their experiments. They asked the men to produce the quantity of powder required for those holes, and then weighed first one-quarter and then one-sixth part of the weight of cotton; they fired the two holes, which tore their ground, and the miners said it was quite satisfactory. They told him that, if powder had been used, they could not have gone into the place for three-quarters of an hour; but (said Mr. Taylor) we went in instantly, the two captains, Professor Schonbein, and myself. We experienced no inconvenience whatever, except from the safety fuse, and that was no inconvenience to the men. One quality of the cotton was of great importance to miners; it was not so easily affected by the damp as powder. It was not permanently injured by being wetted, but might be washed and dried, and its explosive power be the same as before: it had been kept in water six months without injury. It might be kept in magazines and tanks in perfect security; and it was an important fact, that there was no danger in the progress of its manufacture—for, until the process was completed, it was not explosive in any way; and no part of the process involved any danger. He had no sort of knowledge of what the composition was, except that it was a wool basis. With regard to expense, he was assured that a given quantity of power could be obtained probably for less; but weight for weight it would be more expensive than gunpowder." [A candle was then lighted, and Mr. Taylor, producing a small quantity of the cotton, held it over the flame. It instantly exploded; and being No. 2 of the cotton, produced a slight smoke. Mr. Taylor then pro-

cured a sheet of clean white paper, on which he exploded a small quantity of the cotton, which left some brown powdery particles.—This, he said, would not be the case with the No. 1 cotton, which was intended to be used in fowling pieces and rifles. The president, who was close to Mr. Taylor, said he did not perceive any smell from the explosion.]—We thus see that Mr. Taylor's experiments, and "Tammer's," produce widely different results; the former proving that it can be used most economically, the other that it cannot: future experiments will show which is right. With such a detail, however, given before a scientific body, of experiments made by several scientific men, our opinion is certainly in favor of Mr. Taylor's statement. We have here given "Tammer" "a clear stage, and no favor,"—but we cannot help asking, is he interested in the success of gunpowder?

RELATIVE DISTANCES BY RAIL AND COACH ROADS.

We copy the following article, on this subject, from a late Railway Journal, to show that the difference is not so great between these two modes of travelling, as has been supposed.

The outcry raised relative to the assumed circuitousness of railways over coach roads, says the *Railway Chronicle*, will be best answered by a statement of the actual facts. In some cases the balance is actually in favor of the rail, and in other instances rail and road are both so much upon a par as to render the disparity almost unappreciable. It is a remarkable fact, that the greatest disparity occurs on those lines where, from the early bigotry and objection entertained against railways, the companies were compelled to take a circuit, as was the case with the London and Birmingham at Northampton, and the South Eastern in Kent. The fault, in these exceptional cases, therefore, does not rest with the originators of the railways, but with Parliament and the public; and the companies, with a laudable forgetfulness of former opposition, are now actively remodelling their lines, making them more conformable with a direct course. Connected with the question of relative distances, should be borne in mind the increased speed, and consequently the diminution of time. While by the old coaches the distance between London and Birmingham took ten hours, it now takes only four and three. While, from London to Bristol, in former times it took sixteen, it is now accomplished in four and two and a half. A coach from London to Southampton was usually ten hours on the road—a train is only three. Commencing with the principal stations and places on the *Great Western* and the old western road:—

Station or place.	Rail.	Road.
Slough.....	18	21
Maidenhead.....	22½	26
Reading.....	35½	39
Oxford.....	63	55
Swindon.....	77	81
Cirencester.....	95	88
Stroud.....	101½	102
Gloucester.....	114	107
Chippenham.....	93½	93
Bath.....	106½	106
Bristol.....	118½	118
Bridgewater.....	151½	137
Taunton.....	163	144
Exeter.....	193½	176

Oxford, it will be seen, is about 8 miles further by rail than by road. Bath on the other hand is nearly identical in both instances.— To Bristol there is only a quarter of a mile difference in favor of the road. Beyond this the circuit is more perceptible, via the Bristol and Exeter, which places Bridgewater 14½ miles, Taunton 19, Wellington 21, and Exeter 17½ miles further from London than by the old road. A "direct" line to Exeter is the proposed remedy for this. On the London and North Western, the distances by road and rail are nearly parallel, at least as regards the main line; but upon the branches there is considerable difference:—

Station or place.	Rail.	Road.
Watford.....	17½	15
Tring.....	31½	31
Aylesbury.....	43½	40
Rugby.....	83	83
Coventry.....	94	91
Birmingham.....	112½	109
Walsall.....	122	118
Wolverhampton.....	130	127
Stafford.....	141½	136
Liverpool.....	210½	205
Chester.....	187½	181
Lancaster.....	238½	240
Manchester.....	197½	186
Northampton.....	67½	66
Higham Ferrers.....	83	65
Thrapstone.....	89	74
Oundle.....	97½	77
Peterborough.....	110	79

To Liverpool there is an increased distance by rail of only 5½ miles. From London to Lancaster there is an actual saving of 1½ mile, the distance being by road 240, by rail 238½. To Manchester the distance is increased by only 11 miles. The Trent Valley will diminish this. By the Northampton and Peterborough, Northampton is made 1½ mile further by rail than road, the respective distances being 66 and 67½. Towards Peterborough a greater disparity appears.— To Higham Ferrers there is a difference of 18 miles in favor of the road. To Thrapstone 15, Oundle 20½, and Peterborough 31½. The London and York and Eastern Counties will reduce this distance. The Midland comes next in the table of co-relative distances:—

Station or Place.	Rail.	Road.
Derby.....	132½	126
Loughborough.....	115	109
Leicester.....	103	97
Nottingham.....	130½	124
Sheffield.....	177½	163
Leeds.....	205	191
York.....	219½	198

The London and York will reduce the distance to Sheffield, York and Leeds, to about the old coach standard. By the Bristol and Birmingham, the old road is enlarged upon rather than diminished:—

Station or place.	Rail.	Road.
Bromsgrove.....	127	116
Droitwich.....	132½	118
Worcester.....	142½	111
Tewkesbury.....	153½	103.

New lines will neutralize these differences. On the South Western, the disparities are of no moment, except in the case of Gosport:

Station or place.	Rail.	Road.
Guildford.....	23	29
Basingstoke.....	46	45
Southampton.....	78	75
Gosport.....	83	73

...se by the South Eastern over the

road is, perhaps, more apparent than by any other route:

Station or place.	Rail.	Road.
Maldstone.....	56	34½
Ashford.....	67	54
Canterbury.....	82	55
Ramsgate.....	97½	72
Folkestone.....	82	71
Dover.....	88	72
Tunbridge.....	41	30
Tunbridge Wells.....	46	36

Acts for alteration and improvement, obtained by the South Eastern last session, will shorten these distances. On the Eastern Counties (Colchester line) there is scarcely any difference worthy of note to the principal points of approach. On the Cambridge line, however, this does not occur:—

Station or place.	rail.	road.
Cambridge.....	57½	51
Brandon.....	88½	78
Thetford.....	95½	80
Norwich.....	126	108
Yarmouth.....	146	123

By the Brighton and South Coast there has been a diminution of distance between Brighton and London:—

Station or place.	rail.	road.
Brighton.....	50½	54
Chichester.....	79	62
Hastings.....	83	64½
Worthing.....	61	56

Brighton is placed 3½ miles nearer to London by rail than it was by road; but, beyond Brighton, this saving is sacrificed by the circuitousness of its offshoots to Hastings, Chichester and Worthing. The new South Eastern line to Hastings will make the distance almost co-equal with that of the old coach-road.

LONG LINES OF RAILROADS.

Their Advantages and Disadvantages.

The propriety of railroad amalgamations, or of uniting different lines under one management, is discussed at considerable length in a late number of Herapath's Journal, in which the editor takes decided ground against the measure; and we think there is force in his reasons, though his conclusions are opposite to the opinions often expressed in this Journal, and we therefore give the article referred to at length. Will some of our readers, experienced in such matters, give us their views on the subject?

The subject is introduced under the head of "Duties of the New Railway Board," and the editor says:

Next to the accounts, if not before them, may fairly be placed that system of uniting and combining railway interests which has of late been so fashionable. The plea held out by some companies is, economy of management, which furnishes the opportunity of lower fares and convenience to the public.— These are magic words, and tell wonderfully with Parliament. "Give us an act to lease or amalgamate," as the case may be, say the companies, "and we shall be able to work immensely cheaper, and, of course, to lower our fares. Besides there will be but one company all the way, and, of course, no change of carriages, and a vast increase of comfort to the public." No doubt is entertained of this, and the good natured legislature, mindful of the public good, concedes the lease or amalgamation. Now all this is mere moonshine. Practically there is no economy in the amalgamation of lines of con-

siderable length; neither is there any additional convenience to the public; but there is a great amount of mischief to its interests, both present and eventual.

Beyond a certain length, a line cannot be well and vigorously managed by an executive at one end; and two executives never have, and it is not in the nature of man that they ever should, act for long well together. That has been proved in the London and Birmingham, and in the Great Western. Both have tried the experiment of two executives, and both have condemned and abandoned them.

What the length is that can be best managed, depends on the nature of the line and the character and amount of business done. As far as our observations have gone, about 100 to 120 miles are ample for any one company to have under strict surveillance, and to manage well. With a greater length the vigor seems to diminish. There is a feebleness, a laxity, and a slovenliness inimical to economy and dangerous to the public. Unlike trees, whose vegetation is stronger the further from the root,—the vigor of action is diminished by the distance it has to be sent through. As a compact, well-managed business is best for the trade, so a compact railway is best for the public and for the company, provided it be of sufficient extent to call forth their whole energies, and not too large to overpower them. We pitch upon 100 miles, because it is found, in practice, that about fifty miles out and fifty miles home is the best distance for an engine; but a score or so of miles in the length of a line is not material.

With a line of a hundred miles, therefore, and the locomotive depot in the middle, the line may be easily worked. But if there is a length of 200 miles or more, there must be two central depots, one of which cannot be very closely under the control of the executive. Directors can rarely spare time to run 150 miles out and so many back, like they can 50, and the consequence is, less supervision in the executive, and more carelessness in the agents; for the trite old proverb, that

"While the cat's away,
The mice will play"—

seems to hold as truly in railway as it does in other matters.

Beyond 100 miles, therefore, in one length there is no economy, except in the small fractional expense of management, and that is more than made up by the diminished vigor of action. What, then, can a company save by a greater length? Practically nothing.

There are exceptions as to more than 100 miles being able to be well managed. For example, when two, three, or more lines radiate from one centre, in which is placed the head quarters of the Board. Such a case is at Derby, with the North Midland, the Midland Counties, and the Derby Junction lines. That, however, forms a different feature in the railway phiz. We speak of single continuous lengths.

Then, as to convenience for the public. It is a mere figment of the imagination to say, that companies uniting grant any additional

convenience to the public. If it is, it must consist in one or both of two things—namely, the avoidance of delays at the terminal stations, and the change of carriages. Now, the change of carriages has long since been done away with by the clearing house system, by which a person goes from London up to Newcastle, and will shortly to Edinburgh, without any change of carriage.—Amalgamations, therefore, are not necessary to cure that evil, for it has been cured without the slightest reference to them. And with regard to delays at the stations, the interest of the company is sufficient to prevent that. But if it was not, a controlling power in the new board would soon extinguish any unaccommodating disposition on the part of a company. Let them have a hint that they may appear before Parliament again, or that a short bill may pass, vesting some stringent powers in the hands of the board, and they will not long continue refractory.

Economy, therefore, and lower fares, and more comfort to the public, are mere baits for the weak, and have no existence in fact.

"Well, if there be no advantage in large amalgamations," it may be asked, "what is the advantage of the companies continuing separate?" We will name some, by no means pretending to enumerate all.

If a line of 200 miles, say, is in two companies' hands, there is a constant spirit of rivalry pervading both masters and men. At the half-yearly meetings each board is anxious to produce a better report than his neighbors. It is desirous to show a better balance sheet, larger profits, less expenses, greater freedom from accident, and a more efficient and clever management. This is necessary to gain favor in the eyes of the proprietary; and however much it is attempted to be concealed, it is the great object of all boards to appear at the head of the fraternity.

To effect this, the masters fall back on the men. Every artifice which can, is called into requisition to insure economy with all that the public is desirous of—namely, comfort, security, punctuality, and speed. The men, therefore, of the two companies, instead of joggling on in the old way, are set in rivalry with each other. Their brains are racked, and improvement and invention are the results. The companies benefit immediately, and the public soon after. What finer illustration of this can be found than in the father of railways—the Liverpool and Manchester? While that railway stood alone, they blundered on with their old leaky extravagant engines, and no one thought of improvement. Consuming only from fifty to sixty pounds of coke a mile, and paying 9 and 10 per cent., they looked upon themselves as models of perfection. When, however, the North Union, Grand Junction, and London and Birmingham came to be opened, and a collision of intellect took place, new light was struck out, and their old leaky, shaky engines were superseded by new and improved ones. Their 50 odd lbs. of coke sank to 35, 25, and eventually to 17 or 18 lbs. a mile. Can any one imagine this would have happened if no new lines had been opened, or, if the new lines

had been all under one company? Certainly not. The experience of many previous years leaves no doubt upon this. It was the effect of new interests and partly competing companies, which kindled the spirit of enterprise in father Liverpool and Manchester.

If all the companies in England were under one management, they would all progress as the Liverpool and Manchester did, that is, by paying their 10 or 8 per cent., and leaving improvement to take care of itself.

We call, therefore, on the new board to oppose further amalgamations or leasings as a general rule. We do not mean to say there are not cases still to come, in which it would be desirable, but already has amalgamation, as a rule of legislation, been carried to too great an extent. It is not for the public good, nor for the interest of railways, that it should be further extended. Let us have their capital accounts closed—the enormous debts of some of them paid off, and see how they stand then, before further risks are encountered.

This is most especially wanting with the Great Western. Not greater inroads has the sea made on the South Devon Railway, than will the wild system that company are pursuing make on their permanent welfare.—The sooner it is checked and terminated the better. Several of the lines which the Great Western have taken up are considered positive abortions. Close the capital account, and stop further enterprises, and the truth of what we say will soon be seen. Other companies have done deeds equally wild, but none stand out in such extensively bold relief as the Great Western, and it is for that reason we dwell on them.

From the Mining Journal.

DR. PLAYFAIR AND PROFESSOR BUNSEL'S
EXPERIMENTS.

Sir: These experiments, alluded to in your last number, are partly confirmed and partly disproved, by my own experience, in the following details: Darkhill furnace, using coke only, consumed every 20 minutes, as an average, materials, whose composition tolerably well ascertained by separate analysis, gave, for the whole quantity consumed in that space of time, the following proportions: iron, 200; calcium, 74; aluminium, 31; silicon, 89; carbon, 324; oxygen 302 = 1020 lbs. These passed in through the tuyeres in the same space of time, of oxygen, 1361; nitrogen, 4765 = 6126 lbs. From 285 lbs. of peroxide of iron were produced 200 lbs. of perfectly carbonated iron. Now 1 lb. of carbon will produce from the peroxide 35 lbs. of carbonated iron—therefore, in the deoxidation of the above, 285 lbs. of peroxide, and in the subsequent carbonization of the iron 57 14 lbs. of carbon were consumed. But the whole amount of carbon consumed amounted to 324 lbs., of which only 57 14 lbs. was required for deoxidating the ore, and carbonizing the iron: showing waste in carbon, 266 86 lbs. This gives, then, at Darkhill, of effective carbon, 17 91; and of wasted carbon, 82 09 per cent. At Alfreton, the results were, of effective carbon, 18 46; and of wasted carbon, 31 54 per cent.; and this re-

sult very nearly coincides with that at Darkhill. That the whole of the oxygen is consumed at the tuyeres is, however, a most erroneous and falacious conclusion; for, from the preceding data, it appears that 1361 lbs. of oxygen passed into the regions of the tuyeres during 20 minutes; while only 266 86 lbs. of superfluous carbon remained to unite with its equivalent weight of oxygen, 347 80 lbs. to form carbonic oxide: leaving 1013 lbs. of free oxygen, which must pass upwards. Now, if the whole of this carbonic oxide should pass into carbonic acid, this would reduce the quantity of free oxygen to 666 lbs.; and deducting some part of this amount for leakage at the tuyeres, and from the front of the furnace, there must still pass off at the furnace top from 500 to 600 lbs. of oxygen every 20 minutes, free and uncombined with carbon. Therefore, only a part of the oxygen is burned in the vicinity of the tuyeres.

Next, only a portion of the waste carbon can unite with the oxygen—for a large portion of the nitrogen unites with carbon, to form cyanogen, or bicarburet of nitrogen; and this is made manifest by the immense quantity of purple flame thrown out from the region of the tuyeres, whenever the tuyere stoppings give way—and this consumption of carbon must leave a larger amount of free oxygen to pass off, than that which I have above estimated. A portion of the carbon is likewise consumed in deoxidating the protoxide of calcium, and the sesquioxide of aluminium, especially in hot-blast furnaces; and the truth of this is made evident by pulverizing a portion of the fresh slag (which is an alloy of these metals in a partially revived state, combined with silicic acid,) and throwing the powder into water, when hydrogen gas will be copiously disengaged, in consequence of the metallic bases of calcium and aluminium reabsorbing their respective complements of oxygen, at the expense of the water. There is reason to believe, however, that only the sesquioxide of aluminium suffers deoxidation, and is converted into a protoxide; and I have found that when protoxide of calcium and sesquioxide of aluminium are pulverised, and intimately intermixed, and afterwards exposed to an intense and long continued heat, the air being excluded, the protoxide of calcium absorbs oxygen from the sesquioxide of aluminium, and is converted into peroxide of calcium; whilst the sesquioxide of aluminium yields a portion of its oxygen, and is converted into protoxide of aluminium. When the compound thus obtained in a vitrified mass, of a pale greenish color, is again pulverised and mixed with water, the metallic oxides gradually react upon each other; whilst the protoxide of calcium, as it reforms, absorbs carbonic acid from the atmosphere; and in a few hours the mass acquires considerable hardness, and at length passes into a species of zeolite, of intense hardness, provided that the proportions of alumina and lime have been at first skillfully adjusted. Since the reaction of the oxides on each other is facilitated through the medium of water, the mass described sets and hardens as well under water as in the air, provided that the water contains, as is gene-

rally the case, some carbonic acid. By this process a cement may be prepared of the most beautiful color, and possessing a degree of hardness and tenacity hitherto unattained in the manufacture of cements; silica must be added, either at first, combined with the alumina, or subsequently, when the vetrified mass is pulverised; and, to insure a maximum degree of hardness to the cement, the silica, alumina, and lime, must be mixed in certain definite proportions.

ROBERT MUSHET.

Coleford, Oct. 20.

HEAVY WORK.

Orleans and Vieuxon Railway.—The Prefect of the department of the Loiret states in his report, that the length of line passing through that district is 41,260 metres, occupying 43 hectares of land which cost 610,182 francs, or at the rate of 14,105 francs per hectare. Cost of embankments, 906,745 francs; masonry, bridges, etc., 1,966,584 francs; stations, 45,632 francs; sundry expenses, 171,105 francs; total, 3,090,066 francs. All the masonry has been completed, except that of the viaduct, which is to be erected over the Loire.

RAILWAY TRAFFIC IN FRANCE.

In France, as elsewhere, there is a regular increase in railway traffic. The *Journal des Chemins de Fer* gives the following comparison of traffic returns on these lines during the three months of July, August, and September:

Paris and Orleans Railway.			
	1843.	1844.	1845.
July,	496,783	586,832	678,122
August,	569,765	611,332	739,036
September, ..	635,020	652,398	769,958

Fr. 1,701,564. 1,850,612. 2,187,116. 2,615,504

Paris and Rouen Railway.			
	1843.	1844.	1845.
July,	398,772	634,832	700,450
August,	542,548	709,089	811,173
September, ..	603,001	739,740	839,761

Fr. 1,549,321. 2,083,661. 2,351,334. 2,530,734

The aggregate total increase of traffic on the two lines in three years amounts to 60 per cent. The increase over the preceding year on the Orleans Railway, in 1841, was 9 per cent.; 1845, 18 per cent.; and in 1846, 21 per cent. On the Rouen, in 1844, the increase over the preceding year was 34 per cent.; 1845, 13 per cent.; and in 1846, 7 per cent.

RAILWAYS IN ROME.

We learn from the same journal that the Pope has conceived two lines, viz., from Rome to Boulogne, and from Rome to Civita-Vecchia, to an Anglo-Italian Company. The capital is to be 75,000,000 francs. The Jackson Company are to subscribe six-ninths; the Torlonia Company, two-ninths; and the Bank of Rome, one-ninth of the capital; and that it is considered to be an event of great importance.

EVASION OF FARE, it would seem, is no child's play in England, as the following reports show:

"Evasion of Fare.—James Sheriff has been committed to the house of Correction at Aylesbury, for seven days, for having travelled in a carriage on the London and North Western without having paid his fare."

"Refusal to Pay the Fare.—Oct. 22.—A petty session was held at Watford, to adjudicate on a charge, made by the London and North Western against Mr. E. C. Milne, a

solicitor, of Manchester, for an alleged attempt to defraud the said company of the proper fare to which they were entitled. Mr. Barker, the superintendent of the company, stated that he applied for a conviction under the act 8 Vict. c. 20, s. 103, commonly called the railway companies consolidation act. The 103d section is as follows: 'If any person travel or attempt to travel in any carriage of this or any other company, on any railway, without having previously paid his fare, and with intent to avoid payment thereof; or if any person, having paid his fare for a certain distance, knowingly and wilfully proceeded in any such carriage beyond such distance, without previously paying the additional fare for such additional distance, with intent to avoid payment thereof; or if any person knowingly and wilfully refuse, or neglect, on arriving at the point to which he has paid his fare, to quit such carriage, every such person shall, for every such offence, forfeit to the company a sum not exceeding 40s.' It appeared from the evidence of the station master at Watford, and other witnesses, that on the 30th of September last, the defendant arrived at the Watford station by the train from Manchester, accompanied by his lady and a child. Having no ticket for his child, which he admitted to be upwards of four years of age, the half fare was demanded, the payment of which, however, was refused, and accordingly his address was taken, and a summons subsequently obtained against him. The bench convicted the defendant in the full penalty and costs, under the provisions of the clause above quoted. Intimation was given that an appeal would be made on the part of Milne against the decision."

Little Miami Road.

The continued and increasing success of this road is the subject for repeated comment, we observe, in the western papers. A late number of the Cincinnati News says:

"The prosperity of this improvement must be a matter of great pleasure to the public spirited citizens who, at an early day after it was projected, favored its construction, and as well to those who have since stood by it, fast friends, and urged its completion at the earliest time possible. Completed it now is, and equipped it was supposed to be; yet hardly three months have passed by since a locomotive for the first time passed over its entire length, and already it has more business than it can do! We understand that at Springfield there are upwards of 2000 barrels of flour destined for this market, 'awaiting their time'; that at Xenia there are about 40,000 bushels of wheat in the same predicament; and that at Tod's Fork quite a large quantity of produce has accumulated, which has to lie over!

"Fertile as the Little Miami valley was known to be, its great productiveness seems not to have been fully calculated upon. And sanguine as were the friends of this improvement, that its completion would vindicate the wisdom of those who projected it, the whole truth which made it a necessity seems not to have dawned upon them.

"It is greatly to be regretted that the trans-

port power of the road is lessened just now by the failure of one of its engines, which gave out on Monday last. But there is an activity and energy in the management of its affairs which we doubt not will supply all deficiencies that can be supplied now, in the shortest time possible.

"Shippers must be patient; and instead of complaining against the railroad company, because their equipments of the road are not sufficient to do all its work, congratulate themselves and thank Providence that they have a climate so salubrious, and a soil so bountiful, as to set at naught the calculations of experienced and sagacious men."

A Smash.—The Hollidaysburg Register contains an account of a frightful accident and a miraculous escape, which occurred on "plane 10" of the Portage road. On Friday last a section boat was crossing the mountain on trucks, and being under headway on the descending grade, it was discovered that the breaks of the trucks were out of order and entirely useless. Those on board now saw that a run to Hollidaysburg at a fearful speed and a smash at the end of the journey, were inevitable. Two or three leaped off, at imminent risk: but the captain, his wife, and a boy, remained aboard. Onward sped the boat, with increasing velocity, until opposite the United States Hotel in the borough, she struck a train of six cars standing on the track—the first was instantly dashed to atoms leaving not a wreck behind; and the other five were staved and destroyed. The boat was also injured considerably, but remained on the trucks; and strange, to say, those on board escaped without injury!

India Rubber Tent.—A newly invented tent, made of India rubber cloth, and consequently water proof, capable of accommodating from 30 to 40 persons, is now being exhibited at the yard of the war department, Washington. Capt. S. Thistle is the inventor, and he deserves great credit for applying his genius so usefully.

(Official) Reading Railroad.

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending—

	Nov. 16, 1844.	Nov. 15, 1845.	Nov. 14, 1846.
Travel.....	\$1,613 61	\$1,995 35	\$2,459 40
Freight on goods.	866 43	1,299 95	2,685 67
Do. do. coal...	12,907 77	27,045 88	47,249 34
	\$15,417 81	\$31,123 35	\$48,948 29
Coal trans., tons.	11,565	22,028	30,478

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending—

	Nov. 23, 1844.	Nov. 22, 1845.	Nov. 21, 1846.
Travel.....	\$1,578 59	\$2,119 37	\$2,608 20
Freight on goods.	860 22	1,275 78	2,453 87
" coal...	11,333 86	29,062 71	38,436 13
	\$13,772 67	\$32,457 86	\$43,498 20
Coal trans.—tons.	10,038	23,307	26,970

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending—

	Nov. 30, 1844.	Nov. 29, 1845.	Nov. 28, 1846.
Travel.....	\$1,573 60	\$1,807 14	\$2,204 03
Freight on goods.	1,045 10	1,352 99	2,077 14
" coal...	7,976 87	22,932 87	39,200 77
	\$18,129 34	\$26,123 00	\$43,571 94
Coal trans.—tons.	7,003	18,349	21,296

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

Published by D. K. MINOR, 105 Chestnut St., Philadelphia.

Saturday, December 5, 1846.

OUR NEW LOCATION.

Agreeably with the notice given to our readers and exchanges, for the past week or two, we have now established the office and printing rooms of the *Railroad Journal* in PHILADELPHIA. Our brethren of the press will please bear this in mind, and hereafter forward their exchanges to "*Railroad Journal, Philadelphia*," instead of New York, as formerly.—All communications intended for the *Journal* should also be directed to D. K. MINOR, FRANKLIN HOUSE, Philadelphia, where we shall at all times be happy to meet our RAILROAD, editorial, and other friends, and the travelling public generally.

D. K. MINOR, PROPRIETOR.

Philadelphia, Dec. 1.

We have to ask the indulgence of our subscribers for the delay—or irregularity—of the numbers of the *Journal*, in consequence of its removal from New York to Philadelphia. We hope to get our new office regulated in a few days, and then to meet them regularly at the appointed time each week.

CHAMPLAIN AND CONNECTICUT RIVER RAILROAD.—Notice to Contractors.—Proposals will be received until the 1st day of January, 1847, for the Grading, Masonry and Bridging of that part of the line of the *Champlain and Connecticut River Railroad*, extending from its termination at Bellows Falls, up to, and including, the Summit at Mount Holly, a distance of about 34 miles—and also from its termination at Burlington to the Village of Brandon, a distance of about 50 miles.

Maps, Profiles and Specifications of the respective divisions will be found after the 15th of December, in the office of the company at Burlington, and at the office of Hon. William Henry, Bellows Falls, where every necessary information will be given.

The line will be divided into sections of convenient length for construction, and from those to whom the lettings may be awarded, satisfactory security will be required. By order of the Board,

T. FOLLETT, President.

Office of the Champlain and Conn. R. R. Co. }
 549 Burlington, November 21, 1846. }

Loss of the Steamer Atlantic.

Before this number reaches the readers of the *Journal*, the particulars of the painful finale of the splendid new Sound boat, the "ATLANTIC," will have been generally known over the country. We have no disposition to repeat the dreadful details of this unhappy accident, the particulars of which must already have been so widely circulated; but we have a few remarks to offer, in connection with this affair, which we deem appropriate—and without any inclination to reflect upon what is past, we propose to consider what may be advantageous for the future.

In summing up the loss of life which attended this catastrophe, it has been ascertained that about forty persons were lost, the bodies of whom have been found. The latest account says that there are yet five persons unaccounted for, the number being compared with the passenger list.

The Hon. Daniel Webster had a narrow escape. It was his attention to go to New York in the ill-fated vessel, but was induced to remain a day, in consequence of the unfavorable appearance of the weather.

The Dr. Hassler mentioned as one of those lost, is C. A. Hassler, Surgeon U. S. Navy. He had just returned from the Gulf, and was on his way to Brunswick, N. J.

Information has been received that Lieut. Allan H. Morton, of the 4th Infantry, U. S. Army, is among those that perished.

Both of these gentlemen were buried at New London, Connecticut.

In the midst of the awful scene which occurred on the night the "Atlantic" was lost, the exertions of two or three individuals present, to aid their suffering fellow-beings in peril, demands more than a mere passing notice. CAPT. DUSTAN, (who was unfortunately among the lost,) prior to leaving the noble boat he commanded, is said to have exhibited a presence of mind which did him infinite credit; and not until the last hope had departed, did he forsake the splendid structure of which he was so deservedly proud. MR. GOULD, the conductor of Adams & Co.'s Express, is also mentioned as having rendered material aid in getting many of the passengers off the wreck, and not until he was completely exhausted, from standing in the surf upon that terribly cold night, did he quit the spot from which he rendered the most valuable aid to those who were exposed to the most imminent peril. MR. MUNROE, of the Norwich and Worcester Line, was also very active and useful during the awful scene of the wreck—and we allude to these gentlemen more particularly, as all accounts give them credit for their faithful exertions in that hour when death stared them in the face, and when so great was the need for coolness and courage.

Our latest information is that all the bodies but one had been recognized by the friends of the lost. The wreck is quite distinct, being less than half a mile to the west of the place where she struck, on Fisher's Island, and where there is a cove with safe anchorage.

In view of this accident, we feel sure that we shall but echo the opinion of the public, by recommending the immediate construction of the contemplated railroad from New York to Boston. We have an engraving of the proposed route, which we shall lay before our readers, in the next number of the *Journal*, with such remarks as we may deem fitting and appropriate. That a railroad from these two important points will be an improvement upon the Sound navigation, however well conducted, or however good may be rendered the accommodations, no one will question. The terrible loss of life and property by the destruction of the "Lexington" and the "Atlantic," calls loudly to the friends of the proposition for a railroad from Boston to New York, direct, to come forward and take the work in hand energetically; and the late frightful disaster is an argument in favor of a land route through, which must be appreciated!

The present time is not the appropriate moment for censure, and we would suggest no word of blame that might fall upon those who have been interested in getting up the elegant "naval palaces" which

have for years plied upon Long Island Sound. We have, nevertheless, long been of the opinion that those boats have not been built sufficiently strong for thorough sea-boats, and that show, beauty and speed (more particularly) has been aimed at, rather than durability and strength.

Let us have a railroad from Boston to New York—a land route entire—and let the friends of the project be up and doing, forthwith! We shall allude to it particularly, and shall offer our reasons for this course, more at length, in the next number.

Kennebec and Franklin Railroad.

The Portland Advertiser says that the project of a railroad from some town on the Kennebec to the interior, so as to connect Winthrop, Readfield, and other towns with the business of our river, a project which was much talked about some years ago—is beginning again to command attention.

The Kennebec Journal adds, that such a work would be immensely important to the interior. It would afford our neighbors to the west of us, not only the facilities of a railroad communication to Boston, but connect them in daily intercourse with all the markets on the river, and with a water communication to Boston, New York, and ports farther south. All the surplus produce of this fruitful section of country could then be marketed at the highest prices by the producer, and avoid the expense now incurred in having them pass through other hands. We are happy to learn that measures are in progress to find out the best route for such a railroad, so that application may be made to the legislature at the ensuing session for a charter. Will our friends offer such suggestions as will facilitate the object.

Attica and Hornellsville Road.

We learn from the Rochester Democrat that the citizens of Buffalo are again agitating this subject—and considerable interest has lately been evinced in the project. The Buffalo Commercial publishes a map of the route, and points out its advantages. Several projects, says the Commercial, for connecting the great southern road with the central line have been broached, but nothing done beyond taking partial surveys. So far as we have examined the subject, we are induced to believe the route proposed by the Buffalonians, the most difficult and expensive; and that which proposes to terminate at Canandaigua, the cheapest and easiest of construction. It is doubtful, however, whether any of the proposed lines will be constructed immediately. Capitalists now a days are slow to invest in enterprizes of this kind. The legislation of this state in regard to corporations has been so fluctuating that capitalists abroad have lost confidence in New York investments. We hope for better things under the new constitution. A general law in reference to corporations will doubtless be passed, which will, we hope, be allowed to remain unchanged.

Progress of the St. Lawrence Road.

A correspondent of the Portland Advertiser, dating at Readfield, (Me.) in a late visit to the interior, writes that for some 30 miles from Portland the earth excavations and filling in appears to be nearly completed, while the most active operations are going on with the rock excavations, and portions of the masonry. At the point near the present county bridge, where the railroad will cross the Presumpscot river, there is a particularly busy scene, a large number of horses and teams being employed in laying foundations and filling in for the abutments of the proposed railroad bridge.

"Here is a progress," adds the writer, "a something actually doing—which may encourage us all."

Our burden feels the lighter when we see that we are really accomplishing something of that which we have so long and anxiously looked for. This movement eastward is an important part in itself of the great consummation. Besides its encouraging assurance that it is so far a way and a means for pushing forward vigorously to the long desired terminus on the banks of the St. Lawrence. It is also an accomplishment of the important union with our fellow citizens east of us, in all parts of the interior. I am strongly persuaded that the very first portions of the road that shall be finished, will do an amount of business of which, at present, one can form no adequate idea."

"It is understood that the work on the new lettings will be commenced immediately, and prosecuted with all practicable despatch. If the expectations of those responsibly concerned are not disappointed, the cars may be running to North Yarmouth by the 1st of August next, and to a point near Lewiston, about three or four months later.

"This makes a most hopeful opening to the interior of the state. The 25 or 30 miles thus completed will accommodate at once, more or less directly, a very large population, who have now no other mode of transportation than the common roads. In winter it will also immediately draw a large travel from the banks of the Kennebec, and it can hardly be doubted that that section of the great road will at once pay for itself, thus very materially relieving the Montreal enterprise, and allowing the directors to go on, and prosecute that work, with new encouragement and despatch.

"The enterprise of the Kennebec and Androscoggin railroad, or the road from Lewiston to Waterville, is now attracting interest in this direction, as well as in Portland. I think it may be said that an effective commencement has been made. Preliminary subscriptions are so encouraging, that the actual opening of the books will be hastened, and the organization and location advanced with all proper speed. It is hoped that the contracts may be entered into before spring. Several public meetings have been held at Lewiston—also at Waterville, and in the villages adjacent, and a central meeting is to be held at Winthrop, on Friday the 13th inst.—The rich and beautiful town of Readfield is immediately concerned in the enterprise. The route will pass through the town for several miles, and it is by no means improbable that it may pass quite near to their principal village, which is a very important point of transit for country passengers and goods, and a place having a large water power, not yet by any means fully occupied.

"I conclude by expressing my confident anticipations, that a few months hence, we shall see the grading actually commenced, on all the line from North Yarmouth to Waterville. I have recently passed over the whole route, and quite near to the probable lines of the road. The facilities for construction are unequalled. There is not a difficulty worth mentioning on the route. The bridge across the Androscoggin will be a great work, but engineering science will render it easy. The route for nearly the whole distance is upon the lowland margin of water courses, and for miles together by the side of beautiful lakes. The land damages, considering the actual richness of the country around, will be trifling.

"Every intelligent citizen of Portland and of Cumberland county should now consider in what way he can best promote this enterprise."

THE TELEGRAPH AND ITS USES.

The London Railway Chronicle says that "a tale of romance is created almost every week by the electric telegraph. A few days since it stopped a marriage. A young lady and gentleman decamped from Nottingham to have the indissoluble knot tied in Lincoln; but about an hour after the loving pair had set off, the lady's mamma, finding her daughter absent, went to the station, and ascertained that she had left for Lincoln with her lover. The telegraph was instantly set to work, and when the lady and gentleman arrived a policeman was in attendance to receive them, and the pair were forthwith taken out of the carriage, placed in a return train, and sent back to the mamma. Here is another and different application of the telegraph: a few days since

a lady left her purse, containing £30 on the counter at the Witham station of the Eastern Counties. It remained unobserved by the station clerk, until the train had left; whereupon he instantly 'telegraphed' the occurrence to the Chelmsford station. On the train's arrival inquiry was made of all the lady travellers, who immediately commenced a vigorous investigation of pockets, reticules and purses, and the loss became speedily known to the careless fair one."

We find also in the same paper a statement, on the authority of a letter from Paris, dated the 20th of October, that such is the demand for *Irish laborers on French lines*, that they can earn from 5*l.* to 6*l.* a day, while the native workmen only receive from 3*l.* to 3½*l.*

It is said that Mr. Gregory, the son of Dr. Orlinthus Gregory, professor of mathematics at the royal military academy at Woolwich, and who has since distinguished himself as acting engineer of the Croydon, has been appointed engineer to the Bristol and Exeter in the room of Mr. Brunel.

The Duke of Buccleuch and Sir J. Gladstone have sold to the railway company for £90,000, their pier at *Burntisland*, together with all their rights in the *Burntisland* and *Granton* ferry. By this they will clear a profit of £35,000. This sale is conditional on the proprietors of the pier and the railway company obtaining an act sanctioning the sale of the pier and ferry to the railway.

The *Midland* and my *Lord Harborough* are said to have settled their differences. The tunnel near *Stapleford Park* is to be abandoned, and his lordship is to receive some £25,000 for his land used in *Leicester* and *Rutlandshire*.

From our official returns, says the *Railway Chronicle*, it appears that the amount of traffic for the last week, on upwards of 2,760 miles of railway, was £162,797, thus accounted for: £89,651 for the conveyance of passengers only, £40,093 for the carriage of goods, and a remainder of £23,053 for passengers and goods together, not respectively apportioned; being an increase over the corresponding week of last year of £21,340.

THE INFLUENCES OF RAILWAYS are felt in various ways, and in none more satisfactory to travellers on the continent, perhaps, than in doing away with, or modifying the troublesome custom house regulations. Little doubt is entertained but that the progress of railways on the continent will be the cause of an extraordinary change in the *custom house regulations*, both in France and Belgium, so complained of by the English tourists, who have to undergo the searching of the *douaniers*, or custom officers, so celebrated, if we may so speak, for their incivility to travellers.

A company has been formed in Tuscany for establishing a line from *Leghorn* to the frontiers of the Roman States, near *Ghearone*, taking advantage of the countenance given by Pope Pius to railways, who numbers among other great reforms never before dreamt of by his predecessors in the holy see, the establishment of a system of railways.

Iron Trade at Pittsburg.

A late number of the *Pittsburg Gazette* publishes the names of *fly-one* furnaces for smelting iron, all located upon the *Allegheny* river. The list does not comprise the furnaces upon the canal—and alludes only to those which run their metal to market upon the river. The following particulars will be interesting:

"There are now 12 rolling mills, 11 in operation, and the other in market for metal.

These work up 75 to 100 tons per week, say 75 all around, or 900 tons per week. Then there are the host of foundries, one of which has melted 25 tons per day, and will average probably 100 tons per week. Should the mills run full time till spring, the supply is a tolerable one, and no more: and were the new tariff not directly brought in as a weight on the market, it would speedily be cleared of all the iron on it.

"The amount of iron in the shape of pig metal and blooms annually marketed in Pittsburg is about *forty thousand tons*: all of which is here manufactured and distributed over half the union, in iron fabrics of every description.

"Probably no market out of Europe is capable of bearing so great an amount of iron at once as Pittsburg, and there is none on this continent where anything like so heavy an amount is sold in so short a time. Pittsburg is emphatically the iron city of the western world.

AMERICANS ABROAD.

We frequently see paragraphs going the rounds of the papers in relation to the operations of our countrymen in St. Petersburg. We have considered it a high compliment to American skill and enterprise that the principal engineer and machinists were selected from this country, by the Emperor of Russia, to construct his long lines of railroad, his *hundreds* of locomotives and *thousands* of cars; and we are highly gratified to learn that the progress made, in the construction of the immense works undertaken, has been fully equal to, and indeed even greater than, the anticipations of the Emperor. The following paragraph from the *Railway Chronicle* is in accordance with our own private information—and we congratulate Messrs. *Harrison*, *Winans* & *Eastwick* on their success.

"*St. Petersburg and Moscow*.—Messrs. *Eastwick & Harrison*, the engineers, late of Philadelphia, have recently passed a gigantic contract with the Russian government, for the construction of 178 locomotive engines, and 8,500 passenger carriages and goods cars, to be completed within five years. They expect to complete the contract within one year and a half of the term assigned. It is said they can turn out six cars and carriages per day all finished, and three locomotives per week. The railway will be ready and open in some two or three years. Two thousand men, mostly Russians according to contract, are employed upon it, and the employment of the railway excavator engine has served greatly to accelerate progress. The engineers referred to have moved their establishment from Philadelphia to St. Petersburg."

Queer Railroad Accident.

A singular accident occurred upon the *Trøy* and *Saratoga* road a few days ago—which, though of a somewhat serious character, was sufficiently ludicrous. Fortunately, no person was hurt, though the passengers were a good deal jostled and much alarmed for the time being. We learn from a friend who was in the cars at the time, that the train was coming down at a slow rate, and having started away from *Mechanicsville*, they overtook a large bull, who was walking leisurely along the track. The knotty headed gentleman claimed the "right of

way," and the only notice he condescended to bestow upon the fiery mouthed monster behind him, was a careless leer over his shoulder, without increasing his speed at all, to the great discomfiture of the engineer, who was desirous to get on a little faster.—The whistle rang out lustily, but Mr. Bull walked on at his leisure, until the engineer, tired of the fun, put on the steam, and dashed rapidly towards the heels of his contrary friend. Mr. Bull was not to be served thus cavalierly, and turning round, he faced the train, and planted his head smack upon the front of the locomotive! The animal rolled heels over head, of course, upon the side of the track—but the concussion was so sudden, that the engine and baggage cars were thrown from the track, the former being smashed to pieces on a neighboring bank, and the latter being so badly injured as to prevent any further progress for some hours. The bull immediately arose, shook his head, and walked slowly into an adjoining field, where he lay himself quietly down, to watch further movements, while the expression upon his face seemed to say "how do you like *that*—my friend!"

The cars were finally righted up—another engine was sent down to the wreck, and the passengers proceeded on, much mortified at the result. As the train started off, Mr. Bull arose from his lounge, and turned away towards a piece of woods near by, with most provoking coolness, as if to remind his departing friends in the train, of that wholesome old adage, "the more haste the less speed!"

Sullivan Railroad.

The Boston Courier has been furnished with a copy of the annexed resolution, which was passed at a late meeting of the Vermont central railroad corporation:

VERMONT CENTRAL RAILROAD OFFICE, }
Boston, November 14, 1846. }

At a meeting of the directors this day holden, a communication was received from the Sullivan railroad company, which is placed on file—whereupon, on motion of Mr. Foster, it was

Resolved, That we will connect with the Cheshire and Fitchburg railroads, by a juncture with the Sullivan railroad, and that the president is hereby directed to make all necessary arrangements for establishing such a connection.

Attest: E. P. WALTON, JR.,
Clerk Vermont Central Railroad Co.

The Boston Post is informed that the Sullivan railroad, which extends from the western bank of the Connecticut river, a little south of the village of Windsor, in the state of Vermont, through a part of the town of Cornish, and through the towns of Claremont and Charlestown, and intersects the Cheshire railroad in Walpole, near Bellows Falls in New Hampshire—making a line of road a little exceeding twenty-four miles, will be put under contract for construction before the 1st of January next, and will be completed within a year from that time. The farmers and other citizens of Sullivan county in New Hampshire, have subscribed to the stock of this road with great liberality. The capital stock is divided into 5000 shares, and four-fifths of that number has been taken in that county.

The managers of this road only ask for a subscription of 1000 shares, being the re-

maining fifth part of the capital. It is confidently believed, that if this piece of road shall be completed as suggested, we shall have, by January, 1848, an unbroken chain of railway communication between Boston and Montpelier, with the exception of that part of the Cheshire railroad between Keene and Bellows Falls. Those who are acquainted with the route of the Sullivan railroad—with the population, resources and business of that section of New England—will admit that an investment in the stock of this road will yield as profitable a return as a like investment in any other road.

The Mineral Region.

An interesting article appears in a late number of the *New Orleans Bulletin*, in reference to the mineral resources of the state of Wisconsin. Dr. Owen declares that that vicinity contains the richest mines of ore, and particularly of lead, which are inexhaustible. He supposes the state capable of yielding 150,000,000 pounds of lead, annually, which is more than is now furnished by the entire mines of Europe. That state may well be called the lead region of the world. The *Bulletin* says:—

"Mr. Owen's observations in 1839, on the copper of Wisconsin, fully accord, so far as they go, with the wonderful disclosures that have recently been made. He then predicted from his geological knowledge, that richer mines of copper would be found in the northern parts of Wisconsin, where the igneous, metamorphic, crystalline rocks come to the surface, these being the rocks which in Cornwall, England, produce copper. The north parts of Wisconsin, on lake Superior, have since been explored, and the most incredible quantities of copper, mingled with silver, have been found. The dip of the rocks in Wisconsin being south, the lowest strata would be found to the north. The copper ore of Wisconsin is about one-third richer than that of England; indeed, European mines, which afford only three per cent. of copper, pay for the working, after raising the ore from a depth of more than 2000 feet—a fact showing the immense value of the Wisconsin mines.

"Zinc is also found in vast quantities among the lead and copper, in the form generally, of an anhydrous carbonate. The miners call it 'dry bones,' from its resembling the cellular substance of bone. Sometimes a vein of lead becomes entirely a vein of zinc, and then the unscientific workmen declare that the 'dry bones have eaten out all the mineral.' It is regarded as quite worthless by the miners, and considered a nuisance. Thousands of tons of it are thrown away by them, as a worthless drug. It is a true carbonate of zinc, and contains about forty-five per cent. of pure metal. When it is considered that vast quantities of zinc are imported into this country from Europe, it is a matter of surprise that so much of it should be annually thrown away in Wisconsin. How important an article of commerce zinc is, may be inferred from the fact, that there are about six millions of pounds annually imported into England. Its use in the arts is very extensive.—From 13 to 25 per cent. of all brass, is zinc. The mines of Wisconsin would probably supply the world with zinc.

"In iron, also, Wisconsin is equally rich; but the iron, like zinc, is a drug. Indeed, for some reason or other, it is thought better to import from England into this country, millions of dollars worth of iron, when we have literally mountains of it here, in every direction, with the most unparalleled facilities for its manufacture. In the production of iron, lead, copper, zinc, all the more useful metals, we might rival the world.

"Wisconsin, in respect to natural advantages, is scarcely rivalled by any state in the Union. It is not only immensely rich in mineral wealth, but is mostly a region of fertile soil, capable of yielding an unlimited supply of agricultural products common to that latitude, and of engaging in manufactures to any extent. Its numerous streams affords an immense water power; and with the largest lake in

America on the north, lake Michigan on the east, and the Mississippi on the southwest, its facilities for commerce are not surpassed. Like an island in the ocean, it is bounded on every side by navigable waters, and its products, of whatever kind, can float with equal ease to the Gulf of Mexico, or the waters of the Atlantic."

Canals and Railroads.

In a recent article, published in the *Boston Courier*, upon the trade of the west—and the future course it must take—the writer considers that the Ogdensburg and lake Champlain railroad will be the most favorable avenue. Referring to the works through the centre of our state, he says: "These canals being the property of the state, are subject to heavy tolls, over and above the freight and other charges. The central railroads which run parallel with these canals, are under restrictions which prevent their taking any freight except in winter, and then subject to canal tolls as tribute to the state; the time the canals are closed by winter being usually over four months."

A correspondent in the *Albany Journal* comments as follows upon this paragraph:

"This is a very forcible commentary upon the existing policy in respect to our canals and railroads through the centre of the state. At a distance, where the thing is looked at practically, and the best mode of avoiding the impositions placed upon the canals and the central railroads is considered, they conclude to furnish the capital necessary to establish a line of railroad from Ogdensburg to Boston. Suppose this measure thus suggested shall by our policy be carried out, and become a great avenue for transportation, how much is the state of New York to be benefitted?"

"The state of Ohio has just reduced the tolls on the canal from Cleveland to the Ohio river, in order to compete with the Wabash and Erie canal, which comes in at Toledo. That reduction immediately induced the sending off a large quantity of our salt, which had been accumulating at Cleveland, and could not before be sent off in consequence of the tolls. The restrictions upon the central line of railroad, prohibiting the transportation of freight except in winter, and 'the tolls as tribute to the state,' are operating very unfavorably upon all the central parts of the state. To them as to all persons producing a surplus, it is of first importance to have cheap transportation. This tribute, if paid at all, is paid by the farmer whose wheat or flour is sent over the railroad. Precisely as much as the rate of transportation is thereby increased, is the price for his property reduced. In addition, he pays an increased price for whatever he purchases that is brought over the railroad. In short, the farmer, the producer, the manufacturer and the laborer, pay this tribute. Though nominally imposed upon the railroad company, yet it forms part of the price of transportation, and thus comes back, to reduce by so much the price of the bushel of wheat, and to enhance by so much the cost of the pound of sugar, or the gallon of molasses.

"Ought we not to see to it, and have these restrictions and this tribute removed? We have a right to an unrestricted avenue to market. The only interest that railroad companies can have in the question is, that by doing a much larger business at lower rates,

while deriving a compensation upon capital equal to their present dividends, they will come to be regarded with more general favor. Their business cannot increase without its being to the interest also of those whose property they transport. They should be allowed to carry as low as they can, and then all can participate. If this course leads to reduced prices upon the canal, the farmer and the laborer are the gainers thereby."

English Patents.

We find the following accounts of English patents, recently secured, in the Civil Engineer and Architects Journal:

LOCOMOTIVE ENGINES.

George Stephenson and William Howe, "Improvement in locomotive steam engines."—Granted February 11; Enrolled August 11, 1846.

The improvement consists in the application of three steam cylinders to locomotive engines, two to be of the same diameter and capacity, and together to be equal in capacity to one large cylinder. The pistons of all the three cylinders are to move simultaneously in the same direction; the large cylinder is to be placed exactly in the longitudinal central line of the engine, and the other two cylinders on each side at equal distances from it. The piston of the centre cylinder is to drive a crank on the axle of the impelling wheels, and the pistons of the two smaller cylinders are to be connected with crank pins fixed on the naves of the driving wheels; the crank to be fixed at right angles to the crank-pins.—The intention of this arrangement is to neutralise any tendency that the oblique action of the connecting rods on their crank-pins may have to produce a lateral vibration on the supporting springs of a locomotive when travelling very rapidly.

RAILWAY SAFETY BUFFER.

Edwin Chesshire, of Birmingham, for "Improvements in apparatus to be applied to railway carriages to reduce the prejudicial effects of collision to passengers in railway carriages."—Granted February 3; Enrolled August 3, 1846.

The apparatus consists simply of a strong straight inflexible rod of either iron or wood, or both combined, placed longitudinally under the centre of the carriages; the ends of the rod are to have enlarged heads, and the length of the rod to be somewhat less than the carriage, to which it is attached, and the buffers when in ordinary contact. This rod, which the inventor calls a "safety buffer," is not intended to have any effect in stopping the motion of the train in the usual manner, but only when a violent collision, either before or behind occurs—then the heads of all the bars will be brought in contact, and "form one straight, inflexible, unyielding bar," by which means the effect of the collision will be neutralised.

CEMENT.

John Keating, for "Improvements in the manufacture of cement."—Granted February 11; Enrolled August 11, 1846.

This invention consists in mixing borax with gypsum (sulphate of lime) in the fol-

lowing proportions:—5 lb. of borax and 5 lb. of crude tartar are each to be dissolved in 6 gallons of water, and when dissolved the two solutions to be mixed together. Gypsum in lumps (first deprived of its water of crystallization by heat) is to be put in this solution till it has absorbed as much as it will take up, and then put in an oven and heated red hot; afterwards it is allowed to cool, and ground, and then again mixed with the above solutions and heated in an oven; when taken out, it will be ready for use.

IRON MANUFACTURE.

James Palmer Budd, of Ystalyfera Iron Works, Swansea, for "Improvements in the manufacture of iron."—Granted February 31; Enrolled August 11, 1846.

In burning coal, clinkers are produced and considered as refuse; these clinkers, it is proposed to apply in the manufacture of iron; they may be obtained where large quantities of coal are burned in furnaces, or from smith's fires and waste heaps of small coal, and also from refuse ash heaps of many works which have fired and burned down, leaving a substratum of clinkers near the bottoms of the heaps.

As clinkers are of a light porous nature, of small specific gravity, and contain a large proportion of earthy matter, they will be found peculiarly suitable for use in blast furnaces, with rich oxides of iron, cinders obtained in the manufacture of malleable iron, hematite iron ores. The clinkers when mixed with the rich oxides of iron in the blast furnace will lessen the density of the mass and allow a freer passage for the blast, and supply the proportion of earthy matters required for the perfect separation of the iron.

In charging the blast furnace the clinkers are generally to be combined with rich iron stone, iron cinder, or ore in proportion to the quality of the clinkers; if rich in iron ore a smaller quantity is required than when they are comparatively poor; the proportion of iron in the blast must be below 50 per cent., from 40 to 45 per cent. is the usual proportion. If the clinkers contain less than 45 per cent. of iron, then a richer material, such as cinders of malleable iron or rich iron ore is to be used therewith. When the furnace is charged, the usual fuel and fluxes are to be used with the ore and clinkers.

TELEGRAPH LINE TO CINCINNATI.

"Negotiations have been for some weeks in progress for extending the lightning line from Pittsburgh to this city, connecting us in that way with Philadelphia, New York, Boston, and Washington city. Mr. Case, late editor of the Enquirer, is about to visit Washington city, on that business, and we have full confidence that he will complete the arrangements, either for constructing a line from Baltimore, by way of Cumberland, to Wheeling, etc., or for connecting with the Philadelphia line at Pittsburgh. The importance of this communication is duly appreciated in this business community, and we may reasonably expect that the work to this city will be completed in six or eight months. When these arrangements are completed, it is designed also to extend the line from this city, by way of Louisville, Nashville, Vicksburg, etc. to New Orleans. The line through Ohio must be completed ere long. Shall we have aid from Dayton, Columbus, Zanesville, Wheeling?"

The above we extract from a late number of the

Cincinnati Gazette. Mr. Case is a man of nerve, and excellent business qualifications, and we doubt not that he will expedite this matter towards an early completion. Mr. C. is brother-in-law to the Hon. F. O. J. Smith, a gentleman well known as being largely interested in the Telegraphic lines first established, and to whom the public is deeply indebted for the establishment of this great improvement.—We wish Mr. Case all possible success in his new business, believing that few men could be found whose reputation would better ensure success in the great objects to be attained in this important undertaking.

RAILROAD MEETING.

A meeting was held on Monday week, at Groton, by the friends of Stony Brook and Worcester and Nashua railroad, says the Lowell Courier, for mutual conference in relation to the location of the roads. Several gentlemen were present from Worcester, Nashua, Pepperell, and Lowell, among whom was ex-Governor Davis, president of the Nashua and Worcester road. It was considered important by the friends of the Stony Brook road, that a junction should be formed with the Nashua and Worcester at a point where that road would cross or intersect with the Fitchburg road, and if possible to avoid the necessity of using the Fitchburg. This desirable object can be obtained by running the Stony Brook up to near schoolhouse No. 12, in Groton. At this point it will also intersect with the Townsend and Peterboro' road, as well as with the Fitchburg. The whole distance from North Chelmsford to this contemplated junction is about 12 miles, which would be the length of the Stony Brook road.

We now hope our citizens will take hold of this enterprise and build the road with as little delay as possible. The whole line of the Worcester and Nashua road is under contract, and it will be all graded by a year from next January. Such, we understand, are their terms of contract. If the stock for the Stony Brook is now taken up, we may, in about a year and a half, have a continuous line of railroad from our city to Albany in the west, and Portland in the east, and with several other places which cannot fail to add vastly to our wealth and to the increase of business and population.

Miscellaneous Items.

Heavy Trains.—Two luggage trains passed by the Rugby station on Saturday last, on the London and North Western railway—one of which consisted of 96 carriages, containing nearly 400 tons of goods, impelled by one of Stephenson's six wheel engines, and two others; the other train consisted of 84 carriages, and contained 384 tons of merchandize, etc., drawn likewise by three engines. The length of the first train was upwards of a quarter of a mile.

On the Reading railroad this would have been considered a small load for one engine.—[Ed. Railroad Journal.]

A curious fraud has just been brought to light in the village of Firmi, near Rodez. Firmi is situated over an extensive coal mine, and almost every inhabitant of the village had, it seems, dug down to the coal, and used as much of it as pleased him, without the permission or the knowledge of the lessees of the mine. The accidental death of a miner

in one of the concealed pits lead to the discovery of the fraud.

Spontaneous Sounds in Iron and Stone.—Singularly illustrative of the much disputed property, affirmed by the ancients, of the sound emitted at sunrise by the statue of Memnon, in Lower Egypt, is the singular phenomenon of sound occasioned by the vibration of soft iron produced by a galvanic current. It was first discovered by Mr. Sage, and has been since verified by the observations of a French philosopher, M. Marian. The experiments were made on a bar of iron, which was fixed in the middle in a horizontal position—each half being inclosed in a large glass tube, around which were wound spirals of copper wire. A cord of copper wire was afterwards substituted for the two helices, and placed with its axis coincident with the axis of the bar. On completing the circuit, the longitudinal sound, although feeble, could be distinguished—the bar of iron being a little lengthened or expanded in the direction of its axis. The origin of the sound has, therefore, been attributed to a vibration in the interior of the iron bar, or a new arrangement of the molecules.—*Mining Journal.*

On the 3d of next month, says a French paper, the minister of marine will receive contracts for the supply of 36,000,000 kilogrammes of coal for Toulon.

The provincial newspapers mention that the works on one section of the Orleans and Bordeaux railway were delayed for a long time, on account of the want of rails. At last when the supply did arrive, it was only 3,000, instead of 13,000, and no chairs whatever were sent. The iron masters stated, that so many orders pressed upon them, that it was absolutely impossible for them to fulfil their contract.

The Lyon and St. Etienne journals state, that the coal pits of the department of the Loire are being worked with great activity. Some improvements in the manner of working have been borrowed from English mines with great success. A plan has also been discovered of utilizing the small coal and dust created in the mines, by turning it into coke. Formerly it was either left at the bottom of the pits, or sold at a dead loss. If mixed with pitch, heated to a certain point, and heavily pressed, the small coal is transformed into a material which emits a greater degree of heat than ordinary coal.

The number of locomotives in use in 1844, on the French railways, was 168 of French construction, and 117 of foreign, [English.] In 1842, the number of French locomotives was equal to that of the foreign; in 1843, there was an increase of two in favor of the French; in 1844, the advantage was 41. For 1845, the increase of the French was still more remarkable, and this year it is yet greater.

The marquis de Boisy has sold the extensive iron works of Kerzon, Clayieres, and Kisten, to M. Aubertot, for the sum of 3,250,000fr. or 2150,000. He retains those of Burges and Rosieres. These establishments have been hitherto known as those of Berry.

Production of Coal in Belgium.—From the official returns of the engineers of mines, we find that the 3 great coal provinces of Belgium produced, in 1845, 4,960,077 tons—of which Hainault gave 3,671,023 tons; Liege 1,127,181; Namur 161,873 tons. The present produce of the Belgium mines exceed by 1,177,338 tons that of France, and Hainault alone yields within 111,000 tons as much coal as the whole of the French mines put together. If they are attempting to work the coal basins of France on a large scale, to avoid the obligation of importing foreign coals, so superior to their own in quality, and to be obtained at less cost, the proprietors of the Belgian quarries are on the *qui vive*; and as several very considerable seams of excellent quality have lately been discovered, for the working of which concessions have lately been granted, the owners will be enabled to export it, at even a less price than at present.—*Mining Journal.*

The Railroad to the Pacific.—A public meeting, called by the chamber of commerce of Cincinnati, was held in that city on Friday, and a committee was appointed to draft a memorial to congress in favor of Mr. Whitney's plan. That gentleman was present and addressed the meeting.—*Bull. Repub.*

Little Schuylkill Road.—The Pottsville Gazette says that the Little Schuylkill railroad company are about laying a new iron track with heavy rail, over their road, under the direction of Mr. Adams, engineer. They are already putting down the sills, and will commence laying the rails as soon as they can get the iron. The road is about 20 miles in length from Tamaqua to its junction with the Reading railroad, at Port Clinton. At present, the company intend laying only a single track, with three turnouts. This track will run parallel with the old wooden track, which still remains in use, although in a very dilapidated condition. The rails for this new road are being made at the rolling mills of Messrs. Reeves, Whittaker & Co., Phoenixville. We understand that these gentlemen are filling their contract at the rate of 40 tons per week.

Extension of the Telegraph.—A card appears in the Philadelphia journals, over the signature of Henry O'Reilly, in which it is stated that the "Atlantic, Lake and Mississippi telegraph" will be in successful operation as far as the Ohio river by the first of January next. The writer adds: "A substantial 'iron cord,' is now stretched from Philadelphia beyond Chambersburg, and the advanced parties in constructing the work will be at the Ohio river on the 1st of December. The extension of the line thence to Cincinnati, Louisville, and St. Louis, as well as to cities on the lakes will be prosecuted with steady energy, unchecked by winter storms or other obstacles,—active operations having also been commenced along the lake line; and every effort will be made by my associates, as well as myself, to complete the connection between the 'Atlantic and the Mississippi' in the shortest practicable time and in a manner most satisfactory to the public."

Fatal Effects of Gas.—The writer of an obituary notice of Mrs. M. G. Bull, of Westfield, Mass., in the News Letter, gives the following as the cause of her death:

"In August last, she spent a night at a hotel in Boston; her sleeping room was lighted by gas; not knowing the proper mode of extinguishing it, she succeeded in blowing it out, but left the gas running in the room all night; unless a window had been left up, she would undoubtedly have perished. When she awoke, her lungs were oppressed, and respiration difficult. The following day she ascended to the top of the State House and to the top of Bunker Hill monument, and soon after had a slight hæmorrhage from the lungs. October 6th she bled copiously, and continued to do so each day until the 14th, and died on the 26th."

Rotary Steam Engines.—The New York Sun says that a successful attempt has been made to perfect a rotary steam engine: "the engine alluded to is the result of many years' labor and investigation by Dr. Schnebley, the editor of the Hagerstown, Md., Pledge. Celebrated engineers in this country, as well as in England and France, have given the most favorable opinions of it. From the experiments that have been made with a small en-

gine of one and a half horse power, it is said the discovery will rank equal to Watts. For steamboats, locomotives and factories, the rotary engine is a desideratum; for it occupies only one-tenth the space, and saves at least one-fourth the fuel required for an engine built in the ordinary mode. Advantages so important as these will be appreciated by every person interested in machinery."

The Sandwich observer says that that portion of the Cape Cod branch railroad running from Sandwich to Monument, is under contract to be built—and will be pushed on to completion vigorously.

The Bunker Hill Aurora, speaking of the Sullivan road, to which allusion is made in another portion of this week's Journal, says that the towns on the line of the Sullivan railroad have done nobly in its behalf, but we learn that some further subscriptions are necessary to enable the corporation to commence work with the strength and energy desirable. The town of Claremont, we learn, has subscribed \$100,000, and the town of Charlestown nearly as much. This road is the connecting link between the Fitchburg and Cheshire and the Vermont Central railroads, and the stockholders in these companies are deeply interested in its success.

St. Andrews and Quebec Road.—The Calais Advertiser learns that there was a very numerous and respectable meeting held at St. Andrews, on Wednesday week, for the purpose of deciding what course should be pursued—the sum of £25,000 having been subscribed for the above purpose; and consequently under the act of the province of New Brunswick, for the encouragement of this undertaking, the subscribers being authorized to call a meeting of the stockholders for the purpose of choosing directors, who shall take such measures as may be required, by survey and otherwise, previous to the commencement of the work, and to obtain subscribers for the remainder of the stock; the amount which will probably be required to complete the train to Woodstock, a distance of only 70 miles, being estimated at £70,000. The provincial legislature standing pledged by vote of the assembly, for the payment of £10,000 annually, for the first ten years after the railway shall have been completed.

Railroad Travelling.—A London letter writersays: "In England—railroad travelling although exceedingly expensive for first places, \$5 per hundred miles, is vastly more comfortable and speedy than anywhere else. From London to Exeter, via Bristol, 220 miles, the distance, including stoppages, is regularly run over in four hours and a half! Between Liverpool and London, the line is about the same length, and the express cars go through in about six hours."

Silent carriage wheels have made their appearance in London. The tire of the wheels consists of an elastic tubular ring of caoutchouc, enclosed in a leather case, and inflated with air to any degree of tightness desired. The motion of the carriage is exceedingly easy.



RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

TEST No. 11.—Certificate.

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as entirely fire proof.

GOREE & KING.

Marion, Ala., Sept. 15th, 1846.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CROOKHUTE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138 1/2 Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street
Charleston, S. C.

16 1/2

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed.

FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

* * * The letters in the figures refer to the article given in the Journal of June, 1844. ja45



PATENT HAMMERED RAILROAD, SHIP AND BOAT SPIKES. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
15 Paterson, N. J., or 60 Wall street, N. York.

PATENT RAILROAD, SHIP AND BOAT SPIKES. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

* * * Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

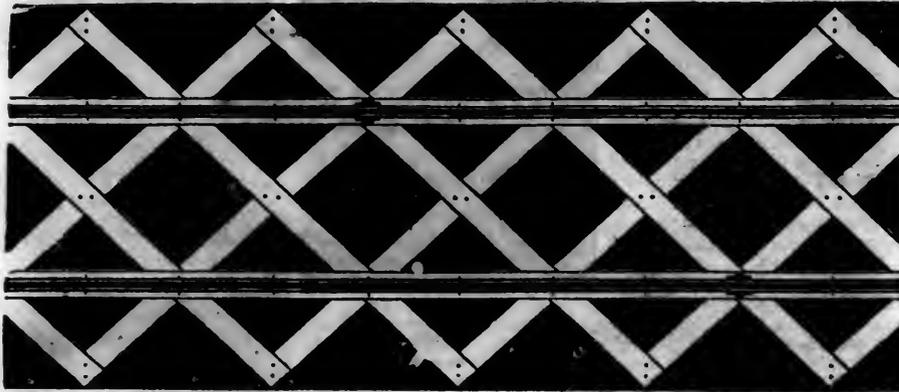
ja45

DAVENPORT & BRIDGES CONTINUE to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

1) 1

THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

THE UNDERSIGNED RESPECTFULLY invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,224 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 331f

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH	
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	Tons.		
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.			
11	4½	13 5	10	21 -	50	15-16	20		
13	3½	8 3	8½	16 -	27	11-16	13½		
14	3½	6 11	7½	12 8	17	9-16	10½		
15	2½	5 2	6½	9 4	13½	1-2	7½		
16	2½	4 3	6	8 8	10½	7-16	7		

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut, Philadelphia. 1y10 near Third,

LAP—WELDED WROUGHT IRON TUBES

FOR

TUBULAR BOILERS,

FROM 1 1-4 TO 6 INCHES DIAMETER,

and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25

28 Platt street, New York.

ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Patterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, N. Y. Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

THE AMERICAN RAILROAD JOURNAL

is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

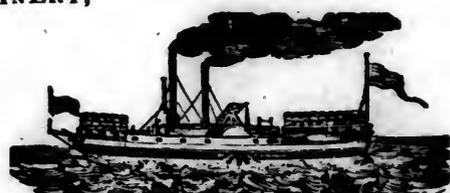
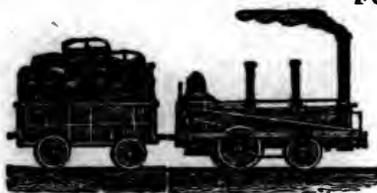
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AMERICAN RAILROAD JOURNAL,

AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 50]

SATURDAY, DECEMBER 12, 1846.

[WHOLE No. 547, VOL. XIX.

REMOVAL.—It is respectfully requested that all letters, exchange papers and periodicals, for the RAILROAD JOURNAL, may be sent to PHILADELPHIA, as the Journal will hereafter be published there, and the office will be kept at the FRANKLIN HOUSE, No. 105 Chestnut street.

It has required more time than we anticipated to effect the removal and arrangement of our office, consequently this number is somewhat delayed, but we hope to get arranged and up to time soon.

Those subscribers who are about remitting the amount due on their subscription up to the close of the present year, will please address their letters directly to PHILADELPHIA, instead of New York, and much oblige the proprietor and editor,

D. K. MINOR.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.
Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.
Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.
Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7-20 a.m. and 3½ p.m.
All baggage at the risk of the owners thereof.
31 ly W. RAYMOND LEE, Sup't.

BRANCH RAILROAD AND STAGES Connecting with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Winter Arrangement, 1846-7.
On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:
Boston for Portland at 7½ a.m. and 2½ p.m.
Boston for Great Falls at 7½ a.m., 2½ and 3-25 p.m.
Boston for Haverhill at 7½ and 11½ a.m., 2½, 3-25 and 5 p.m.
Boston for Reading at 7½, and 11½ a.m., 2½, 3-25 5 and 6½ p.m.
Portland for Boston at 7½ a.m., and 3 p.m.
Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.
Haverhill for Boston at 7½, 8½, and 11 a.m. and 3 and 6½ p.m.
Reading for Boston at 7, 8½ and 9½ a.m., 12 m., 1½, 4 and 7½ p.m.
The Depot in Boston is on Haymarket Square.
Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.
1y31 CHAS. MINOT, Sup't.

THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.
Take Cars to Xenia, 65

miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.
Fare from Cincinnati to Sandusky.....\$8 00
" " Sandusky to Buffalo, Cabin..... 6 00
" " " " Steerage.... 4 50
Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.
Leave Cincinnati in the morning, arrive at Columbus at night.
Leave Columbus in the morning, arrive at Sandusky same day.
Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.
Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.,] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.
Fares on the New York railroads are about to be reduced.
B. HIGGINS, Sup't, etc.
Sandusky, Ohio. M. & S. C. R. R. Co.

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A. M. and 4 P. M.
" Middletown at 6½ A. M. and 5½ P. M.
FARE REDUCED to \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P. M.
" Middletown at 12 M.
The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't.
March 25th, 1846.
Stages run daily from Middletown, on the arrival of the afternoon train, to Millford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 if

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.
The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston. New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.
Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich. New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.
Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.
Fares are Less when paid for Tickets than when paid in the Cars.
32 ly J. W. STOWELL, Sup't.

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail— which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

TROY AND SARATOGA RAILROAD.

THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany), and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug 3, 1846.

ly 32

BALTIMORE AND OHIO RAILROAD.

Great Western Mail leaves Baltimore every morning at 7 1/2 and

Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances.

THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER, 17 Burling Slip.

ly10

New York.

NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.

Passengers destined for Columbus and Cincinnati,

O, Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance..... 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron.] to Mansfield, distance..... 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

TIME.

From Buffalo to Sandusky..... 24 hours.

Leave Sandusky 5 a.m. to Columbus.... 14 "

From Columbus to Cincinnati..... 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.

From Buffalo to Sandusky, Cabin.....\$6 00

" " " Steerage..... 3 00

" Sandusky to Columbus..... 4 50

" " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Sup't, etc. M. & S. C. R. R. Co.

Sandusky City, Ohio.

NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrianna, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train.] 2 30 p.m. 5 p.m. to Morrisania only.

Leave City Hall for Harlem, Morrisania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train], 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing.] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train], and 3 45 p.m.

RETURNING.

Leave Pleasantville, at 8, 10, [freight train], and 11, a.m.; 1 30, and 4, p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20, p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35 a.m.; 2 05, and 4 35, p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 40, 4, and 4 50 p.m.

Leave Morrisania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m.

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and

Afternoon Trains between Baltimore and York.—The Passenger

trains run daily, except Sunday, as follows: Leaves Baltimore at..... 9 a.m. and 3 1/2 p.m. Arrives at..... 9 a.m. and 6 1/2 p.m. Leaves York at..... 5 a.m. and 3 p.m. Arrives at..... 12 1/2 p.m. and 8 p.m. Leaves York for Columbia at..... 1 1/2 p.m. and 8 a.m. Leaves Columbia for York at..... 8 a.m. and 2 p.m.

FARE.

Fare to York.....\$1 50

" Wrightsville..... 2 00

" Columbia..... 2 12 1/2

Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg..... \$9

Or via Lancaster by railroad..... 10

Through tickets to Harrisburg or Gettysburg.. 3

In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at..... 5 1/2 p.m.

Returning, leaves Owing's Mills at..... 7 a.m.

D. C. H. BORDLEY, Sup't.

31 ly Ticket Office, 63 North st.

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 25 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

35ly

SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily..... \$26 50

Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

ly25 JOHN KING, Jr, Agent.

CENTRAL RAILROAD-FROM SAVANNAH TO MACON. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight.

Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.

On measurement goods..... 13 cts. per cubic ft.

On brls. wet (except molasses and oil).....\$150 per barrel.

On brls. dry (except lime)... 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.

On hdds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.

On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, Gen'l. Sup't. Transportation.

MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Stranding Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

2v19ly

CENTRAL AND MACON AND WESTERN RAILROADS, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad 190 Miles.
 Macon to Atlanta—Macon and Western 101
 Atlanta to Oothcaloga—Western and Atlantic... 80
 Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings..... \$0 50 To Atlanta. \$0 75 To Oothcaloga.

Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones..... 0 50 0 62½

On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot..... 0 20 0 26

Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot..... 0 20 pr. 100lbs. 35

Crockery, per cubic foot..... 0 15 " " 35

Molasses and Oil, per hhd., (smaller casks in proportion). 9 00 12 50

Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each..... 1 25 1 50

Ploughs, (small,) and Wheelbarrows..... 0 80 1 05

Salt, per Liverpool Sack..... 0 70 0 95

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846. 1v34

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00
 " " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to IV14 STOCTON & FALLS, Agents.

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.
 Factory, 9th street, near Coates, cor. Melon st. Office, No. 3 North 5th street, Philadelphia, Pa. ly25

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA to OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

RATES OF FREIGHT.

		Between Augusta and Oothcaloga. 250 miles.	Between Charleston and Oothcaloga. 386 miles.
1st class.	Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 25
2d class.	Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	0 90	1 40
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 55	0 75
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 37½	0 62½
	Cotton, per 100 lbs.....	0 45	0 65
	Molasses, per hogshead.	8 50	13 50
	" " barrel.....	2 00	3 25
	Salt per bushel.....	0 17	
	Salt per Liverpool sack.		95
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows... 0 75	1 37	

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
 Ch. Eng. and Gen. Agent.
 Augusta, Sept. 2d, 1846. *44 ly

THE WESTERN AND ATLANTIC RAILROAD.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
 Chief Engineer.
 Atlanta, Georgia, April 16th, 1846. 1y1

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,
 a 45 E. cor. 12th and Market sts., Philad., Pa.

LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD—Distance 84 miles—connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Millford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon... \$1 00
 " " " Xenia 1 50
 " " " Springfield... 2 00
 " " " Columbus... 4 00
 " " " Sandusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.

W. H. CLEMENT, Supt. 47t

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-ea barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 ly

CLEVELAND, COLUMBUS AND CINCINNATI RAILROAD. In pursuance of a resolution adopted by the Board of Directors, on the 21st October, notice is hereby given, that proposals will be received up to the 1st day of December next, for the Grading, Timbering, Bridges and Culverts on forty miles of the road, commencing at Cleveland. Profiles, Specifications, Terms of Payment, and all other information pertaining to the matter, to be furnished on application at the office of the Company, Merwin Block, Cleveland.

JOHN W. ALLEN, President.
 A. G. LAWRENCE, Secretary.
 CVRUS WILLIAMS, Engineer.
 Cleveland, October 23, 1846. 45*1m

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ¼ inch Flat Punched Rails, 20 ft. long. 25 " 2½ x ¼ " Flange Iron Rails. 75 " 1 x ¼ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11t

GEOURGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. 1y1

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings hereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

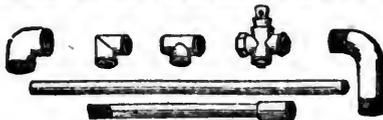
For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ½ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.

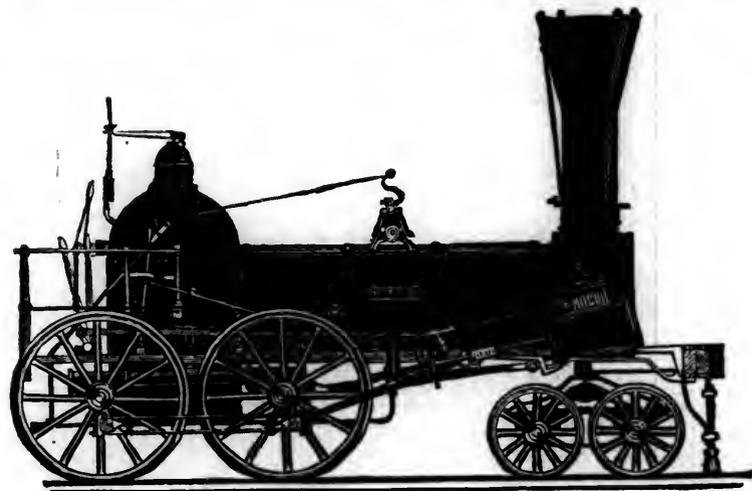
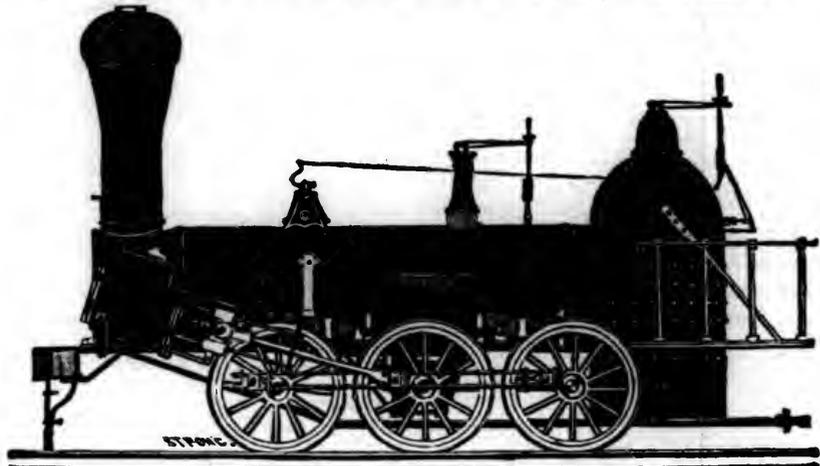


Manufactured and for sale by MORRIS, TASKER & MORRIS. Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

RAILROAD IRON.—THE NEW JERSEY Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to FULLER & BROWN, Agent,

No. 139 Greenwich, corner of Cedar street. September 12, 1916. 10739

NORRIS' LOCOMOTIVE WORKS.
BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of Cylinder,	× 20 inches	Stroke.
" 2,	14	" " "	× 24	" "
" 3,	14½	" " "	× 20	" "
" 4,	12½	" " "	× 20	" "
" 5,	11½	" " "	× 20	" "
" 6,	10½	" " "	× 18	" "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY, President of the Newcastle Manuf. Co.

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON Mar. 20tf 4 South Front St., Philadelphia.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Allaire, } New York.
- Peter Cooper, } New York.
- Murdock, Leavitt & Co. } New York.
- J. Triplett & Son, Richmond, Va.
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- J. M. L. & W. H. Scovill, Waterbury, Con.
- N. E. Screw Co. } Providence, R. I.
- Eagle Screw Co. } Providence, R. I.
- William Parker, Supt. Bost. and Worc. R. R.
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25,000 to 30,000 made weekly. 35

"Railways at Home and Abroad."

The last number of the *Edinburg Review* contains an exceedingly well written article upon the subject of railways, their rise, progress, and present condition—which is attributed, in the *Railway Chronicle*, to the pen of Dr. Lardner. Notwithstanding the great length of the article—filling over 26 of the large pages of Leonard Scott's reprint—we shall lay it before our readers in convenient parts, as we are sure they will find it both interesting and instructive. We will, however, only direct attention to it, without referring to its details, and assure those who take an interest in the subject, that they will be amply repaid by an attentive perusal of it, *long* as it is.

THE EDINBURGH REVIEW, AND ITS ARTICLE ON RAILWAYS. (ART. VII.)

When we consider the great material resources of this country, her progress in commerce, and the antiquity of her naval supremacy, we cannot fail to be surprised at the late date of her advancement in the important art of internal transport. Yet from the conditions of her topography there must always have existed the strongest incentive to improve the means of inland communication. All her great seats of manufacture are situated near her geographical centre. There, her soils teem with mineral wealth. There inexhaustible sources of iron and coal abound. Yet, until within little more than fifty years from the present time, England was among the most backward countries in Europe, in this branch of the industrial arts.

Until the middle of the last century, goods continued to be conveyed in Scotland on pack-horses. The time required by common carriers to complete even short journeys in populous districts would seem, to our present modes of thinking, absolutely incredible.—Sir Henry Parnell relates, that the ordinary carrier between Edinburg and Selkirk, a distance of thirty-eight miles, required a fortnight for his journey, going and returning! In 1750, the stage coach between Edinburgh and Glasgow took a day and a half to complete the journey. In the year 1753, there was but one stage coach between London and Edinburg, which started once a month from each place, and took a fortnight to complete the trip! The tract of ground crossed by the Liverpool and Manchester railway, on which thousands of travellers are now daily transported at a speed varying from twenty-five to fifty miles an hour, just seventy-five years ago was travelled by Arthur Young, who has left us the following description of it:—"I know not in the whole range of language terms sufficiently expressive to describe this infernal road. Let me most seriously caution all travellers who may accidentally propose to travel this terrible country, to avoid it as they would the devil; for a thousand to one they break their necks or their limbs by overthrows or breakdowns. They will here meet with ruts, which I actually measured, four feet deep, and floating with mud only from a wet summer. What, therefore, must it be after a winter? The only mending it receives is tumbling in some loose stones, which serve no other purpose than jolting a carriage in the most intolerable manner. These are not merely opinions but

facts; for I actually passed three carts broken down in these eighteen miles of execrable memory."

To the close of the last century, the internal transport of goods by wagon was not only intolerably slow, but so expensive as to exclude every object except manufactured articles; and such as being of light weight, would allow of a high rate of transport.—Thus the charge for wagon carriage from London to Leeds was as the rate of £13 per ton. The rate of charge between Liverpool and Manchester was 40s. a ton. Heavy articles, such as coals and other minerals, could only be available for commerce where their position favored transport by sea; and consequently many of the richest districts of the country remained unproductive, awaiting the tardy advancement of the act of transport.—The Bridgewater canal was not commenced till about the year 1767. The success which attended this enterprize excited the attention of other great proprietors: the canal companies were formed, and the extensive system of inland navigation, which has so long served the purposes of English commerce, soon overspread the country.

Protected from all competition by the perfect nature of the roads, and the injurious operation of the turnpike tolls, these companies soon monopolized the entire inland traffic of England, and began to realize immense profits. It was in vain that rival lines were in some instances constructed. The instinct of common interest soon produced a combination of the companies, extinguished competition, and left the public victims to monopoly and exorbitant prices.

The commerce of the country supported this system of extortion long and patiently.—It was not forgotten by the merchants and manufacturers, that before the construction of the canal, they had no practicable means whatever for internal traffic; and the companies were allowed to continue in the enjoyment of their revenues. At length security engendered negligence. The service of transport was not only extravagantly charged for, but ill performed. Petitions were presented to parliament in 1825, in which it was stated, and evidence offered, that the cotton which was transported three thousand miles across the Atlantic, from New York to Liverpool, in twenty days, took six weeks to be carried from Liverpool to the mills of the spinners at Manchester—a distance of only thirty miles. This was more than even the phlegmatic temperament of Englishmen could endure, and it was resolved to construct a railway to perform the service.

Roused from their apathy, the wealthy and powerful canal companies at once resolved to propitiate the merchants by a reduction of their tariff. It was, however, too late. The decision was taken; the new project had been well considered, and its advantages were rendered too plain. Conciliation failing, and compromise rejected, the inland navigation interest rallied their partisans in parliament to oppose the act authorizing the construction of the railway, and for two years they succeeded in their purpose. The com-

merce of Liverpool and Manchester, however, felt its interest too deeply involved to submit to be repulsed, and at length, in the year 1825, the act to incorporate the railway company received the royal assent.

Such was the origin of that singular advancement in the art of transport over land, which has formed so remarkable an event in the present age, and which has spread its influence, more or less, over all that portion of the terrestrial globe to which civilization has extended. The unprecedented degree in which capital has been attracted to this improvement within the last two years—the extraordinary manner in which it has engrossed the attention of every enlightened people, and more especially that of our own country—the great interests which are consequently involved in it, and above all, the imperfect means of information which have been afforded to the public respecting it, combine to render it a fit subject for an extended notice. We propose, therefore, in the present article, to take a brief retrospect of the progress of the art of railway transport, from the opening of the Liverpool and Manchester line to the present time—to lay before our readers the actual state and immediate prospects of railway transit, in the various countries where it has been commenced—to examine its effects on social and commercial intercourse, and to consider the often and anxiously discussed questions of its safety—of the uniformity of gauge—and of the relations between railways and the state.

As originally designed, the sole object of the Liverpool and Manchester railway was the transport of merchandise between these important towns. Manchester, a great manufacturing district, received its raw material from distant quarters of the globe by the port of Liverpool; and, on the other hand, shipped at the same port the manufactured produce of its mills and factories to its customers in every part of the world. The reciprocal transmission of these articles was the main object to which the new company looked, as the means of affording an adequate return for the capital they were about to expend.

As the enterprize advanced towards completion, the method of conducting the traffic upon it came to be considered. The project was originally regarded as an ordinary road, and the owners were authorized to demand toll from all who might desire to transport goods upon it. This method of proceeding would have been admissible, if the line were to be worked by horse power like a common road; and such, at one time, was the view of the matter taken by many who were interested in it. The engineer, however, Mr. George Stephenson, who had been employed to make the line, recommended the use of steam as an agent superior in economy and efficiency to animal power. There were two methods in which the agency of steam might be used. A rope might be carried on rollers along the line between the rails, to which the wagons containing the merchandize might be attached; and this rope being, at certain stations, coiled round large drums or cylinders, the wagons might be drawn from station

to station by fixed steam engines, applied to keep these drums or cylinders in revolution. Such was called the system of *stationary engines*. The second method was that of smaller and lighter engines, which should be provided in greater number, and which should travel with the load as horses do with a wagon.— This was called the system of *locomotive engines*.

Horse power being definitively rejected, the choice between these two systems of steam power was doubtful, and the directors of the company were divided in opinion upon it. It was accordingly agreed that the best and most experienced practical engineering authorities should be commissioned to inquire and report upon the question. Accordingly, in the spring of 1829 Messrs. George Stephenson, Joseph Locke, James Walker, and John U. Rastrick, all professionally conversant with railways and steam power, were appointed to visit the different coal districts, and collect information on the subject. The result was a report inclining in favor of the locomotive system, which at length, and not without much hesitation and doubt, it was decided to adopt.

Hitherto the transport of passengers on the proposed railway had not entered into the contemplation of the projectors, or if it did, it was regarded as practicable only to a limited extent, and as altogether secondary to the traffic in merchandize. It was now, however, suggested that locomotive engines might *possibly* be so constructed as to draw the wagons with a speed of *ten or twelve miles an hour!* and in that case, that it was worth considering whether the passenger traffic between Liverpool and Manchester might not be attracted to the railway.

It is curious to observe, now that the consequences of this great enterprize are before the world, how completely they were unforeseen. The idea of a steam engine drawing a load twelve miles an hour (which, we believe, was thrown out with some timidity by Mr. Stephenson,) was received with ridicule by most of his engineering contemporaries. One distinguished writer on railways, who resided in the midst of a coal country, and under whose windows locomotives had been working for years, indignantly disavowed any participation in such extravagant speculations, and has left his disclaimer on record in a published work. He begged that he might not be confounded with those hot-brained enthusiasts who asserted the possibility of carriages being drawn by a steam engine on a railway at such a speed as twelve miles an hour!— Within a few months after the publication of this remarkable disclaimer, amidst the incredulity and ridicule of the majority of the engineering profession, and to the astonishment of the scientific world, the railway was traversed by the "Rocket" with a speed of upwards of twenty-nine miles an hour.

This fact altogether changed the aspect of the enterprize. It was evident now that the projectors had at their feet the traffic in passengers, the most profitable species of transport; and that goods, hitherto regarded as the chief source of profit, must take a subordinate

place. The railway was opened to the public in 1830; and immediately, of the thirty stage coaches which had previously run daily between Liverpool and Manchester, one only remained on the road; and that was supported solely by passengers to intermediate places not lying in the direction of the railway.

The comparatively low fares, and extraordinary expedition offered by the railway, had the effect which might have been expected. Previously, the number of travellers, daily, by the coaches, was about five hundred; it was immediately augmented above three-fold. Sixteen hundred passengers per day passed between these towns. If the traffic in passengers exceeded all anticipation, the transport of goods, on the contrary, fell short of what was expected. The canal lowered its tariff to the level of the railway charges, and increased its speed and its attention to the accommodation of customers. The canal, moreover, winding through Manchester, washed the walls of the warehouses of the merchants and manufacturers. At the other end it communicated directly with the Liverpool docks. The goods were therefore received directly from the ship, and delivered directly to the warehouse, or *vice versa*; without the cost, delay, and inconvenience of intermediate transshipment and cartage. These considerations went far to counterbalance the superior speed of the railway transit for goods; yet, notwithstanding this inconvenience and obstruction, the company soon found themselves carriers of merchandize at the rate of a thousand tons per day.

Thus, the problem of the rapid transport of passengers by steam on the railways was solved in 1830, and the profitable character of the enterprize soon became apparent. Dividends of ten per cent. were declared, and the shares were greedily bought up at a hundred and twenty per cent. premium. Then followed in rapid succession those results which must necessarily have ensued. Other lines of railway, connecting the chief centres of population and industry with the metropolis, and with each other, were projected. In the four years which elapsed from 1832 to 1836, about four hundred and fifty miles of railway were completed, and three hundred and fifty miles were in progress of construction.

Meanwhile, the practical skill and the experience of the engineering profession did not keep pace with the increasing demands of the public, and the avidity of capitalists. Enterprizes were pushed forward before time had ripened the results of the earlier attempts into general principles; and it was still undecided on what plan and by what methods these novel lines of intercommunication, and the machinery to work upon them, might best be constructed. The very limited number of engineers, who, having already been employed in the coal districts of the northern counties, were presumed to have had some experience in railway works, were soon engaged to the full extent of their time and powers. Great enterprizes, consequently, fell under the superintendance of persons having neither the peculiar knowledge nor

experience which they required. It was fortunate for the country that the first important line of railway had been entrusted to the consummate and practical skill and experience of Mr. George Stephenson. The Liverpool and Manchester line, which will descend to succeeding ages as a monument of his skill, happily served as a model railway for those which more immediately succeeded it. His son and his pupils were entrusted with the execution of several of the most important lines; and the same successful results which had attended the first railway, were secured for those which came into operation afterwards. In other cases, however, the superintendance of great enterprizes fell into less scrupulous and more presumptuous hands. The rashness of ignorance and inexperience prompted the adoption of fantastic novelties, which had no discoverable purpose save the acquisition of notoriety; and the spurious reputations thus obtained, combined with some tact in the management of boards of directors, led to results, the penalty for which has since been paid in the shape of large calls, heavy loans, and small dividends. Such cases, however, have been only exceptional; and, on the whole, the country and the world have reason to rejoice that an improvement so extensive and sudden has been effected with so few important failures and drawbacks.*

It was impossible for any human skill or foresight to provide, in a series of enterprizes so novel, against all the contingencies which must arise in their practical operation. We accordingly find, in tracing their progress, the same gradual advancement through a series of errors, which has marked the progress of every improvement in the arts and sciences. When the Liverpool and Manchester line was in progress of construction, a form of rail called the "fish-bellied" rail had acquired much favor among engineers; and great praises were lavished on the scientific perfections of its form, in which the varying strength was so beautifully adapted to the varying actions of the loads which passed upon it. The railway was accordingly laid down with "fish-bellied" rails. Experience, however, soon showed that the form so beautiful in theory was most defective in practice; and these rails have since been consigned to a place in the history of engineering—the original "parallel" rail having superseded them in all parts of the world. The proper weight and strength of the rails was as little foreseen as their form. The Liverpool and Manchester line was originally laid with rails weighing 35 pounds per yard. This has been increased successively from year to year to 40, 50, 60, and even to 75 pounds. This distance between the supports has been likewise varied. Forty pound rails on 3 feet bearings, 60 pound rails on 4 feet bearings, and 75 lb. rails on 5 feet bearings, have been adopted

* So great was the ignorance, even among the most eminent engineers, respecting railways and their machinery, so recently as 1837-8, that one gentleman in the highest rank of the profession, being examined before a committee of the house of commons, was unable to say whether the wheels of locomotives turned with their axles or upon them!

on different railways, and on different parts of the same railway. The nature of the supports themselves has undergone a revolution. Originally the rails were sustained on square stone blocks, measuring 2 feet on the side, and 12 inches deep. Cross sleepers of timber were only used as temporary supports on embankments, until their settlement and consolidation should be effected by time and work. The stone blocks are, however, now every where abandoned, and the cross sleepers of timbers permanently and universally established. Nor has the machinery been the subject of less frequent and curious changes. The weight of the first locomotives was limited to 6 tons. This weight has been increased successively to 8, 10 and 12 tons; and on the Great Western railway, engines have been placed weighing 20 tons—this weight being in every case exclusive of that of the tender which carries the fuel and water. Originally, the cylinders and the machinery by which the working wheels were driven, were placed outside the wheels. Soon afterwards they were transferred to the space between the wheels under the boiler. This was announced as a great improvement, inasmuch as the cylinders were inclosed in the smoke-box, and protected from cold, and the driving power was made to act nearer to the centre of inertia of the engine and load. It was, however, accompanied by a serious drawback, in as far the axle of the driving wheels, on which the major part of the weight of the engine rested, was obliged to be constructed with two cranks, so as in fact to be broken and discontinuous in two places. This was justly regarded as an anomaly in engineering; yet it was allowed, because of the counterbalancing advantages supposed to attend the arrangement. More recently, however, it having been found impracticable to pack into the narrow space between the wheels, machinery sufficiently powerful for the speed now required, the cylinders and working gear have been restored to their primitive position outside the wheels; and the same engineering authorities who lauded the internal arrangement, have lately condemned it, declaring that there is nothing like outside machinery. The engines were originally supported on four wheels only; the number is now six. An increased security is thus obtained in case of an accidental fracture of an axletree. Since, however, the transfer of the machinery outside the wheels, this precaution is of less importance. Since the power of the engine must necessarily have been regulated by the resistance which it would have to overcome, it might be supposed that one of the first questions to which practical men would direct their inquiries would have been to determine, with some degree of certainty and precision—what was the average amount of resistance, to the drawing power offered by a train of carriages moving on a straight and level line of railway. Yet, strange as it may now appear, several hundred miles of railway were constructed and in full operation before that problem had been solved, even with any degree of approximation. A rough estimate had obtained fa-

vor in the profession, which assigned about ten pounds per ton of the load drawn, as the amount of this resistance; but no one could tell how this estimate had been made, and it is now certain that it had no better origin than conjecture. It was, moreover, always assumed, that the resistance to the moving power was independent of the speed. It was, of course, admitted that the resistance produced by the atmosphere must increase with the speed; but this was considered as forming so insignificant an element of the entire resistance, that it might be disregarded. It was not until the years 1837-8, that this vitally important question was submitted to experimental investigation. In these years an extensive series of experiments were undertaken and executed by Dr. Lardner, in which he was assisted by Mr. Edward Woods, engineer on the Liverpool and Manchester railway, and Mr. Hardman Earl, an active and intelligent director of that line. The object of this inquiry was to settle the values of several data or conditions connected with the working of railways, or may be called "railway constants." Among these the most important and the most difficult, was the determination of the resistance to the tractive power. After various unsuccessful attempts to apply dynamometric instrument to the purpose, the following expedient was resorted to, the result of which was completely successful:—The train of carriages whose resistance was desired to be ascertained, was placed near the summit of an inclined plane. An engine placed behind it put in motion, and dismissed it down the plane with a high velocity. The consequence was not, as might have been expected, that the train descended with accelerated speed. On the contrary, it was found as it descended to be gradually retarded, until its motion was reduced to a certain uniform velocity, which it retained until it arrived at the foot of the plane. Mechanical considerations proved, that the gravity of the train resolved in the direction of the plane, must be equal to the resistance which the train would have opposed to a power moving it along a level.

To be continued.

Heating Rooms.

As winter is approaching, it may not be inappropriate to give a few hints in relation to the heating of rooms—a matter in which every one is particularly interested during the cold season. A thousand and one methods for economizing heat, and of bringing about this desirable object in the least troublesome and most beneficial manner, are resorted to—and innumerable are the "inventions" got up every season, to improve upon those previously in use.—"Experience," says an exchange, "will teach us much in reference to this matter—but the following from the New York Farmer and Mechanic, contains suggestions which may be valuable:—"

"Rooms heated with anthracite coal, and rooms heated with close stoves in which wood is burnt, have very dry atmospheres. The use of water in such rooms is very congenial to health, but the water should not be placed in an iron or tin vessel upon the stove, for the reason that it will undergo that degree of heat which will make its vapors of-

fensive, and injurious to breathe. It is as injurious to the system to breathe putrid water vapors of this kind, as it is to breathe the vapors from stagnant ponds in hot weather. If water is used upon a stove, an iron pan should be made use of, and this filled with dry sand, in the sand set an earthen bowl filled with clean water, which should be changed twice a day, and the bowl washed and kept as clean as if used for a drinking vessel. Where hard coal is burned in a grate, a glass globe suspended in the room filled with clean pure water, and as the heat-air rises to the top of the room, it will steadily evaporate the water and moisten the dry and heated air. Persons who prefer the atmosphere of salt water vapor, can add salt to the water, or if they prefer an aromatic atmosphere, they can add Cologne water, or any other perfume which they prefer. It is as important to have clean air for breathing, as to have clean water for drinking. Basement rooms, where hard coal is burnt, should be frequently ventilated. Small children accustomed to stay in basement rooms, find a bad air near the floor. This air should be removed by allowing the doors to be opened frequently to let in fresh air. A little care in these matters will tend wonderfully to comfort and enjoyment."

The directors of the *Orleans and Bordeaux* have considerably reduced their charges for merchandize traffic—in many instances from first class ratio to second, and from second class ratio to third.

The report of the *India Board*, granting two sections of railway in India, one in Upper India and the other in Bengal, is stated by the Times to have been carried by a large majority. Four per cent. is guaranteed on £5,000,000, to commence when £1,000,000 has been paid into the India house. This is without participation in the profits. The government is to be remunerated by the conveyance of the mails, troops, stores, etc. No company has yet been named, but it is thought the East India railway company will be the one selected, as the sections indicated are portions of the great trunk line.

The first general meeting of the shareholders of the railway from *Milan to Como* was held in the Exchange at Milan, on the 19th of October, at which 5,748 out of the 7,000 shares constituting the company were represented. The various contracts were laid before the meeting, from which it appeared that the undertaking would be completed in less than two years from that period. It was resolved to carry the line from *Camnago to Monza*, and thence to *Milan*. By this line there is now a prospect of a junction with *Bergamo*, and the different state railways.—*Railway Chronicle*.

Ulica and Schenectady Railroad.—This company have closed a contract with two establishments in New Jersey, for 6,600 tons of iron rails, to weigh 65 pounds to the yard. This, we believe, is the heaviest rail yet ordered by any company. The contract is sufficient for the entire length of the road.

Boston and Woonsocket Railroad.

A writer in the Boston Courier communicates as follows in reference to this enterprize. It seems the Connecticut portion of a continuous land route, through, from New York to Boston, by railroad, has already been chartered. The writer says:

"The charter authorizes the bridging of Connecticut river, by a permanent structure, having a draw eighty-five feet wide, for the accommodation of the commerce of the upper country. This Connecticut charter is intended to connect with the Harlem railroad, which is already in successful operation; so that it may be understood that of this continuous land route, every foot is chartered, from the City Hall, in the city of New York, to the line between the states of Connecticut and Rhode Island, opposite Woonsocket. There is not the smallest doubt that Rhode

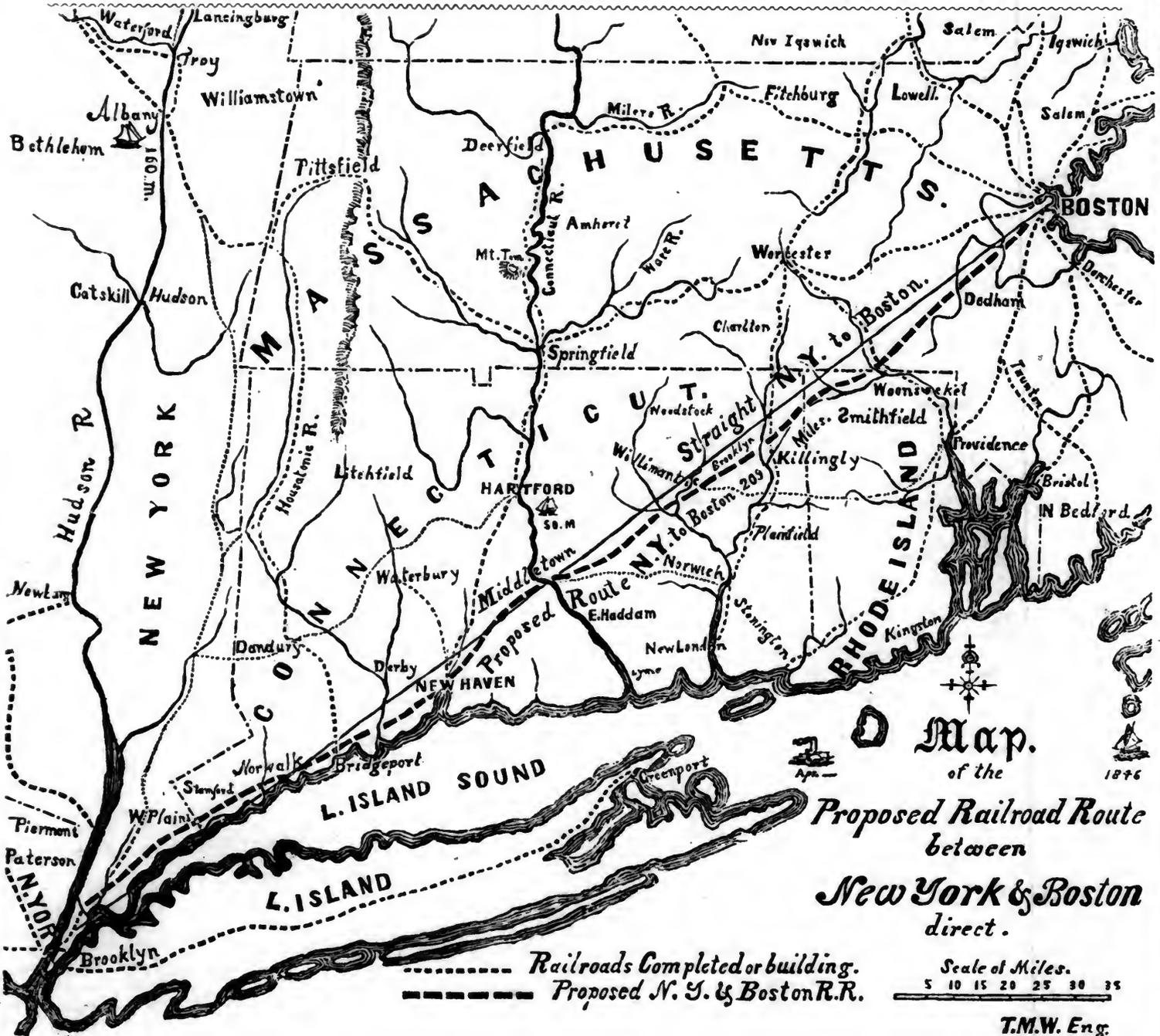
Island will grant a charter across her territory, to her enterprizing and important town of Woonsocket, to the Massachusetts line. Massachusetts will then be called on to do her share in this grand enterprize, altogether the grandest and most desirable for Massachusetts and for Boston, which has been projected since the Western railroad.

It opens a communication for Boston, and through Boston for every town in New England, with a section of country hitherto unpenetrated by railroads. This route is through the richest, most enterprizing, and most productive in industrial, manufacturing and agricultural results of any portion of Connecticut: its manufactures of every name and nature, need only this convenient and approved mode of transportation, to add them, in profusion, to other results of American enterprize and industry, already

concentrated here, which are attracting the best buyers from every clime, to our far-famed 'city of notions.'

It is the interest of every man who gains his livelihood in Boston and its environs, whatever be his calling, and of every individual who owns property within its limits, to encourage this enterprize and hasten its completion. It is the last diverging point in the magic circle of railroad radiation, which Boston needs to make it the eternal centre of railroad communication on solid land. From every port in the wide world, commerce will concentrate in old Massachusetts bay, and through her favorite city reciprocate its favors with the inland trade, to the farthest confines of the new world. This is the destiny of Boston; and what a glorious destiny! No true friend of Boston interests will permit narrow or selfish considerations, arising from a drivelling fear of competing interests, to impede her onward progress to its fulfilment."

PROFILE OF THE PROJECTED ROUTE FROM NEW YORK TO BOSTON.



----- Railroads Completed or building.
- - - - - Proposed N. Y. & Boston R.R.

Map.
of the
Proposed Railroad Route
between
New York & Boston
direct.

Scale of Miles.
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Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

Published by D. K. MINOR, 105 Chestnut St., Philadelphia.
 Saturday, December 12, 1846.

Railroad from New York to Boston.

The preceding map shows the route proposed for the New York and Boston railroad—to which allusion was made in the last number of the Journal. The project is one of great and growing importance, and the enterprize appears perfectly feasible. It will be noticed that the projected line passes nearly southwest from Boston, through Dedham, Woonsocket and Killingly, to Middletown, Conn., crossing the river at that point, and thence through New Haven, Norwalk, Stamford and White Plains, connecting there with the Harlem road, and thence to New York city—whole distance, 209 miles; the shortest route between the two cities.

It is scarcely necessary to refer to advantages so apparent as those relating immediately to the main points upon this line; and we need only remark that the route passes through a country rich in all the requisites for the maintenance and profit of a railroad. The manufacturing and agricultural interests in that region, are very extensive, and the population along the line of the route are so well known for their thrifty and enterprising character, that we entertain little doubt but that capitalists will see the advantages to arise from the construction of this road; and if the legislatures of Massachusetts, Rhode Island and Connecticut but second the views and wishes of the parties applying for charters, the stock will be readily taken up, and the work will be pushed forward with vigor to completion.

We have hitherto felt an aversion to urge the establishment of a rival route from New York to Boston, and have avoided pressing the subject upon the consideration of our readers. We have desired to see those roads successful, which were commenced at an early date in the history of railroads in this country, and which have struggled on through the numerous difficulties attendant upon such enterprizes. We have wished to see success crown the efforts of the pioneers, in this country, of railroad matters, and we would therefore propose no plan, nor advocate any proposition to interfere with the interests of those who have been early in the field, and who have borne the first burthen which attaches to these undertakings. Our readers will, we are sure, do us the justice to admit this position. We believe the time has now arrived, however, when a different course becomes us—and we propose to give a few reasons, which to us appear just and sufficient, for advocating the early establishment of the route under consideration.

We point to the terrible accidents which have oc-

curred upon the Sound—the loss of life and the immense destruction of property which has attended those unfortunate affairs—as an argument of the first and very highest consequence in favor of a land route through from the two points in question. The irregularity attending the transmission of the mails, is also an important consideration, and the failure of the boats and road to connect at such times as mails intended for the English steamers have been on their way, renders it exceedingly desirable to the mercantile community that a surer mode should be adopted for this service, if possible. The rough weather so often, and repeatedly, experienced by travellers upon Long Island Sound, as well as the danger attendant always upon that inconvenience, could thus be avoided by hundreds and thousands who prefer a land route. The time occupied between the two cities would be greatly shortened; and, with a road such as will probably be laid down, the distance would be accomplished in seven hours, or less! The manufacturing trade along the route, already very large, would be immediately and greatly increased, and the general advancement of that section of the country through which it is proposed to run the line will advance in that ratio of prosperity which has ever followed upon the introduction of railroads in the midst of an enterprising people. The establishment of another route from New York to Boston, thro' another fertile region of country, would naturally give a new impetus to the traffic between the two cities—and while a profitable business would be transacted legitimately upon the one, the business would increase, from various attendant causes, upon the others.

These are some of our reasons for urging this subject upon the consideration of capitalists and business men; and we would add that it is our firm conviction, if a road properly constructed and judiciously managed, be laid down upon the plan proposed, that it will prove eminently successful, and highly profitable to those who engage in it. We shall recur to the subject as occasion may suggest, and close our present article with the following, which we extract from the Boston Daily Times.—The editor remarks, that “the accidents which have occurred, and the irregularities of the New York and southern mails, particularly at this season of the year, cannot fail to impart an additional degree of importance and interest to the project of constructing a direct and independent railroad between this city and New York. If such a communication had been established five or six years ago, before the loss of the Lexington, it is fair to infer that nearly two hundred lives would have been saved, to say nothing of the large amount of property which has been sacrificed.

“With a direct railroad the entire distance, passengers could pass between the two cities in six or seven hours, regardless of wind or weather, and subject only to occasional slight detentions from heavy snow storms which will soon be overcome by means of recent improvements for clearing the track. The distance from Boston to Albany is two hundred miles, nearly as far as by the contemplated route to New York, and the cars arrive here with the greatest regularity, having been seldom delayed from any cause since the opening of the Western railroad. We might depend with equal certainty on the new New York route, which would be a very different state of things from what we have now.

“The shrewd capitalists of Boston and New York cannot fail to discover that the enterprize referred to offers a rare chance for safe and profitable investments, and having made that discovery, they will

act, we doubt not, with their accustomed promptness in the matter.

A Chapter of Sundries.

We find in our exchanges for the past week, allusions to a variety of new inventions, and other matters of general interest, which we record below.

The National Magazine gives an account of a cast iron rail, for railroads, lately invented—which is described as a tri-lateral, or a three-lobed rail. It resembles the letter Y turned upside down, (Λ) and its advantages are said to consist in its being better secured in its chair, and allowing wheels of deeper flanges. We imagine that the *ne plus ultra* of rails has been invented by Mr. Imlay, of N. York. Two thousand two hundred feet of cast iron rails have been laid down under his direction, on the Harlem railroad, near 29th street. The flanges, the upper edge, of the shape of the T rail, and the lower rib or bearing, are all cast together. The rail is secured to a longitudinal sill, by bolts passing through it at the joints. It is cheap, permanent and solid.

“It is very strange,” adds the editor of the National Magazine, “that this idea has not been acted on before, since, for years past, the frogs and turnouts have been chiefly made of cast iron, and they have never broken, and have worn out the wrought iron bars with which they were connected. This application of Mr. Imlay’s must effect a revolution in the railway business, since his rails can be cast at any ordinary furnace, and be made in any part of the country where there is iron. We venture to assert that the cost of railways on this plan will be reduced one-third, possibly more.”

A new and valuable invention in railroad machinery is said to have been effected in England, by which each carriage becomes a locomotive, and the whole train is enabled to ascend any rise which the engine, if alone, would be able to ascend. The invention consists in making the advance of a whole train quite independent of the adhesion of the locomotive’s wheels to the rail on which it moves, and by conveying the propelling power of the engine to the axles of all the carriages—thus making their advance depend on their own adhesion. A break has also been, it is said, invented, by means of which a train may be conveyed down hill with perfect safety, and at an equal rate of speed.

The Old Colony railroad company have now running upon their road a passenger car, which is heated by a furnace. This is a real Yankee idea, and is said to be a great improvement on the usual method of heating by a stove, as the car is more evenly heated, and the room usually occupied by the stove is saved. The “furnace car” is quite a favorite on the road.

The model of an important invention for the paddles for steamboats, constructed by Mr. Guy Ambrose, has been exhibited in Brooklyn, L. I. It is said by engineers, and scientific men, to be the greatest improvement that has yet been achieved in connection with steam navigation, and when fairly before the public, will undoubtedly attract very general attention.

An improved compass has been invented by Mr. John R. St. John, of Buffalo, N. Y. The maker states that he has produced an instrument which “shows the deflections of the needle from the true or geographical meridian, whenever they occur, and from any cause whatever. Even if the needle be deflected without attraction—by hand—or if it hang upon the pin—or any other cause—or if taken off the pin and laid upon the bottom of the compass box, provided no wind or current of air reaches it, it will show at

a glance, by marks and figures on a scale, how much the needle is away from the meridian, in degrees."

The nearest thing to "perpetual motion," lately heard of, is the invention of a Mr. Stein, of Charleston, S. C., who has recently turned out a clock which is intended to run for twelve months, after being once wound up. It is a beautiful piece of machinery, and being placed under a glass case, the whole of the works are exposed to view. The motions are effected by only four wheels. The dial plate has hands denoting the hour and minute of the day, the day of the week, the month and the day of the month. There is also a circle which indicates the half seconds.

The Rochester American states that another improvement has been discovered, applicable to the telegraph—by which the *writing* process is rendered plain and simple. It is understood to operate so as to made the impress of every letter perfectly distinct upon paper. This, of course, will do away with the characters to represent the alphabet. Two or three of the telegraph companies, who have got somewhat of an insight into the working of the instrument used, are already negotiating with the inventor for the right of it.

Doctor Dickson, the celebrated Thermal practitioner, in England, has nearly abolished the use of the lancet, and considers it fatal in apoplexy and paralysis. Several well attested cases of apoplexy have been relieved by no other remedy than pouring cold water on the head from an elevation, and persisting in it for twenty or thirty minutes. Inflammation on the brain is relieved by this cold effusion and the patient recovers.

A new railway fog signal has been invented in England. A small pellet of detonating powder is placed on the rail, properly secured. The moment the first wheel of the engine presses on it, a loud report takes place, and the engineer immediately stops the train.

Mr. George Waring, of Lyme Regis, England, points out that gun cotton is not a new invention, and quotes Brande, page 925, who states that silk digested in nitric acid burns like gunpowder, and detonates when struck.

A writer in the London Times recommends paving with alternate lines of wood and granite, the advantage of which will be a firm foot hold, wet or dry, for as wood is slippery when wet, so is granite when dry.

The Railroad through Pennsylvania.

The subject of the *Pennsylvania road* is daily attracting more and more attention, in all quarters—and the business men of the city of Philadelphia especially, are alive to the importance of this question, as regards their own particular interests, and the effects which must be produced upon the trade here—should the wishes of a majority be eventually carried out upon this subject. To the commercial community in this region, the weightiest importance attaches to this enterprize, and the people of the Keystone State have already evinced their willingness to aid in pushing the work onward, provided the local authorities of Philadelphia came forward to second their views. A late number of the *North American*, has the following article in relation to this matter, which touches upon the resources of the western country, and refers to some of the advantages to be gained by the establishment of this route. Some statistics in reference to the local trade of the state will also be found in the remarks we append below, which will be found interesting.

The road should be built, and "the moment is

now propitious," says the American, "for the undertaking. We now see the necessity of such a work, in the probability that our canals will be closed by ice long before thousands of barrels of flour, now in the depots of the far west, and intended for the markets of the Atlantic cities, can be forwarded. If we had a railroad from this city to Pittsburg, the trade and travel would suffer little or no interruption throughout the year. Additional hundreds of strangers would arrive in our city daily, each engaged in some enterprize, each in pursuit of articles of merchandize, and thus an annual expenditure would take place to the extent of millions of dollars. We indeed possess every advantage as a manufacturing district. Coal is in our immediate vicinity, and this is one of the great elements of steam. We believe, moreover, that it is now fully conceded that steam power, taking one year with another, for a series of years, is far cheaper than water power, much more regular, and always to be depended upon. Gentlemen who have tried both, give this as the result of their experience. Is it not wonderful, then, that Philadelphia has so long permitted New England to supply her with manufactured articles of various kinds—articles, too, of which cotton from the south forms the raw material, or iron from Pennsylvania; and in the manufacture of which coal from Pennsylvania is required in such great abundance. But give us this railroad, and Philadelphia will receive an onward impulse of a most important character. A new spirit of enterprize will be called into existence, new avenues of trade and traffic will at once be discovered, the mighty west will be united with us by links of steel, she will pour her agricultural products into our bosom to the extent of millions in the aggregate, and we will reciprocate by furnishing her merchants with imported and manufactured articles essential to the wants and comforts of her citizens. Commerce, too, would be greatly benefited, for breadstuffs and provisions to an immense extent, and intended for exportation, would be sent to Philadelphia, and thus give employment to our merchants and merchantmen.

"In every point of view, the railroad is desirable, for every class of the community would derive advantages either directly or indirectly. Individuals who have not examined the subject, cannot conceive the extent to which manufactures have increased in Pennsylvania within a few years. Dozens of new towns in the interior have been quickened into life by their operation; thousands of hands have found ready employment and liberal wages, while the state has benefited very materially in the increase of tolls on her railroads and canals. Gentlemen who have recently travelled through the interior, assure us that the changes that have taken place within five years are quite remarkable. Points, which not long since were little better than a wilderness, have been converted into busy and contented abodes of civilization; and hundreds of dwellings may now be seen occupied by cheerful and industrious tenants, where before a log cabin, or a miserable shanty, was the only evidence of civilization. The iron manufacture alone has progressed in the most extraordinary manner.

"But in other branches of manufacture, the increase has also been remarkable. In brief, the time for action on the part of our city and state has arrived. Realizing the advantages of our position, we are bound by policy, by patriotism and by self-interest, to make the most of them. The west invites us. Her countless treasures are within our grasp. Our Legislature has authorized the incorporation of a company for the construction of a railroad between

Philadelphia and Pittsburg—a large portion of the stock has already been subscribed—and Philadelphia city possesses the ability to decide the matter."

Since the above was written, the authorities of Philadelphia have agreed, by a decisive vote, to subscribe for 25,000 shares of the stock of this road, and there can no longer be a doubt that this will be prosecuted with all reasonable despatch towards completion. We trust that no drawback or impediment may now occur to delay the work, and we hope to see the same lively interest kept up, till the road is finished, as has latterly been exhibited by the parties interested in the work.

Railroad Iron.

We understand that the Trenton iron works have entered into contract to make for the New York and Michigan roads—during the current year—9,000 tons of rails. The capacity of these works is such as enables them to manufacture in such a quantity as will leave them 200 tons surplus per month—which will be for sale. The Trenton Gazette believes that the manufacture of railroad iron will soon outrun the demand, so rapidly are iron mills applied to that branch of the business. It is this, says the Gazette, we apprehend, that has sustained the prices of iron and coal, notwithstanding the prospective reduction of the tariff. For if with this reduction the mills had continued in the manufacture of merchant iron, the market must have been overstocked, and a serious depression of prices have followed.

Sufficient unto the day is the evil thereof, say we. The demand for iron will, we hope, be steady—and the prospect appears *now* to be, that prices will be fully sustained for the present.

Railroad around Boston.

A plan is projected in Lowell to extend a railroad westwardly from that city, to strike the road now constructing from Worcester to Nashua—thus, to open a communication, by way of Worcester, (*not Boston*) between Lowell and the west, and through Lowell, between the west and the east. The projected road is to be called the Stony Brook road.—The following remarks were made at a late public meeting:

"Mr. Hopkinson expressed himself strongly in favor of building this road, and he went on to show the immense advantage it would be to Lowell. The saving in the freight of flour alone would be very nearly to compensate for the cost of the road. We would when this road was finished, be nearer New York and Albany than the people of Boston. The immense flour trade between this city and the towns eastward and northward, with Albany and Buffalo, must of necessity pass over this road through Lowell, making our city a great central mart for western trade.

"Mr. Knowles spoke of the importance of the Stony Brook road to the travelling public. He said if a citizen of Lowell or of the towns eastward, or up Nashua or Concord way wants to go to New York, or to Albany, or anywhere south or west, he must first go to Boston, pay carriage hire across the city, if he has baggage with him or his family, before he can get fairly started; and if he wants to go by the morning trains by Long Island to New York, or to Albany over the Western road, he must go to Boston the night before, thus subjecting him to an extra expense."

Lead Mines of the West.

A late number of the St. Louis Price Current contains some important information respecting the mining of lead in the west. It appears that the production of this article is increasing; the shipments from the Galena mines, alone, during the past year, amounting to 778,461 pigs—being an increase of 156,560 pigs over the previous year. The production of the lower mines has been in an equal

ratio, the total produce being estimated at 150,000 pigs. The actual demand has, moreover, kept pace with the increased production; and the stock on hand at the close of the year was only 31,500 pigs, which has nearly all changed hands, and was shipped on the opening of navigation. During the past year, it opened at \$3 15 and \$3 20, and closed at \$4 and \$4 12½ per cwt. In the latter part of May the market became depressed, and rates receded to \$2 95 and \$2 93, but soon recovered; and, with occasional slight checks, continued to obtain an upward tendency, until they reached present rates—say \$4 and \$4 12½ per cwt., with but a few pigs on sale. The total receipts from the Galena mines, for five years, are as follows:

1841.....	463,404 pigs.
1842.....	473,599 "
1843.....	584,431 "
1844.....	621,900 "
1845.....	757,906 "

DUBLIN AND KINGSTOWN.

Directors' Report read to the Meeting, October 16.

In pursuance of the provisions of the Extension Act, 9 & 10 Vict., cap. 65, sec. 9, the directors have caused to be prepared, and now submit to you the following "scheme," showing the profits of the company for the half year ending 31st August, 1846:—

Expenditure on working and maintenance of the Dublin and Kingstown and Kingstown and Dalkey railways in the six months ended 31st August, 1846.....	£16,816
Payments to commissioners of public works within the half year, viz. interest.....	1,550
On account of principal.....	1,447
Debitur: interest.....	1,400
Profits of the company for the half year... ..	10,043
	£31,259
Income of the Dublin and Kingstown and Kingstown and Dalkey railways for the six months ended August 31st, 1846, viz. ..	31,238
Interest account for balance to credit.....	21
	£31,259

This exhibits a net profit from the six months working amounting to £10,043 13s. from which, agreeably to the provision of the Extension Act, sec. 9, the board have apportioned the sum of £8,000 to the purposes of dividend for the past half year among the shareholders, being at the rate of £1 per share, and which will be payable on and after Monday, the 26th inst. At the next half yearly meeting there will be presented to you the detailed statement of accounts, and the statistical return for the year, which you have heretofore been accustomed to receive, and which the board believe to have given general satisfaction. It will be satisfactory for you to know that although in the past half year there is a small decrease in the income, amounting to £459 9s. 5d. there has been, on the other hand, a diminution in the expenditure.

The following is an abstract of the extension accounts to 31st August, 1846:—

DEBTOR.	
Purchase of Kingstown and Bray scrip, by order of the special general meeting of 2d of August, 1845—3,930 shares, at £7.....	£2,751
Expenditure on account of engineering parliamentary and law costs, prior to March 1st, 1846.....	2,778
Half year to 31st August, 1846.....	2,265
Balance remaining to credit on this account.....	7,538
	£40,062
CREDITOR.	
Balance of Kingstown and Bray deposits, transferred by order of special general meeting of the 2d August, 1845.....	8,834
Deposits and contributions for preliminary expenses received on 3,968 half shares and 3,968 quarter shares.....	31,248
	£40,062

The board have called for, but have not yet received the engineering accounts; and there is still a

considerable balance unpaid at foot of parliamentary and law expenses. The proprietary are aware that since the last general meeting, the act of parliament empowering this company to extend the line of railway to Bray, and to increase the capital for that and for other purposes, has received the royal assent; also, that the Waterford, Wexford, Wicklow and Dublin railway company have obtained their act of incorporation. Both these acts recognize the articles of agreement entered into with your sanction between the two companies, and confer on each the necessary powers for carrying them into effect.

While the board are of opinion that the completion of a line of railway by Wicklow and Wexford to Waterford, without unnecessary delay, and in pursuance of the agreements between the two companies, would be highly advantageous to your interest, on the other hand, they have not been unobservant of the late proceedings of the shareholders of the Waterford, Wexford, Wicklow and Dublin company, and of the anxiety which has been shown by very many of them to endeavor to relieve themselves from their responsibilities. The directors have, therefore, felt it to be their duty to seek for such information from the directors of the Waterford, Wexford, Wicklow, and Dublin company as would enable them to judge of the ability of the Waterford, Wexford, Wicklow and Dublin company to complete their undertaking, in its integrity, before transferring to them either your powers or your property.

Little Miami Railroad.

The following extract from a letter, written by one who knows, gives cheering news in relation to this railroad. We hope to see the entire line to the lake completed at an early day. He says:

"The business on this road—the Little Miami—is already as much beyond the expectations of its friends, as its beyond the ability of the company to perform. Our receipts for October were \$14,875 31, and could be made to reach \$20,000 the present month, if we had the ability to transport the freight offered. The thought struck me during a visit to New England last winter, and circumstances occurring since, have impressed it strongly upon my mind, that the secret of the good management and well deserved success of those roads lies in the fact that they have capital enough to construct them in a substantial manner, and to procure furniture for all their probable wants. In the south and west, within my knowledge, this state of things has never been sufficiently guarded against; more, however, from want of means than a knowledge of its necessity, I have the charity to believe."

Railroads.

The president of the "Champlain and Connecticut River Railroad," advertises for proposals to build the road from Bellows Falls to and including the summit at Mount Holley, thirty miles, and from Burlington to Brandon, about fifty miles.

The "Yankee Blade" states that upwards of \$75,000 have been subscribed in Waterville, Me., to the stock of the Androscoggin and Kennebec railroad, and it is expected that before many weeks the subscription will reach \$100,000. The editor learns that in Fairfield, also, and in Skowhegan, Norridgewock, and the adjoining towns, the friends of the enterprise are getting up steam in its favor. Our own enterprise—the Portland and Kennebec railroad—has received a new impetus in Gardner, of late, and the subscriptions have been materially increased.

The Rutland Herald is informed that a sufficient amount of stock having been subscribed on the books of the Lake Champlain and Connecticut River railroad company, to induce the directors to proceed at once to the commencement of this great enterprise, they have resolved to advertise for proposals for

grading, etc., forthwith, so that we may with certainty look forward to an early commencement and speedy completion of a work of internal improvement which is so much wanted, and for which we have so long struggled.

New York and New Haven Railroad.—The amount of subscriptions on the New York line is about \$1,500,000; and it is understood that \$500,000 or \$600,000 additional has been subscribed in Boston. The whole amount required is \$2,500,000. There is not a subscriber on the New York list for less than 50 shares, or \$5000. The New Haven Register says the contracts for grading and building the road are all made, and that the road is to be commenced immediately.

Newton Falls Railroad.—This branch from the Worcester railroad to the village of Newton Lower Falls, is expected to be in running order about Christmas or New Year's Day. It is about a mile in length, and crosses Charles river twice, so crooked is the river in that region. The principal business of Newton Lower Falls is the manufacture of paper. Seven mills are in operation, which turn out all kinds, from the coarsest brown to the finest tissues.—*Boston Traveller.*

REVIVAL OF THE GAUGE QUESTION.

From the beginning, we have said that the professed settlement of the gauge dispute was no settlement at all; one, indeed, worse than nothing. The decision had scarcely been made last session, before it was attempted to upset it in the case of the Oxford and Birmingham. And though the attempt failed, it is quite clear that the broad gauge partisans do not dream of being beaten so easily. If nothing else can be done, application is to be made next session to lay down rails of both gauges. The Brummagem advocates for the exceptional gauge are at least determined it shall extend thus far. The views of the Edinburgh Review—for we may assume that it still remains an acknowledged organ of whig government—on this question, have therefore a peculiar interest. Deeds, not words, however, will settle this question practically. The deed to do it will be the passage of the mail from London to Liverpool in less than five hours; and the sooner this is accomplished the better for all parties.

Among the numerous questions which have arisen out of the conflicting interests engaged in railway speculations in England, there is one which demands some notice, were it only on account of the extraordinary extent to which it has lately engrossed public attention. Nothing can more strikingly demonstrate the profound and general interest felt in everything connected with railways than the bitterness which has marked a contest, in which dispassionate and disinterested parties would find it difficult to discover any ground for a reasonable doubt as to the proper decision to be come to. We have seen that there were in operation, at the close of last year, about 2,100 miles of railway. In the construction of 1,860 miles of these, the space between the rails was fixed, in accordance with that adopted in the earlier lines, at 56½ inches; an uniformity rendered necessary in order to enable engines and carriages freely to pass from line to line throughout the country. A line called the Great Western has been laid down through a certain tract of the country, with an exceptional width (or gauge as it has been called,) of 84

inches; and from this line subsequently branches were extended, having of necessity the same gauge. It was, of course, evident from the beginning, that this system of exceptional lines, now amounting to 240 miles, by the adoption of a different gauge, dissociated itself from all other British railways;—the commerce of which could never flow into it, nor could they receive from it any commerce except by trans-shipment. It was said at the time, by the superintending engineer of these lines, that the departure from the ordinary gauge was "undoubtedly an inconvenience. It amounts to a prohibition to almost any railway running northward from London: as they most all, more or less, depend for their supply on other lines or districts where railways already exist, and with which they must hope to be connected. In such cases there is no alternative. The Gt. Western railway, however, broke ground in an entirely new district in which railways were unknown. * * It can have no connection with any other of the main lines: and the principal branches were well considered, and almost formed part of the original plan; nor can these be dependent on any other existing lines, for the traffic which they will bring to the main trunk." The commercial isolation of this exceptional system, was, therefore, contemplated by the engineer and directors, and consequently no inconvenience to themselves or the public was feared. Indeed none in that case would have ensued. But in the event, the development of railway transport far transcended the anticipations of the engineer and directors of the exceptional gauge, as well as all the rest of the world; and, contrary to their expectations, the ramifications of the general gauge have already come into contact with those of the exceptional gauge; and experience has proved Mr. Brunel to have fallen into a serious error, when he declared so explicitly that the exceptional system could never derive its traffic from the general lines of the country. One point of contact has been produced, and a line of others must ensue. The question then arises, what is to be done? The narrow strip of England, extending westward from London towards Bristol and Exeter, where the exceptional system of railways now prevails, is about to be insulated from the remainder of the country north and south. It will be, so far as regards railway communication, as though it were separated from the rest of the kingdom by a river, too wide and too deep to be crossed by a bridge. The commerce between it and the districts north and south must be conveyed by ferries at each point, on the banks of this river, where the railways respectively abut. Passengers arriving on either side must leave their carriages, taking with them their *impedimenta*, great and small—such as great-coats, umbrellas, parasols and carpet bags. And all this must happen night and day, in fair weather and in foul. The wife and children must, equally in the pelting storm and in the darkness of night, bustle their way through the mud, from the one train to the other. The trains of merchandize must all be unloaded

and unpacked on one side, and reloaded and repacked on the other; to the loss and damage of the owners, and delay and cost of transit; for some one must pay for all this labor, and who that some one shall be it is not difficult to tell. Regiments of porters must be maintained at these limits of the region of the exceptional gauge; and must be relieved by relays from time to time, for the work will be incessant night and day. And this is to be going on perpetually through the year, and from year to year, as long as railways shall endure, along a boundary line running on both sides parallel to a main railway, 200 miles long! But it may be asked, whether there is no countervailing advantage to set off against this intolerable evil? A long and expensive inquest has been held on the matter by the queen's commissioners duly appointed, and a ponderous mass of evidence has been collected. The result is, that either the ordinary or the exceptional system of railway affords all the safety, comfort, regularity and speed which the public can possibly desire; that they both have ample power and capacity to satisfy all the wants of commerce which either exist or can be reasonably anticipated. The partisans of each system contend for relative superiorities in various respects; but the differences claimed are so minute, as to be discoverable only by those pledged to the success of the one system or the other; and are such as cannot, in the remotest degree, interest the public. The magnitude of the nuisance, then, being admitted on all hands, and the utter impracticability of all expedients suggested for its abatement, nothing remains but to remove it; either by replacing the general gauge of the country by the exceptional gauge (which would render necessary the enlargement of all bridges, viaducts, tunnels, embankments and cuttings, and a reconstruction of the stations and depots,) or to bring the rails on the 240 miles of exceptional lines closer together, and modify the carriages and engines accordingly. The former measure is of course out of the question, but the latter could be accomplished, without interruption to the traffic at a cost of something less than a million sterling. The question of the relative merits of the two gauges, involving many complicated points of practical engineering, is one upon which all that part of the world beyond the immediate profession of all civil engineers, can only judge by the weight of authority on the one side and the other among the members of the profession itself. Perhaps there never was a question on which so little real practical difference of opinion prevailed. Nearly the entire profession of England are in favor of the ordinary gauge. A few, were it all to do again, would have adopted a somewhat wider, but not the exceptional gauge. But none would now think of disturbing the uniformity which all agree to be of paramount necessity. The engineering profession of France, Belgium, the Germanic states, and other countries of Europe, and that of America, have adopted the ordinary gauge (56½), although they were free to have selected a wider one.—Thus, so far as regards engineering autho-

ity, we have in one scale the entire engineering profession in every country in the world; and in the other, the solitary individual authority of Mr. Brunel. It is contended, however, that the exceptional lines having been constructed under the sanction of an act of parliament, the shareholders could not with justice be required to subject themselves to such an expense for the common good; that still less could the shareholders of other lines be so required. We are not disposed, nor will our limits allow us, to discuss this question of vested rights. But it appears to us very evident, that the British public cannot, and ought not to suffer itself to be made the victims of this nuisance; and that if the expense of its abatement can be obtained, consistently with justice, from no other quarter, it must come from the public treasury.—*Railway Chronicle*.

RAILWAY PROFITS, ACTUAL AND PROSPECTIVE.

The following article on railway profits is from the *Railway Chronicle*. The editor says that—

When Lord Fitzwilliam lately presided at the ceremony of laying the first stone of the Huddersfield station buildings, he also took occasion to lay down some positions that may be examined with advantage by the owners of railway property. The extension of railways, said his lordship, throughout the whole of these islands is now certain and inevitable. Whatever the ultimate good or evil of this movement may turn out to be, (a question which the speaker professed himself unable to decide,) this, at least, was perfectly clear to his mind, that it must continue to advance, until, to use his own phrase, the country is "saturated" with railways. Equally certain is one consequence of this inevitable process. The ratio of profit to be derived from such enterprizes must descend to "the average level of profits in other kinds of business"—the impression on his lordship's mind being, apparently, that at present it exceeds that average, whatever it may be. Such, at least, is the inference to be drawn from his remarks. They present, therefore, two propositions open to comment. On the first it may be inquired,—What is the "average rate of profits" meant? What is the average of profit now earned on railway capital, taken as a whole?—and with what justice can it be assumed to exceed the former? On the second, it will be proper to ask,—What reason is there for concluding that the per centage of return on capital invested in railways will be brought lower than it now is?—and to what extent it may be in the power of the holders of this capital to influence the result?

The former division of the subject, we apprehend, is very superficially understood—it is, in general, most partially dealt with. In speaking of railway profits, it is usual to regard exclusively the returns of those lines which are distinguished by large dividends: the less prosperous are not allowed a part in the calculation. The whole mass of railway enterprize, presenting a considerable proportion of less successful, mingled with the prosperous adventures—of blanks as well as prizes—is rated at the figure established by

the most thriving only. The first step, in any true estimate for comparative purposes, is to put this false process altogether aside. The whole per centage of dividends, on the whole capital sunk in this class of works, is the only just expression of their results, in any general view of the question. To take the high as the sole representatives of the mass, and omit all notice of the low, is neither fair nor scientific. In dealing with any other kind of business it would be scouted as an absurdity.

The result of a fair calculation, such as we propose, would not be found to exhibit a very high average of profit. Three years since, it was ascertained, by pretty exact computation, that the rate on the whole did not greatly exceed 3 per cent. It may be questioned whether a similar process would now show a rise in the scale, if interest be charged on the capital during its unproductive advance, as the subsequent works, many of which have not yet produced any large returns, must be taken into account. It may, at all events, be asserted with some confidence, that the total per centage on railway stock in these islands does not yet exceed 5 per cent. We believe it will be found still considerably under that ratio, if fairly computed. The Edinburgh Reviewer (no very partial favorer of the system) says it has not yet risen beyond this point. For the argument's sake let this be assumed as the actual ratio—one certainly rather above than below the reality.

Now, what is the current ratio of "other business profits?" This is a very slippery item—changing its dimensions daily, rising and falling according to the times, to the place, or the business, and in all varying between wide extremes. Into the estimate of this rate, it is obvious that we cannot admit the current market value of unemployed money, nor the interest on government stock, or other securities paying a fixed annual value. The profits of business, open to chances of loss as well as gain—as are the prospects of railways—can alone enter into any fair comparison. These returns can only be guessed, the total ratio of business profits being made up of infinitely various employments of money, subject to the utmost fluctuations. In prosperous times, the average will be found much higher than any that railways have yet reached; in ordinary seasons, it will hardly be asserted that it falls below the per centage stated above. At present, it is pretty certain that the gain of money employed in business, on the whole of its numerous branches, great and small, far exceeds the average railway standard. For the future, it may be observed that railways can only advance to greater prosperity under circumstances that will also favor the general business of the country.—Arguments taken from the visible progress of the former, which assume a higher comparative proportion in their favor hereafter, from its advance on the present scale, are merely one-sided. There can be no profitable advance on the whole returns of an enlarged railway system, which is not closely connected with a prosperous condition of the trade of

the country. Should the latter fall away, the former, far from obtaining a general increase of profits, will find it impossible to keep up the present average, whatever that may be.

So far, therefore, it appears to be a mere assumption to rate railway profits as above the current standard. They only exceed it, if at all, in the case of the few more fortunate lines; and to draw partial conclusions from these, because they naturally attract the most notice, is as unjustifiable as it would be to estimate the general profits of trade by the enormous gains which, in each of its departments, may be found enriching certain prosperous individuals. Nor is there any reason to conclude that the result of a true comparison will be more in favor of railways years hence, supposing their present advantages to remain untouched by any cause. The well-chosen and well-managed schemes, (if they are not condemned to unjust confiscation, and lamed by the State in the way in which some are urging it to pursue,) these will continue to thrive, and return liberal dividends. The worse-planned and the wastefully governed will continue to disappoint their owners, and keep the general maximum moderate enough. But without some external interruption of the natural course of things, the mass of capital thus invested will probably preserve its present average—the prizes compensating the blanks—as heretofore, sufficiently to form an adequate inducement to men of sense to hazard their money in such undertakings—not enough to justify projects of spoliation on the ground of excessive total profits.

But leaving Lord Fitzwilliam's first assumption—might not something be done to retard, if not to prevent, the consummation he predicts in the second place? and if his views be correct, and the tendency of what is now going on be really to reduce the present moderate average of profits, ought not those who are concerned in preserving the vast amount of property now embarked in these enterprises to endeavor to prevent the decline? That such is their duty, as stewards of the funds of others, their interest, as guardians of their own—will not be denied. The railway body may be allowed to deprecate the loss of its reward for the boon it has bestowed on the country; however, those who profess to speak on behalf of the nation at large may desire to enjoy the benefit, and refuse the just payment for it. Such being our point of view, as railway journalists, at all events, it may be worth while, when such predictions are hazarded, such hopes entertained, to inquire what is the nature of the process by which the expected decline in the value of railway property is to be accomplished, and what precautions may be taken to avoid such an end.

The means by which its profits may be endangered, can but be of two kinds—external oppression, internal imprudence—the former, by laying on burdens that may diminish the gains and embarrass the economy of railways; the latter, by multiplying unprofitable projects, and wasting capital in useless competition.

Against injuries from without, an interest that now concerns so numerous a body of

individuals—a body, the materials of which are considerable enough to form, if united, a power that it would be hazardous to wrong—ought not to feel itself quite unprotected.—Hitherto, its means of general defence have been unavailing from the want of union; nor has anything lately occurred to justify a sanguine hope that this defect will yet be repaired, in time to meet any attack which the assailants of railway property may still be meditating. Its representatives seem to be incapable of acting in concert; and take no measure but for themselves only, and these merely in detail. Such means of protection only as each separate concern can apply to its own conduct, are to be counted upon at all. But even these are not inconsiderable. The regulation of expenses so as to meet any future assault upon fares; the adoption of arrangements that may silence any pretext for new strictures; these each company has within its own power—may apply with advantage, should the danger be imaginary, and will find to be invaluable, if further aggressions take place.

The dangers from excess and improvidence, however, are perhaps more to be apprehended than any new injustice from the state. The tendency to swamp profitable capital by an influx of less fruitful outlay, is the most imminent cause, we can foresee of any serious reduction of railway income. On the part of established concerns, the process is often justified, on the ground that if they do not make a given branch or extension, valueless in itself, it will be taken up by others; and that more loss is to be apprehended from this than from their spending capital without hopes of return. The correctness of such reasoning may be seriously doubted. If there be a risk of unprofitable works being unduly promoted, it is apparent that those who have a valuable property will best secure it from the effects of a competition they cannot prevent (when the time is apt for speculation,) by keeping it as free from dead weight as possible.—When there is a temptation to make new lines that will not pay, no effort of theirs can check it; when there is no such temptation, they are gratuitously injuring the profitable stock, by enlarging it without a certainty of profit. These considerations may be studied with advantage by all who are averse from the prospect held out by Lord Fitzwilliam. If the bulk of railway investments is really to produce a less rate of income, those who have now a good income from railways will at least do well not to accomplish this end by sinking their own. Let those who will, make less profitable communications. It may easily be shown that the avoidance of all such by the established, well-paying concerns, will prove a sound policy in various ways. The demonstration of these may be resumed on another occasion.

RAILROAD IRON.—THE "MONTOUR
Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to
MURDOCK, LEAVITT & CO.,
Agents.
Corner of Cedar and Greenwich Sts. 48 1/2

SPRING STEEL FOR LOCOMOTIVES,
Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/4 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,
Albany Iron and Nail Works,

RAILROAD IRON.—1000 TONS HEAVY
H Railroad Iron, 60 lbs. per lineal yard, expected to arrive within the next 30 days. Apply to
DAVIS, BROOKS & CO.,
October 9. [1042] 68 Broad St.

ENGINEER'S OFFICE PHILA. WIL. & BAL. R. R. }
Wilmington, Del., November 18, 1846. }

PROPOSALS ARE INVITED FOR THE
manufacture and delivery in Wilmington, of One Thousand Tons of Rails—to be made of the best iron used for rails, i. e., combining stiffness and toughness—and rolled so as to be perfectly sound, and exempt from flaws and liability to split at ends or intermediate points, or to crush or "spawl off," on the top surface.

Credits from delivery of six, nine, and twelve months—or discount of six per cent. for cash. Iron for wrought iron fastenings at ends to be included in the price of rails, viz: bars about 2 x 1/4 inch and 1/2 round iron, of best quality, for bolts.

Special contracts to be made on bills being accepted—rails of T form, about 62 lbs. per yard, and in lengths as follows:

80 per cent. of the whole.....	20 feet.
10 " " " "	18 "
5 " " " "	16 "
5 " " " "	14 to 15 feet.

The inferior lengths are allowed, to work up such bars as may be defective at ends, Rails, etc., to be subject to inspection.

Proposals to be sent to the undersigned on or before the 10th day of December next.

J. R. TRIMBLE,
Engineer and Superintendent.

RAILWAY IRON.—DAVIS, BROOKS
& Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.
Nor. 16, 1846. 461f

CHAMPLAIN AND CONNECTICUT RIVER
Railroad.—Notice to Contractors.—Proposals will be received until the 1st day of January, 1847, for the Grading, Masonry and Bridging of that part of the line of the *Champlain and Connecticut River Railroad*, extending from its termination at Bellows Falls, up to, and including, the Summit at Mount Holly, a distance of about 34 miles—and also from its termination at Burlington to the Village of Brandon, a distance of about 50 miles.

Maps, Profiles and Specifications of the respective divisions will be found after the 15th of December, in the office of the company at Burlington, and at the office of Hon. William Henry, Bellows Falls, where every necessary information will be given.

The line will be divided into sections of convenient length for construction, and from those to whom the lettings may be awarded, satisfactory security will be required. By order of the Board,
T. FOLLETT, President.

Office of the Champlain and Conn. R. R. Co. }
549 Burlington, November 21, 1846. }

TO LOCOMOTIVE AND MARINE EN-
gine Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture: and for sale by

MORRIS TASKER & MORRIS,
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

PATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly *indestructible*. The prices are less than those of iron or lead. We also manufacture Basons and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

J. BALL & CO.

NICOLL'S PATENT SAFETY SWITCH
for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee
G. A. NICOLLS,
Reading, Pa. ja45

RAILROAD IRON.—THE SUBSCRIBER'S
New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,
45 North Water St., Philadelphia,
or by their Agent, ROBT. NICHOLS,
79 Water St., New York 281f

THE SUBSCRIBERS, AGENTS FOR
the sale of

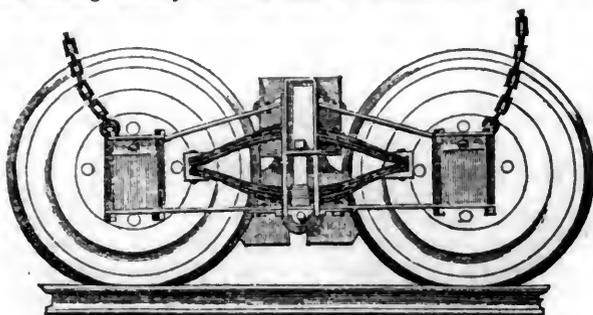
Codorus,
Glendon,
Spring M. I. and
Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER, & CO.,
59 North Wharves,
Jan. 14, 1846. [1y4] Philadelphia, Pa.

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER
having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.] WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed.] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed.] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, }
Jamaica November 12, 1845. }

[Signed.] JOHN LEACH,
1y19 Sup' Motive Power.

RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

TEST No. 11.—Certificate.

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as entirely fire proof.

GOREE & KING.

Marion, Ala., Sept. 15th, 1846.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was preched by the extreme heat.

RICHARDS & CRONKITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed), Wm. Bloodgood.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed.

FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the Journal of June, 1844. ja45

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

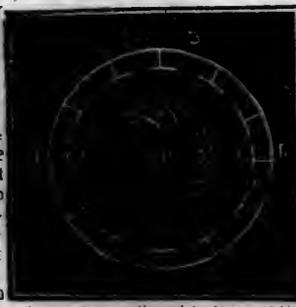
Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J., or 60 Wall street, N. York.



PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

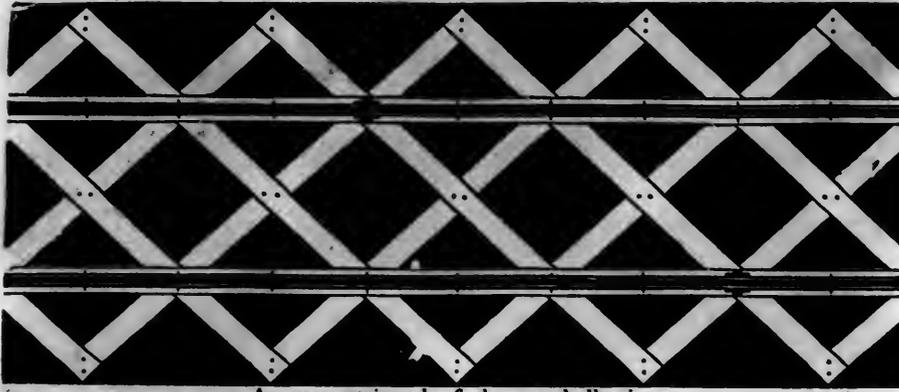
Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

DAVENPORT & BRIDGES CONTINUE to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes. 1y1

THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

THE UNDERSIGNED RESPECTFULLY invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,224 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge. =	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.
Civil Engineer and Patentee.
No. 277 South Tenth St., Philadelphia. 331f

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

Wire gauge number.	WIRE ROPES.		HEMPEN ROPES.		CHAINS.		STRENGTH Tons.
	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.	
11	4½	13 5	10	21 -	50	15-16	20
13	3½	8 3	8½	16 -	27	11-16	13½
14	3½	6 11	7½	12 8	17	9-16	10½
15	2½	5 2	6½	9 4	13½	1-2	7½
16	2½	4 3	6	8 8	10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y21

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut, Philadelphia. 1y10 near Third,

LAP—WELDED WROUGHT IRON TUBES

FOR TUBULAR BOILERS, FROM 1 1/4 TO 6 INCHES DIAMETER,

and ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee.

1y25 28 Platt street, New York.

ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co. SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y. JAS. P. ALLAIRE, N. Y.

PHOENIX FOUNDRY, N. Y. ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa. MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston. C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

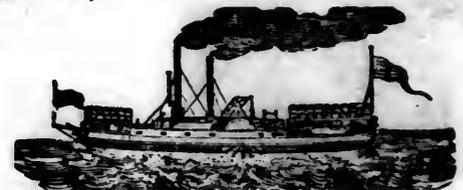
THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	

AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 51]

SATURDAY, DECEMBER 19, 1846.

{WHOLE No. 548, VOL. XIX.

REMOVAL.—It is respectfully requested that all letters, exchange papers and periodicals, for the RAILROAD JOURNAL, may be sent to PHILADELPHIA, as the Journal will hereafter be published there, and the office will be kept at the FRANKLIN HOUSE, No. 105 Chestnut street.

It has required more time than we anticipated to effect the removal and arrangement of our office, consequently this number is somewhat delayed, but we hope to get arranged and up to time soon.

Those subscribers who are about remitting the amount due on their subscription up to the close of the present year, will please address their letters directly to PHILADELPHIA, instead of New York, and much oblige the proprietor and editor,

D. K. MINOR.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.
Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m.
Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m.
Stoughton trains, leave Boston at 11½ a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m.
All baggage at the risk of the owners thereof.
31 ly W. RAYMOND LEE, Supt.

BRANCH RAILROAD AND STAGES Connecting with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Winter Arrangement, 1846-7.
On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:
Boston for Portland at 7½ a.m. and 2½ p.m.
Boston for Great Falls at 7½ a.m., 2½ and 3-25 p.m.
Boston for Haverhill at 7½ and 11½ a.m., 2½, 3-25 and 5 p.m.
Boston for Reading at 7½, and 11½ a.m., 2½, 3-25 and 6½ p.m.
Portland for Boston at 7½ a.m., and 3 p.m.
Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.
Haverhill for Boston at 7½, 8½, and 11 a.m. and 3 and 6½ p.m.
Reading for Boston at 7, 8½ and 9½ a.m., 12 m., 1½, 4 and 7½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.
1y31 CHAS. MINOT, Supt.

THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00
" " Sandusky via Buffalo, Cabin..... 6 00
" " " " " Steerage.... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.
B. HIGGINS, Supt., etc.
Sandusky, Ohio. M. & S. C. R. R. Co.

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A. M. and 4 P. M.
" Middletown at 6½ A. M. and 5½ P. M.
FARE REDUCED to \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P. M.
" Middletown at 12 M.
The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Supt.
March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Millford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 lf

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars.
32 ly J. W. STOWELL, Supt.

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming

a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail— which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

TROY AND SARATOGA RAILROAD.

THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug 3, 1846.

1y 32

BALTIMORE AND OHIO RAILROAD.

MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7 1/2 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 a night from Baltimore and at 6 A. M. and 5 1/2 P. M from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

THE SUBSCRIBER IS PREPARED TO

execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip. New York.

1y10

NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.

Passengers destined for Columbus and Cincinnati,

O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron.] to Mansfield, distance 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance 65 "

TIME.

From Buffalo to Sandusky 24 hours. Leave Sandusky 5 a.m. to Columbus 14 " From Columbus to Cincinnati 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.

From Buffalo to Sandusky, Cabin \$6 00 " " " Steerage 3 00 " Sandusky to Columbus 4 50 " " through to Cincinnati 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 3 1/2 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Sup't, etc. M. & S. C. R. R. Co.

Sandusky City, Ohio.

NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem, Morrisania, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisania only.

Leave City Hall for Harlem, Morrisania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] and 3 45 p.m.

RETURNING.

Leave Pleasantville, at 8, 10, [freight train,] and 11, a.m.; 1 30, and 4, p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20, p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35, a.m.; 2 05, and 4 35, p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 0, 4, and 4 50 p.m.

Leave Morrisania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m. Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m. Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y40

BALTIMORE AND SUSQUEHANNA RAILROAD.—Reduction of Fare.

Morning and Afternoon Trains between Baltimore and York.—The Passenger

trains run daily, except Sunday, as follows: Leaves Baltimore at 9 a.m. and 3 1/2 p.m. Arrives at 9 a.m. and 6 1/2 p.m. Leaves York at 5 a.m. and 3 p.m. Arrives at 12 1/2 p.m. and 8 p.m. Leaves York for Columbia at 1 1/2 p.m. and 8 a.m. Leaves Columbia for York at 8 a.m. and 2 p.m.

FARE.

Fare to York \$1 50 " Wrightsville 2 00 " Columbia 2 12 1/2

Way points in proportion. PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg \$9 Or via Lancaster by railroad 10 Through tickets to Harrisburg or Gettysburg 3 In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at 5 1/2 p.m. Returning, leaves Owing's Mills at 7 a.m. D. C. H. BORDLEY, Sup't. Ticket Office, 63 North st.

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m. Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort. The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

SOUTH CAROLINA RAILROAD.—A

Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily \$26 50 Fare through from Charleston to Huntsville, Decatur and Tuscumbia 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad. JOHN KING, Jr, Agent.

CENTRAL RAILROAD—FROM SAVANNAH TO MACON.

Distance 190 miles. This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally 50 cts. per hundred. On measurement goods 13 cts. per cubic ft. On brls. wet (except molasses and oil) \$1 50 per barrel. On brls. dry (except lime) 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery 40 cts. per hundred. On hhds. and pipes of liquor, not over 120 gallons \$5 00 per hhd. On molasses and oil \$6 00 per hhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, Gen'l. Sup't. Transportation.

MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburg, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

2v1917

CENTRAL AND MACON AND WESTERN RAILROADS, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad 190
Macon to Atlanta—Macon and Western 101
Atlanta to Oothcaloga—Western and Atlantic .. 80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20	pr. 100lbs. 35
Crockery, per cubic foot.....	0 15	" " 35
Molasses and Oil, per hhd., (smallercasks in proportion).	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.		

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846.

GREAT SOUTHERN MAIL LINE! Via Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, an Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00
" " " Richmond..... 6 60
For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to W. H. STOCOTON & FALLS, Agents.

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.
Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
Philadelphia, Pa.

GEORGIA RAILROAD, FROM AUGUSTA to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES. This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

RATES OF FREIGHT.		Between Augusta and Oothcaloga, 250 miles.	Between Charleston and Oothcaloga, 386 miles.
1st class.	Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 25
2d class.	Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	0 90	1 40
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 55	0 75
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 37½	0 62½
	Cotton, per 100 lbs.....	0 45	0 65
	Molasses, per hogshead.....	8 50	13 50
	" " barrel.....	2 00	3 25
	Salt per bushel.....	0 17	95
	Salt per Liverpool sack.....		
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows.....	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
Ch. Eng. and Gen. Agent.
Augusta, Sept. 2d, 1846. +44 1y

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.
Atlanta, Georgia, April 16th, 1846. 1y1

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE,
E. cor. 12th and Market sts., Philad., Pa.

LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD—Distance 84 miles— connecting at Xenia and Springfield with Messrs. Neil, Moor, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City. via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon....	\$1 00
" " " Xenia.....	1 50
" " " Springfield..	2 00
" " " Columbus...	4 00
" " " Sandusky city	8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th inst.

A freight train will run daily.
W. H. CLEMENT, Supt.

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

CLEVELAND, COLUMBUS AND CINCINNATI Railroad. In pursuance of a resolution adopted by the Board of Directors, on the 21st October, notice is hereby given, that proposals will be received up to the 1st day of December next, for the Grading, Timbering, Bridges and Culverts on forty miles of the road, commencing at Cleveland. Profiles, Specifications, Terms of Payment, and all other information pertaining to the matter, to be furnished on application at the office of the Company, Merwin Block, Cleveland.

JOHN W. ALLEN, President.
A. G. LAWRENCE, Secretary.
CYRUS WILLIAMS, Engineer.
Cleveland, October 23, 1846. 45*1m

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.
Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ¼ inch Flat Punched Rails, 20 ft. long.
25 " 2½ x ¼ " Flange Iron Rails.
75 " 1 x ¼ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 41f

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. 1yl

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, lace, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 fe, with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

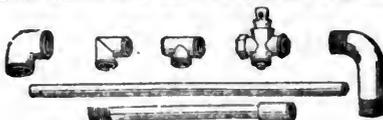
For terms, apply to **HENRY ANDREWS, 48 State st.,** or to **CURTIS, LEAVENS & CO., 106 State st., Boston,** or to **A. & G. RALSTON & Co., Philadelphia.** ja15

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ½ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by

MORRIS, TASKER & MORRIS.
Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

RAILROAD IRON.—THE NEW JERSEY Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next: Apply to

FULLER & BROWN, Agent,

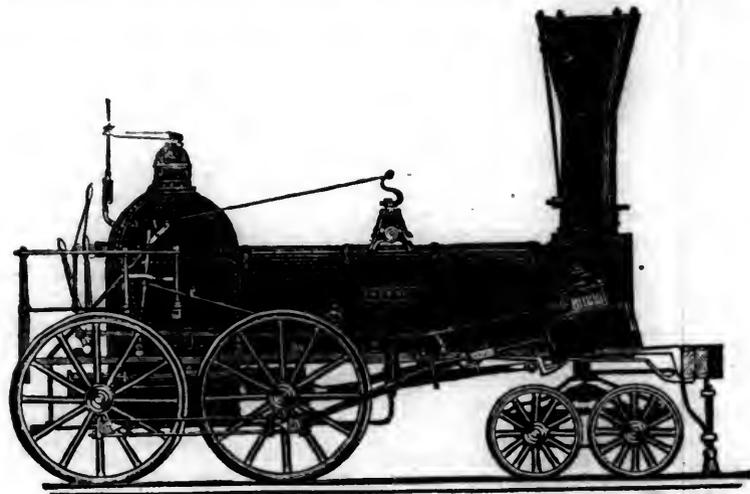
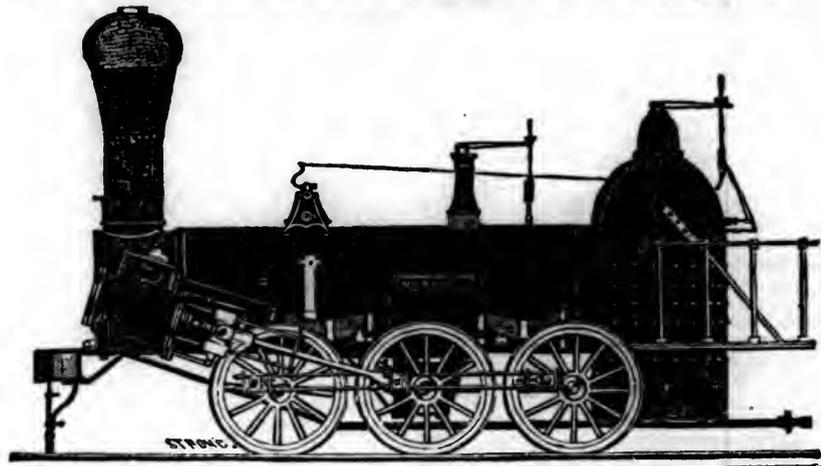
No. 139 Greenwich, corner of Cedar street.

September 18, 1846.

10:39

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of	Cylinder,	×	20 inches	Stroke.
" 2,	14	"	"	×	24	" "
" 3,	14½	"	"	×	20	" "
" 4,	12½	"	"	×	20	" "
" 5,	11½	"	"	×	20	" "
" 6,	10½	"	"	×	18	" "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,

President of the Newcastle Manuf. Co.

RAILROAD IRON AND LOCOMOTIVE

Tyres imported to order and constantly on hand by

A. & G. RALSTON
Mar. 20th 4 South Front St., Philadelphia.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }
Peter Cooper, } New York.
Murdock, Leavitt & Co. }
J. Triplett & Son, Richmond, Va.
J. R. Anderson, Tredegar Iron Works, Richmond, Va.

J. Patton, Jr. }
Colwell & Co. } Philadelphia, Pa.
J. M. L. & W. H. Scovill, Waterbury, Con.
N. E. Screw Co. } Providence, R. I.
Eagle Screw Co. }

William Parker, Supt. Bost. and Worcester R. R.
New Jersey Malleable Iron Co., Newark N. J.
Gardiner, Harrison & Co. Newark, N. J.
25,000 to 30,000 made weekly. 35

"Railways at Home and Abroad."

We continue our extracts from the Edinburg Review on railways at home and abroad, for the purpose of giving a connected view of the railway system in a small compass, by an able writer, who speaks mainly from personal observation.

THE EDINBURGH REVIEW, AND ITS ARTICLE ON RAILWAYS. (ART. VII.)
(Continued from page 791.)

But on submitting the same train to the same experiment on planes of various acclivities, it was found that each acclivity gave a different uniform velocity of descent. From this followed the consequence, contrary to all that engineers had before taken for granted, that the resistance to the moving power augments in a very high ratio as the speed increases; and that at the usual speed of passenger trains, this resistance is much greater in amount than any estimates which engineers had previously allowed for it.

It was also rendered apparent, that the usual mode of estimating the resistance at so much per ton of the load was altogether fallacious, inasmuch as the same weight of load would offer different resistances to the moving power, according to the number and form of the carriages, and the speed of the motion.*

On every species of road, the acclivities which are admissible depend on the average resistance offered to the moving power on the level. If this resistance be great, then a considerable ascent will not be felt—the additional resistance which it opposes to the moving power bearing an inconsiderable proportion of the whole amount of resistance which that power must at all times overcome. But if, from the mechanical perfection of the road and the carriages, the resistance habitually opposed to the moving power on the level be very small (as is the consequence of the admirable perfection of railways,) then a very slight acclivity will be sufficient to disable the moving power altogether. It will, therefore, be easily understood, that the degrees of ascent which on a common macadamized road are scarcely felt, are wholly inadmissible on railways worked by locomotive power. The more exquisite perfection of the instrument, the more inconsistent with its efficacy are even slight defects; gaps and inequalities, which would not sensibly impair the excellence of a knife, would entirely destroy the utility of a razor.

Railways must, therefore, be so constructed as to be nearly level. An inclination rising at the rate of one foot in fifty would not be distinguishable from an absolute level, by mere inspection, without the aid of levelling instruments. Yet such an ascent would more than treble the resistance of a railway train moving with the usual speed.

If some mechanical causes forbid a railway to undulate, others render it difficult to wind or to pursue a serpentine course. The necessity for undulation might be avoided, and a general level course preserved, were it

possible to carry it along the trendings of valleys and round the bases of hills. This, however, is rendered impossible, by the mechanical condition of its structure. A railway carriage moves in a groove, or at least, in what is equivalent to a groove. Without some violence to its principle, or some strain upon its structure, it is therefore capable of moving in a straight and direct course. If it has to change its direction, it must be through a curve which bends so slowly and gradually that the part of it occupied at any moment by the carriage shall not sensibly differ from a straight line. The curve, in short, must be one of very large radius; and even in such a curve the carriage can only be forced to turn by the constant pressure of the flanges of the wheels against the outer rail. This difficulty becomes greater as the speed of the motion is increased. A standing rule of railway committees in parliament was, that all curves of less than a mile radius should be matter of special inquiry and report.

Such are among the causes which have rendered the construction of railways expensive, by rendering inevitable vast works to preserve the necessary straightness, and continuous level of the course. As the line cannot descend to the level of valleys and rise over the surface of hills, the former must be filled up and the latter excavated. The road is conducted over the valley on an embankment, and through the hill by means of an excavation. But the valley may be occasionally too deep to render an embankment practicable, or the earth to form it may not be attainable. In this case, the road is raised to a necessary level by a viaduct or bridge, of height or magnitude commensurate to the depth and width of the valley to be crossed. In like manner, the hill may be too lofty to allow a practicable cutting; in which case a hole is bored through it of sufficient calibre to contain the railway, and allow trains to pass through, and it is lined with masonry; a tunnel, in a word, is constructed. When the necessity of such stupendous expedients is duly considered, we shall cease to wonder at the enormous cost of railways.

The system of internal communication by railways now in progress of construction throughout Great Britain, will form, under various points of view, a singular example in the history of public works. Their stupendous magnitude, and the many novel works of art upon them, are scarcely so remarkable as the rapidity of their execution, the amount of capital they have absorbed, and the still more enormous amount of capital they have created. The effects they have produced upon the social and commercial relations of different centres of population and commerce, by augmenting in an unforeseen and incredible ratio the personal communication between them, are not among the least memorable consequences of these undertakings.

We have stated that the first of these series was the Liverpool and Manchester line—thirty miles in length—which was opened for traffic in 1830. In the year 1840, there were thirteen hundred miles of railway in full operation in England, upon which, during

that year, twelve millions of persons had been conveyed. In 1841, fifteen hundred and fifty miles were worked, on which twenty millions of passengers were carried. In 1843, the length of railway opened was eighteen hundred miles, and the number of passengers transported nearly twenty-seven millions; and in 1844, the length was increased to nineteen hundred miles, and the passengers exceeded the incredible number of thirty millions!

Nearly sixty millions of capital had been expended in little more than ten years on these enterprizes. But all the principal lines paid large profits. Dividends of ten per cent. were declared, and the shares rose to cent. per cent. premium. The demand for railway shares was enormous; and a supply of corresponding magnitude soon met it. In 1845, three hundred miles of new railway were opened for traffic; and acts were passed by the legislature sanctioning projects in which the construction of a further extent of eighteen hundred miles of railway was undertaken.

Before we proceed to notice the enterprizes which remain to be executed, let us examine a little more in detail what has been already effected, and its results.

If we take the principal railways which have been completed and brought into full operation, excluding only a few obviously exceptional ones,* we shall find that the average amount of capital which they have absorbed is at the rate of £35,000 per mile.—This amount has, in different cases, been distributed in different proportions among the several heads of expenditure; but the following may be taken as near the average distribution:—

Cost of land.....	£1,000
Way and works.....	22,000
Office and sundries.....	1,000
Locomotive power, and working stock.....	8,000
Total.....	£35,000

The railways constructed with the wide gauge were more expensive. An extent of two hundred and forty miles had absorbed £9,704,368, at the close of the last year, being at the rate of above £40,000 per mile.

Such being the cost of construction, let us consider the service rendered to the public, and the revenue produced.

By the returns published by the railway department of the board of trade, it appears that the traffic for the three years ending 30th June, 1845, was as follows:—

Year ending	Miles open'd	Rec's from passengers £	Rec's from goods £	Total £
June 30, 1843.	1798½	3,110,257	1,424,932	4,535,189
June 30, 1844.	1912½	3,439,294	1,635,350	5,074,674
June 30, 1845.	2118½	3,976,341	2,333,373	6,209,714

Hence we infer the amount of each kind of traffic per mile in each year as follows:

Year	Amount of pass'ger traf- fic per mile.	Annual increase pr cent.	Amount of goods pr mile	Annual increase pr cent.	Total Annual increase pr m	Annual increase pr m
1843	£ 1729	....	£ 792	....	£ 2522	....
1844	1773	2.55	855	7.90	2653	5.20
1845	1877	5.87	1101	21.34	2936	10.70

* Such for example as the London and Blackwall, the London and Greenwich, and a few which, on the other hand, have been completed at an exceptionally low rate.

* For the details of this investigation, see the report of Dr. Lardner in the proceedings of the British Association and the appendix to the same, by Mr. Edward Woods.

It appears, therefore, that there is an annually increasing amount of traffic; that the rate of increase on the goods traffic is even more rapid than the passenger traffic; and that the average annual total amount received per mile in 1845, was £3000, omitting fractions.

The proportion of this gross revenue, absorbed by the current expenses of the transport, is different on different lines. In some it is above 50 per cent.; in some below 40 per cent. In 1842 it was estimated at 44 per cent. of the gross revenue; but it is probable that, by improved machinery and increased economy, it is now diminished. It may be taken at present at 42 per cent. of the revenue. Of the £3000 per mile received then, 58 per cent., or £1740 per mile may be taken as the profit on the £35,000 per mile sunk—being at the average rate of 5 per cent.

Thus it appears, that although several great enterprizes give 10 per cent., the general average profit on these speculations does not amount to more than the ordinary profit on capital engaged in large commercial investments. Many unsuccessful lines pay little or no interest on the capital sunk, and some yield dividends of comparatively small amount; and thus the larger dividends of the more successful lines are neutralized. The increase of traffic, however, indicated in the above table of annual returns, would render it probable that the annual profits would become larger, unless the further extension of railways should check them.

It will be observed that of the total annual revenue of the railways, 63 per cent. proceeds from passengers, and 37 per cent. from goods.

In estimating the manner in which the railways minister to the public service, the question arises—whether they chiefly serve as means of personal intercourse between those great centres of population and commerce which are usually selected as their *termini*; or whether they, in a greater degree, benefit the population located in those districts of the country through which they pass.—Unquestionably the general impression was, and, so far as we have observed, still is, that the great mass of the traffic is derived from the large cities and towns at their *termini*.—This question has much interest, not merely to the public in general, but to those who engage in railway speculations in particular. Is the population of the country through which a line of railway passes, or the population of its *termini*, to be considered most in calculating its probable success?

We shall arrive at a solution of this problem by comparing the total number of passengers carried on the railway, with the total amount paid by them on the one hand, and the average fare per mile chargeable to them on the other. In the following table we have given the number of passengers in each class, booked in the year ending 30th June, 1845; the total amount of fare they paid; the average paid per passenger; the average fare charged per mile; and the consequent average distance which each passenger travelled. In order to express the actual and relative amounts of passenger service rendered by the

railways in that year, we have also given the equivalent number of passengers of each class and the total carried one mile.

	Number of passengers.	Receipts from passengers.	Receipts from passenger.
		£	s. d.
1st class.....	5,474,163	1,516,805	5 7
2d class.....	14,325,825	1,598,115	2 2
3d class.....	13,125,820	621,903	0 11½
Mixed.....	855,445	200,518	4 11
Total & mean.	33,791,253	3,976,241	2 4

	Average fare per mile for each passenger.	Average distance travelled by each passenger.	Equivalent No. of passengers carried one mile.
	miles.	miles.	
1st class.....	2.6	26.7	142,328,238
2d class.....	1.086	13½	196,263,802
3d class.....	1	11	147,777,975
Mixed.....	2.3	24½	20,530,480
Total & mean.	1.8	16	506,900,695

The results exhibited here suggest several reflections, which must be as interesting to railway proprietors as to the public in general.

In the first place it is apparent, contrary to what might be expected, that the railways derive their revenue from passengers who travel short distances, and not from those who pass between the great centres of population which mark the *termini*, and which usually give the railway its name. The first class passengers, whose excursions are the longest, travel on the average only twenty-six miles; and it must be observed, that the great majority of these travel much less distance even than this. For one who makes a trip of 100 miles, there must be at least ten who go only 10 miles, otherwise the average could not be maintained. In like manner, the second class passengers travel only 13 miles, and the third class 11 miles—giving, say 12 miles, as the mean of the two; and these constitute above 80 per cent. of all the passengers transported on railways! Short passenger traffic—that is to say, trips of a dozen miles or thereabouts, these it is evident, constitute the great staple of the railway business in passengers. It is clear, then, that the terminal populations have but little connection with the financial success of railway projects. The main support is short traffic.

Of every one hundred passengers booked, there are the following proportions of the different classes:—

1st Class.....	16½
2d Class.....	43½
3d Class.....	40

Of every hundred pounds of gross revenue, the following proportions are contributed by the different classes:—

1st Class.....	£40 14
2d Class.....	42 16
3d Class.....	16 10

The existence of some unwise discouragement to the third class passengers, is very apparent in these numbers. Under the ordinary influences which govern personal economy, they ought to be the most numerous, if not the most productive. They are, nevertheless, inferior in number to the second class, and produce a revenue greatly inferior to either first or second class. We shall more clearly perceive the cause of this paradox by reference to the traffic elsewhere. In Belgium,

the relative numbers of the different classes is such, that of every 100 passengers there are

1st Class.....	10
2d Class.....	30
3d Class.....	60

And of every £100 gross revenue from passengers, the contribution of the respective classes is

1st Class.....	£20
2d Class.....	33
3d Class.....	47

The revenue of the railways, in England, is therefore chiefly drawn from the first and second class passengers; while that of the Belgian lines is supplied by the second and third class, but chiefly by the latter. The one system contributes to the service of the lower orders of the population, and the other to the middle and higher.

Whether both objects might not be attained, would perhaps be best ascertained by a comparison of the fares. On the English lines, the third class passengers are discouraged by four causes, brought into operation, apparently with that intention by the companies.—These are, 1. high fares; 2. carriages uncomfortable and unsafe; 3. inconvenient hours; 4. slow speed.

The following show the English and Belgian fares in juxtaposition:

	British. 10ths of a penny.	Belgian. 10ths of a penny.
1st Class per head per mile.....	26	14 8-10
2d Class.....	18 6-10	8
3d Class.....	10	6

Thus, while the fare of each class is considerably lower than the corresponding class on the British lines, the third class is little more than half of the third class on our railways; and the carriages for this class are started at all hours, and are protected by roofs from the weather, and from the discharge of the funnel of the engine.

It appears from the numbers in the last column of the above table, that the passenger service rendered by the British railways in 1844-5, was equivalent to five hundred millions of passengers carried one mile!

Let us see what number of ordinary stage coaches could have performed this service in the same time.

One hundred horses working in a coach, would carry 25 passengers per day 100 miles. Omitting fractions, the number carried in the year would be 10,000, which would be equivalent to a million carried one mile. Such a coach, worked by 100 horses, would take five hundred years to execute the passenger traffic of the railways in the year 1844-5. In doing this, it would travel a distance equal to fifteen hundred times the circumference of the globe.

The locomotive engines, therefore, employed in drawing passenger trains in that year, performed the work of 50,000 stage coach horses.

It is worth while to compare the cost at which this has been executed, with that at which the same service would have been performed by stage coaches. In making this comparison, it is necessary to remember that there are three sources of economy, which the railway offers, in comparison with stage

coaches. First, the saving in the fare; secondly, the value of time saved; and thirdly, the saving of *tavern expenses* on the road.

1st. If we take the coach fare on average at fourpence per mile (a low estimate,) the saving by the railway will be at the rate of 2½d. per mile per head.

2d. The saving of time will be at the rate of nine hours, in every hundred miles travelled. For one must allow thirteen and a half hours (at seven and a half miles an hour) for an ordinary stage coach to perform 100 miles, which on the railway would be travelled in less than five hours. If we estimate the time of the class which travel on the average at six shillings per working day of twelve hours, this will be sixpence per hour.

3d. A traveller thirteen hours on the road must take at least one meal at a tavern; many will take two. A traveller four or five hours on the road takes nothing. Let this saving be put down on the average at 2d. per 100 miles. We shall then have the following account of the amount saved by those who travelled on the railways in 1844-5, compared with what travelling the same distance in stage coaches would have cost:

503,900,695 miles at 2½d. per mile, fare saved	£5,280,215
45,621,063 hours saved, at 6d. per hour ..	1,140,526
506,900,695 miles, tavern expenses at 2d. per 100 miles	506,900
	£6,927,641

The total saving is, therefore, nearly double the sum paid as railway fare. In other words, the locomotive engine has reduced the cost of travelling to one-third of its former amount—even at the rate of fare charged under a system of monopoly, as compared with the open competition of stage coaches.

Let us now turn our attention for a moment from what has been actually accomplished to what is in progress of completion, or projected.

We have seen that, on the 30th June, 1845, 2118 miles of railway were open for traffic. During the year 1845 nearly 300 miles more were completed, and inspected by General Pasley. Besides these, there are many lines which had obtained their acts before January, 1845, of which we have no return. We shall be considerably within the truth if we assume, that the total length of railways for which acts were obtained previous to 1845, was 2500 miles. In the session of 1845, acts were passed authorizing the construction of a further extent of 1793 miles—making a total to December, 1845, of 5300 miles.

In the session which has just terminated, however, it was reserved for the world to witness an extent of speculation, of which history we believe, can produce no similar example. Four thousand miles of additional railways have actually received the sanction of the legislature, which, if completed, will make up the enormous extent of 9300 miles.

The amount of capital of the companies whose acts were passed in 1845, exclusive of loans, was £29,168,640; which, divided among 1793 miles, is at the rate of £16,268 per mile. Now we have shown that the 2000 miles of railway in operation have absorbed capital to the amount of £35,000 per mile;

and it may, therefore, be asked, how nearly an equal length is now to be constructed, at less than half the cost? But there is no mystery in the matter. If we compare the capital originally estimated for any of the principal lines, with their actual cost, we shall find the explanation of this apparent inconsistency. Take the three following lines:

	Orig. capital.	Actual cost of the line
Liverpool and Manchester, ..	£ 510,000	£1,774,000
London and Birmingham, ..	3,500,000	6,000,000
Birmingham and Liverpool, ..	1,000,000	1,500,000

In fact, the estimated capital is not even a tolerable approximation to the cost of a railway.

It is contended that, owing to improved machinery and other causes, railways can be constructed at a less expense now than formerly. In some of the items of expenditure this is true: but others, such as the cost of land, certainly are not changed; and some, such as wages of labor, will certainly be augmented. We shall probably be near the truth if we allow £30,000 per mile, for the lines still to be constructed.

The capital of the companies, which have obtained acts for about 4000 miles of railway, during the last session, amounts to about £150,000,000, exclusive of loans. This is at the rate of £37,500 per mile, which is rather above the average cost of the completed lines.

It appears then, that there are now in progress, and sanctioned by parliament, 5800 miles of railway, to complete which, and bring them into operation, will absorb at least two hundred millions sterling! Most of the companies promise the completion of their enterprizes in three years; but, allowing for engineering casualties, and unforeseen causes of delay, there is no reason to suppose that any of them should exceed five years—assuming, of course, that the necessary capital and labor shall be forthcoming. The annual instalment of capital necessary to accomplish this will, therefore be forty millions.

Such is the sum which must be taken yearly, from the surplus savings of British industry, for the next five years, if these projects are to be realized. There is no escape from this astounding inference. We say nothing of the amount of British capital promised to foreign railways, which, however, is not inconsiderable. Those who are best acquainted with the public finances, and the laws which regulate money and labor, regard the consequences of such a yearly demand with serious apprehension. If it were possible to ascertain the average net savings of the country, and to estimate the proportion of these which could, without injury, be withdrawn from other undertakings which are in a growing state, the effect of these prospective operations might to some extent be foreseen. But, as it is, all is left to conjecture. It is, however, past all doubt that a serious pressure on the money market must take place, and which must produce great loss and inconvenience to the manufacturing and trading interests; and as a concomitant effect, the unusual demand temporarily created and then suddenly relaxed, must occasion very

injurious arrangements in the market for labor.

To be continued.

Experiments on Wrought Iron Hollow Beams for Railway Bridges.

The following illustrations of experiments made by Messrs. Fairbairn & Hodgkinson, will be interesting, and we trust useful to our readers. We find them in the Railway Chronicle of November 7th.

The recent investigations carried on for Mr. Stephenson by Messrs. Fairbairn & Hodgkinson, for the immediate purpose of affording data for the construction of the Britannia bridge on the Holyhead railway, are likely, in our opinion, to open up collateral investigations of no less practical interest to the railway engineer, and of no less public importance to the railway proprietor, than the immediate object of the construction of the bridge itself, however interesting and important. We have seen wrought iron tubes made of boiler plates riveted together, so as to form beams of rectangular section, some 3 feet deep by 9 inches wide and 30 feet long, employed with great success for the last six or seven years, and forming bridges which carry wagons loaded with coal, iron and other minerals. We have often wondered why an arrangement of materials so judicious has not been more generally used, and we imagine the only reason must be the want of acquaintance with the material, or rather the best mode of applying it. Similar uses of wrought iron plates are common in the construction of iron ships. It is only to be attributed to our ignorance of the extent to which such beams may be trusted, and of the best mode of disposing of the flexible material, so as to resist the strain, that has deprived us of the use of a mode of constructing bridges which is peculiarly adapted to circumstances where nothing else would do so well, which will often be found economical, as well as convenient for the construction of bridges. Wrought iron girder bridges are likely to be henceforth very frequently employed.

We have therefore deemed it very important to the profession that, as soon as possible they should be put in possession of all the practical data that can be afforded by the investigation so wisely commenced by Mr. Stephenson, and so judiciously conducted by Messrs. Hodgkinson & Fairbairn, whom we may consider, from their great experience in such matters, as the highest authorities extant on the strength of iron. We have therefore engraved the drawings which Mr. Fairbairn had made of the first series of his experiments preparatory to the Britannia bridge experiments, and we give them in order that our railway engineers may, as soon as they find expedient, avail themselves of this knowledge to the purposes of such new lines as they may be about to construct under the new acts of parliament obtained last session. Some of these experiments are made on beams 30 feet long, and some of them carrying as much as ten tons; and therefore they are on so large a scale that no doubt can remain of their immediate practical utility.

The first series were naturally enough made on cylindrical tubes; and it deserves notice that the difficulty in tubes of this kind,

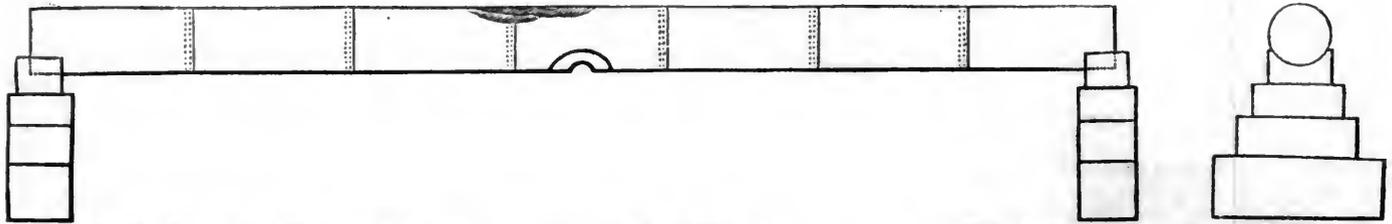
made of very thin metal, lies in preventing the upper side of the loaded tube from crumpling or buckling up by flexure. This happens, it will be seen, in the thinnest tubes, in experiments Nos. 1 and 2, but in the others, where the metal is so thick as to withstand

buckling, much higher results are obtained. The tubes were supported at the ends on block heads, fitted to their shape and loaded with weights suspended from an aperture in the centre. This aperture was of course strengthened, so as to prevent fracture there.

Series No. 1.—Experiments on Cylindric Beams.—Experiment I.

Length in the clear, 17 feet.
Diameter, 12.18 inches.
Thickness of iron, W.G. No. 20, .0408 of an inch.
Deflection, .039 of an inch.
Breaking weight, 3,040 pounds.

Fig. 1. Showing the nature of the fracture. Elevation of beam.



This, as we might have expected from the extreme thinness of the metal in proportion to the diameter of the beam, gave way by buckling on the upper or crushing side. This also was the case in the next experiment.

Experiment II.

Length in the clear, 17 feet.
Diameter, 12 inches.
Thickness, .0370
Deflection .65 in.
Breaking weight, 2,704 pounds.

Fig. 2. Showing the fracture.



Experiment III.

Length in the clear, 15 feet 7 1/2 inches.
Diameter, 12.40 inches.
Thickness, .1310 inches.
Deflection, 1.29 inch.
Breaking weight, 11,440 pounds.

Fig. 3. Showing the fracture.



Here, then, at the third trial, we have attained the desideratum; the plate is only about one-eighth of an inch thick, it carries 5 tons, and then only parts at the hole, where the breaking weight is suspended.

Fig. 4. Showing the fracture in Experiment IV. Elevation of beam.

The three next experiments are made on a much larger diameter, nearly 18 inches, but in no case of so thin a metal as the first and second, and the consequence is that none of the three break by buckling. It is also worth notice that the strengths in experiments III. and VI. are nearly as the diameters simply, with allowance for a slight difference in thickness—the diameters being as 2 to 3, and the lengths as 3 to 2 nearly. This is what we should expect.

Experiments IV. V. VI.

Length.	Diameter.	Thick.	Deflec.	Break. wt.
4. 23 ft. 5 in.	18.26 in.	.0582 in.	0.50 in.	6,400 lb.
5. 23 ft. 5 in.	17.08 in.	.0631 in.	0.74 in.	6,400 lb.
6. 23 ft. 5 in.	18.18 in.	.1190 in.	1.19 in.	14,240 lb.

Section.

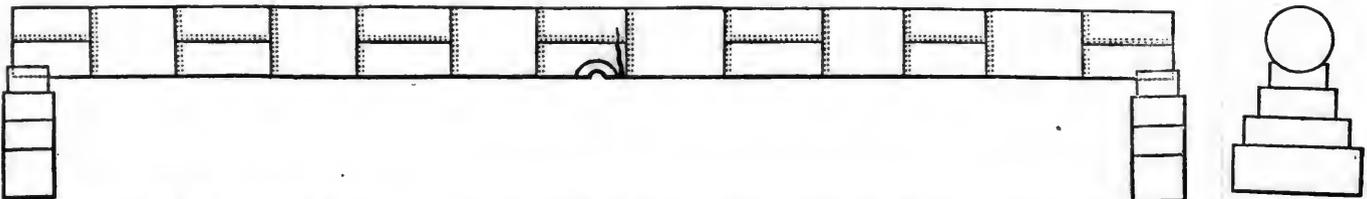
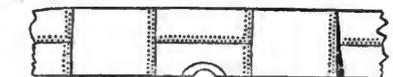


Fig. 5. Showing the fracture in Experiment V.



Fig. 6. Showing the fracture in Experiment VI.



The next three are the last in this series of cylindric experiments. The diameters of the tubes are increased in the ratio of 3 to 4, and their length in about the same proportion.—These ought to have borne more for equal thicknesses, but they do not. The diameter of the tube seems, therefore, to have been increased beyond the best size for a given span and thickness of plate. It appears to us tolerably probable, as far as these experiments go, that the thickness of the plate should not be less than the one-hundredth part of the diameter of the tube.

Experiments VII VIII IX.

Length.	Diameter.	Thick.	Deflec.	Break. wt.
7. 31 ft. 3 1/2 in.	21.00 in.	.0954 in.	.63 in.	9,760 lb.
8. 31 ft. 3 1/2 in.	24.30 in.	.1350 in.	.95 in.	14,240 lb.
9. 31 ft. 3 1/2 in.	24.20 in.	.0954 in.	.74 in.	10,880 lb.

Fig. 7. Showing the fracture in Experiment VII. Elevation of beam.

Section.

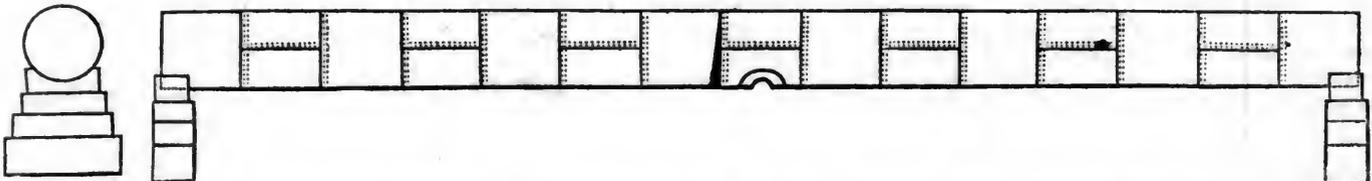


Fig. 8. Showing the fracture in Experiment VIII.



Fig. 9. Showing the fracture in Experiment IX.



It is plain from these last, that the riveting is the weak part, and that the strength depends on that part which is left in the plate between the rivet holes. Double riveting was used in this case, and is undoubtedly the best form for strength.

From these experiments of Mr. Fairbairn we feel disposed to draw the following practical conclusions.

A round beam of malleable iron, a quarter of an inch thick and 18 inches diameter, extending over a span of 24 feet, would not break with 12 tons on the middle, or 24 tons distributed along it. It would probably carry much more. For many cases, however, the cylindric is not the most convenient form. We must defer the consideration of those which are until another occasion.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

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Railroad to the Pacific.

Mr. WHITNEY's great scheme for a railroad to the Pacific has excited a deep interest throughout the whole western country, if we may judge any thing from the "large and enthusiastic" meetings, which have lately been held in the principal cities there. At Cincinnati, Dayton, Columbus, Indianapolis, Louisville, St. Louis, etc., we perceive that public meetings have been held; and, in a majority of these places, memorials have been got up, addressed to Congress, recommending the grants asked for, (of the public lands,) to carry on the projected railway. The plan is immense, and the means requisite to prosecute the undertaking, are proportionately great. The western community seem well disposed towards this stupendous enterprize.

Interesting Investigations.

A late number of the Portland Advertiser contains some extracts from the *London Athenaeum*, in reference to the business of transportation upon railroads, which is of a highly interesting and important character to that interest. The statements made, appear to come from responsible authority, and exhibit some new developments of railroad improvements. The accounts indicate, says the Advertiser, "two or three propositions of great importance."

1st. That the lowest rates for railroad transportation of freight have not yet generally been reached—perhaps not anywhere.

2d. That the roads should be conducted in the best and cheapest manner, with the most watchful regard to all scientific improvements, and managed also with all practicable economy, to enable them to adopt the low rates, demanded by competition with other modes of transportation.

3d. That the location of railroads, where freight is anywise desirable as a source of income, should be such as to give them a fair and reasonable opportunity to succeed in the competition with other conveyance.

4th. That unnecessarily competing lines of railroad should not be encouraged, since the tendency of such competition must be, instead of reducing the rates of transportation for persons or goods, to cause companies to combine against the public, to keep rates up. If the power and capacity of the road cannot be fully employed, then the proprietors will want double pay for half work.

Belpre and Cincinnati Railroad.

A meeting of the commissioners in the act to incorporate the "Belpre and Cincinnati Railroad Company," was held at Chillicothe, on the 25th ult. It was unanimously resolved to accept the charter, and a resolution was adopted—as appears in the Chil-

licothe Advertiser—authorising the books of subscription to be opened forthwith at numerous places throughout the state of Ohio. It is believed that the stock will very readily be taken up, and such has been the success of the Springfield road, lately opened in Ohio, that there exists no doubt this route will be prosecuted with energy.

Railroad Iron.

The Philadelphia Sentinel says that "two bars of railroad iron manufactured by Messrs. Reeves, Buck & Co., of this city, at their new rolling mills at Phoenixville, are now exhibiting at the Franklin Institute. The workmanship is fully equal to any iron ever exhibited in this city."

Will those gentlemen please send a sample of their iron to the office of the Railroad Journal?—*Ed. R. R. J.*

Baltimore and Ohio Railroad.

The Baltimore Patriot speaking of the movements in Philadelphia, in relation to the Pennsylvania railroad, is anxious to push on the Baltimore road to the Ohio river.

"We must go on with the work *at once*," says the Patriot, "and must carry it wherever the way is open to us. Whether it strikes the Ohio at Pittsburg, or Wheeling, or Parkersburg, is scarcely to be considered now. The great matter is to reach the Ohio river, and, if unwise legislation or ungenerous rivalry prevail to shut us out from the selection of a route we deem the best, we cannot now stop to dispute with them who thus war against us, by trying to convince them that they are wrong. Time now is more important than even a particular route, and we must readily give up the latter in order to gain the former. We have two ways opened to us. We can go to Wheeling through Virginia, or we can go to Pittsburg through Pennsylvania. Originally, one or both these routes was contemplated. We can now secure either, and we may even take both. Let there, then, be no longer delay; let it be no longer a matter of doubt whether we shall go here or whether we shall go there. What we have to do is to make the road, and let us set about doing it. If the city of Baltimore is true to herself—if those specially charged with this great work shall fulfil the expectation confidently indulged in regard to them—the year 1846 will not pass away before the line shall be fixed and the ground broken, where the road to the Ohio river is to be made."

Railroads.

The Michigan Central railroad has latterly done a very greatly improved trade. A late number of the Detroit Advertiser says an immense business has been accomplished on this road for some time past, and mentions an instance within a few days in which flour and wheat equal to five thousand barrels of flour, were brought to that city by the railroad in a single day.

The subscription to the Pennsylvania road, by the authorities of Philadelphia, is for \$1,500,000. It is made on condition that an equal sum shall be raised by private subscription. Of this latter sum nearly a million has been subscribed, and the Philadelphia North American says it is ascertained that the remaining half million will be obtained without difficulty.

We are pleased to learn that capitalists are awake to the importance of urging on the New York and Boston land route. The Scientific American learns that about \$2,000,000 of the stock of the New York and New Haven road has been taken up already, and that the road is to be completed within one year from the 1st of January next.

The bridge upon the Hartford and Springfield railway, (over the Connecticut river at Windsor Locks,) has been rebuilt, and the cars now pass over it again. It will be recollected that the upper portion of this bridge was severely injured by the storm some weeks back, which broke up the connection for a time.

Two iron companies in the state of New Jersey have contracted to furnish the Utica and Schenectady railroad association with 6600 tons of new rails, to weigh 65 pounds to the yard. The contract is sufficient for the whole road.

Another section of the Erie railroad, from Middletown to Otisville, has been lately opened for travel, and another section of 11 miles is to be finished early next season, by which time it is expected that contracts will be made for grading 130 miles more.

The friends of the Rutland, Vt., road have been active in their exertions for its advancement, and have announced that the stock has all been subscribed for, and that the road will soon be commenced.

The St. Louis Reveille states that the people of Galena and Chicago are pushing the subject of a railroad between those two western points. When such a project is completed, it will very naturally take from St. Louis much of her upper trade. Lead will take that route to the eastern market, for it can be carried cheaper and with less risk. Grain will go on that route, because it can be carried at less cost, in a shorter period of time to market, and is not as liable to deteriorate in value. The best grain region in the Mississippi valley is that lying above St. Louis, and by this upper communication New York will have secured it to herself. A railroad to Cincinnati from St. Louis might give the trade a direction which would benefit St. Louis.

Germany has now open to public traffic 37 railroads, extending a length of 469½ geographical miles. There are at work on those lines 600 locomotive engines, of which 267 are of English construction, 39 American, 46 Belgian, 16 French, and the remainder German.

The citizens of Dayton, Ohio, in a public meeting on Monday week, appointed committees to correspond with the Mad River company, for information relative to connecting Dayton with Springfield; and with the Little Miami company in relation to connecting Dayton with some point on the road.—Reports from these committees are looked for on the 9th inst., at an adjourned meeting.

The proposals for constructing the first forty miles of the "Cleveland and Columbus railway" have been opened. There are bids from responsible contractors at averages between the estimate, to take pay one-half in city scrip, one-fourth in cash, and one-fourth stock. These terms the company can meet, and the work will be immediately commenced, says the Cincinnati Gazette.

We learn also from the Gazette that the books which were opened for subscription to the stock of the "Hamilton and Dayton" road, were closed on Thursday evening. Only a limited portion of the stock was taken, but sufficient to organize the company under the charter, and to take many of the preliminary steps to the prosecution of such an enterprize. We have not heard how much stock has been taken at Hamilton and Dayton.

It will be perceived by the above items, that the railway interest is growing rapidly in favor with the business community, and it may be safely asserted, that at no time in our country's history has that interest been so extended, as at the present time. This argues well for the enterprize of our citizens in various parts of the country, and we are rejoiced

to notice this rapid advancement in our great internal improvements.

Suspension Bridge at Cincinnati.

We find in late Cincinnati papers several notices of the "Report and Plan for a Suspension Bridge across the Ohio River, at Cincinnati—by JOHN A. ROEBLING, Esq., C. E." During the winter of 1845 and 1846, the legislature of Kentucky granted a charter for this enterprise, (so far as that state was concerned,) and a bill was introduced in the Ohio legislature, subsequently, for a similar object. The bridge was proposed to cross the river from the Queen city to Covington, Ky., but the opponents of the bill defeated the measure in Ohio, at its last session, though it is believed that a more favorable result will be attained the present season.

It is contended by those in favor of this project, that immense advantages must accrue from the success of the undertaking, both to the city of Cincinnati and to the state of Kentucky—and it is believed by the friends of this means of communication, that it will prove a profitable investment to the stockholders, and a lasting benefit to the inhabitants on both sides of the river. During the winter season, the communication between the two points are often interrupted, or cut off entirely, for days together, in consequence of the obstructions by ice—and at that season, particularly, immense numbers of cattle and hogs are detained at a heavy expense, upon the Kentucky side, on account of the inability to cross in the ferry boats. A bridge would obviate this evil, and would add materially to the convenience of business men, who have their places of business in Cincinnati, and reside on the Kentucky side. It would have the effect, also, of raising the price of real estate both in Cincinnati and Covington—and its completion would give a new impetus to the business prospects of both places. Covington would be (and at no very distant day, either,) to Cincinnati, what Brooklyn is to New York, or East Boston to the "City of Notions"—and we know of no good reason why this enterprise is not clearly a project most desirable in every respect—whether relating to private or public interests.

The opponents of the proposed bridge, object to its construction principally on the ground that the free navigation of the river would be impeded. This is a very formidable and serious objection, if well founded: but provided it be obviated, and in the event that it shall prove practicable to erect it sufficiently high to do away with this objection—there seems to be no tangible reason, or cause, which should for an instant operate against the early construction of a work which seems so important, in all its bearings, to the general interest. To talk of the private benefit to be derived by, or the detriment which may be occasioned, personally, to a few large land holders in Cincinnati, by the consummation of so important a work, is altogether too trivial a matter comparatively, for consideration. The following article, in reference to Mr. Roebling's report, we take from the Cincinnati News. The editor observes that "this question promises to be warmly agitated during the present winter. The friends of the project, we discover, are busily engaged in marshalling their forces, and a most vigorous effort will probably be made to force a charter from the legislature of Ohio, at the approaching session of that body. On the other hand, the enemies of the project are quite as active and busy as its advocates; and upon what banner victory will finally perch, seems to be involved in great uncertainty."

"In May last," continues the News, "Mr.

ROEBLING and Mr. R. H. RICKEY, made a survey across the river, from Cincinnati to Covington, in the line of Main street—the proposed location of the bridge. The plan is drawn on that survey. The length of the proposed structure from centre to centre of abutments, is 1576 feet—total length, including approaches, 2070 feet. Two spans are proposed, which will meet in the centre of the river upon a gigantic stone pier, 200 feet high. The river front of the Cincinnati abutment, will be opposite the corner of Wharf and Main—the length of the abutment will be 50 feet, the extreme width across the return walls, opposite Water street, will be 44 feet, and reduced to 38 feet at Front street. There will, therefore, be a space occupied on the public landing of 200 feet long by 44 ft. wide, leaving the wharf between the abutment and the edge of the river entirely free and open. The approach on the Covington side is very nearly the same as on the Cincinnati side.

"Each of the two spans measures 788 feet from centre to centre; the length of the floor between the abutment and the pier is 788 ft.

"Two isolated towers of 30 feet high and at a distance of 30 feet apart from centre to centre, are erected upon each abutment, for the support of the cables. The latter rest in cast iron saddles, which are allowed to move on rollers, for the purpose of adjusting the tensions of the land cables, as they contract or expand, either from changes of temperature or from loads. The castings which support the cables upon the centre tower, are stationary and not allowed to move.

"The floor of the bridge is to be composed of timber and plank, and to be suspended by means of two wire cables and a number of wire stays, and will be divided into a roadway of 20 feet 6 inches wide, and two sidewalks of 6 feet wide each. The distance across the floor, between the railings, will be 34 feet.

"The floor is proposed to be suspended at an elevation of 90 feet above low water, near the wharf, and at an elevation of 121 feet near the pier. From this deduct four feet of framing below the floor, leaving 117 feet clear next the centre pier, and 86 feet next the wharf.

"All elevations in the report, or in the plans, are referred to low water line, which is assumed at 63 feet below the high water mark of 1832. A depth of water in the river of 20 feet above low water mark is considered a medium stage; 30 feet is called high water; 45 feet is a flood, which seldom occurs. A flood of the height of 1832 may not be witnessed again in 100 years. Supposing the river to be 45 feet high, which is an unusual rise; this will leave 72 feet clear height near the centre pier. Pike No. 7, measuring 69 feet, will therefore have three feet to spare in clearing the bridge. But most of those packets which run on the lower trade, are provided with joints for lowering the chimneys, for the purpose of passing the arch over the Louisville canal. By lowering the chimneys, therefore, the largest class of steamers will be enabled to pass the

Cincinnati bridge in the highest stage of water.

"Mr. Roebling estimates that the construction of the Cincinnati bridge may be accomplished for a sum of three hundred and seventy-four thousand four hundred and sixty dollars. And that three years will be required to finish the job. No estimate is made of the probable revenue of the work, but the engineer seems to have arrived at the conclusion, that no better scheme for a safe investment was ever presented to the capitalists of this country, than the contemplated formation of a joint stock company for the erection of the Cincinnati bridge.

"Whether the legislature of Ohio will follow the example of that of Kentucky, and grant a charter for the bridge company, and whether the money can be raised to complete the structure, after the charter is granted, are questions which time will only determine. About the latter contingency, however, there can be but little difficulty. Among the persons who are the most deeply interested in the project, we know half a dozen, either of whom can build the bridge at any time upon their own hook. The great trouble in the way—aside from certain private interests that may be affected by the consummation of the work—appears to be the apprehension that by the erection of the bridge, the free navigation of the river may be interrupted."

The report is voluminous, but highly interesting—and is written in an intelligible and sensible manner. Mr. Roebling understands well the subject he speaks of, and we shall be happy to know that his talents have been engaged upon another work of a similar character to the magnificent structures at Pittsburg, completed last year under his superintendance. It is an undertaking of vast magnitude, but Mr. R. is fully equal to it—and if the plan should be carried out, the "Queen City of the West" will have a lasting architectural monument which few cities in the world can boast of. We hope and expect to see the project consummated at an early day.

Pennsylvania Railroad.

We are informed by the Harrisburg Argus, that a highly respectable meeting of the citizens of Harrisburg, was held at the court house on Friday evening, the 11th inst., in reference to the Pennsylvania railroad, which was organized by calling the Hon. DAVID R. PORTER to the chair. John A. Weir and Charles Carson, Esqrs., were appointed vice presidents, and the editors of the several papers were invited to act as secretaries.

William Ayres, Esq., on behalf of the commissioners, made a statement of the progress of the work thus far and the probabilities of its early commencement and completion. He referred to its great importance to Harrisburg, to Philadelphia and Pittsburg, and to the state at large, and closed by submitting the following resolutions, which were unanimously adopted:

Resolved, That in the opinion of this meeting, the Pennsylvania railroad from Philadelphia to Pittsburg, is an improvement which, if prosecuted to an early completion, will be of incalculable advantage to Pennsylvania—making her as it undoubtedly will, the great chain of communication between the waters of the east and the west, and establishing her commercial emporium as the

depot for the sale of the rich products of the valley of the Mississippi and the Lakes, and the market for the purchase of the supplies for those vast and flourishing regions.

Resolved, That we no longer view this improvement as problematical. The recent action of the corporate authorities of the city of Philadelphia, authorizing the subscription of \$2,500,000 to the stock of this company, and the energy displayed by the commissioners in obtaining additional individual aid, has placed it beyond all doubt, that the necessary funds will be obtained, and that the work will be commenced in a very short period.

Resolved, That we urge the commissioners to persevere in their present energetic course, and to extend the plan of their operations by the appointment of additional committees to aid them in obtaining subscriptions in every town and county throughout the state, where additional subscriptions might reasonably be expected.

Resolved, That we will render all the assistance in our power to the commissioners appointed for Dauphin county, in enabling them to obtain subscriptions, so that this great work, which we regard as of vital importance to the interest and welfare of Pennsylvania, may be commenced at the earliest practicable period.

Resolved, That we recommend the commissioners of Dauphin county to meet forthwith, and appoint committees to solicit further subscriptions from the citizens of Harrisburg.

Resolved, That the proceedings of this meeting be published.

Judge Bucher and Gov. Porter also addressed the meeting briefly in reference to the importance of this great enterprise to Pennsylvania, and especially to Harrisburg, and appealed to the citizens, capitalists, and business men, mechanics, and all classes, to come forward and lend a hand in pushing it on. It was a great matter for Harrisburg that this work should go on—it could not fail greatly to benefit our town, and almost all mechanics and men in business could subscribe one or more shares without inconvenience and should do so.

The meeting adjourned in fine spirits.

Improved Spark Arrester.

A new and valuable improvement is said to have been lately made by Mr. James Milholland, superintendent of road and machinery on the Baltimore and Annapolis railroad, which, applied to the locomotive engines, completely arrests the sparks, while its construction permits the smoke to escape freely. The advantages of this improvement must be appreciated (if it proves fully successful) by the travelling public, who have been so long subjected to the annoyances arising from the locomotive cinders. The Baltimore Sun contains the following in relation to this invention:

“The importance of this arrangement in respect to the danger to buildings and merchandise in the train, is such, that without it, steam power on railroads would prove almost an abortion, and the world would be deprived of the immense advantages resulting therefrom. This was obvious upon the first trial of locomotives in this country, when wood was used for fuel. In the year 1831, the first locomotive intended for the Camden and Albany railroad, was brought from England. It

being without any contrivance for this purpose, could not be used, the sparks completely enveloping the engineer, and threatening to scatter fire and destruction wherever she went. Several contrivances to arrest the sparks were unsuccessfully tried. In 1833, shortly before that road was completed. Mr. R. L. Stephens, the president of the company, suggested the use of a bonnet of wire gauze to the smoke pipe, which was tried in several forms, until at last it assumed the shape of a frustrum of an inverted cone, surrounding the pipe for some distance below the top and covered by a hemispherical cap of the same material. This arrangement was found to arrest the sparks which fell into the conical pocket formed around the pipe by the lower part of the wire gauze; but here another difficulty arose; the accumulated sparks were fanned by the rush of air produced by the rapid motion of the engine, into a fierce fire, which soon destroyed the wire netting, permitting them to escape as before. The most obvious remedy for this was to exclude the air, which was done by enclosing the lower part of the cone with sheet iron, which answered very well until the accumulation of sparks filled the iron, when they were again ignited by the rush of air; another and another portion of the cone was covered until it was found necessary to have the whole of the inverted cone made of sheet iron with a door in the lower part, to extract the extinguished sparks from time to time during stoppages. In order to enlarge this receptacle for the sparks, the cone was extended the whole of the way down the pipe, which arrangement is at present in use in various modifications on the railroads of the U. States. By one of those singular coincidences which often occur in the discovery of useful improvements, the same results were obtained by Mr. H. C. Wyatt, of Weldon, N. C., in a course of humbler experiments. He adapted the same arrangement to the bowl of a tobacco pipe, and by blowing into the stem of the pipe, the smoke was driven through a perforated tin cover and the sparks arrested in the same manner precisely. Mr. Wyatt obtained a patent for his invention, for the infringement of which, his assignee lately recovered a verdict in the U. S. Circuit court.

Mr. Milholland's improvement consists of a globe of perforated sheet iron covering the top of the smoke pipe, surrounded at a short distance by a shield of close sheet iron to exclude the air, with an opening at the top sufficient to permit the escape of the smoke.—From the bottom of the perforated globe a pipe conducts the sparks into an air-tight iron box sufficient to contain all the sparks arrested during the usual trip of the engine. This box Mr. M. calls by the expressive term of the sub-treasury. The large and powerful locomotive William H. Watson, lately built under the superintendance of Mr. Milholland, at the Boulton depot, is fitted up with this improvee spark arrester, and we are informed it fully answers his expectations.

Boston and New York Railroad.

We are glad to find that the parties interested in this enterprise, have commenced operations in earnest, and it is also gratifying to know that men of repute and energy have the matter in hand. The following in relation to the proposed route, we find in a late number of the Boston Times:

There was a meeting, for consultation, of the friends of an independent central railroad to New York, at the Exchange Coffee House, on Thursday evening last. George R. Russell, Esq., presided, and A. Davis, Esq., was appointed secretary. The meeting was addressed by Messrs. C. T. Russell, T. Richardson, Dr Phelps, W. Farnham and others.

The route has recently been surveyed by a distinguished engineer, under the direction of several gentlemen of this city and others who feel an interest in the project. The line, we learn, passes through Roxbury (near to Jamaica Plain, and through West Roxbury), Dedham, Medfield, through portions of Franklin, Medway, and Bellingham to Blackstone; from thence to unite with one of the Connecticut projects through to New York city.—The route is spoken of as payable, central and direct.

The following gentlemen were appointed upon the committees:—

General Committee—Messrs. George R. Russell, of West Roxbury; Wm. H. Prentice, Gardiner Colby, Adolphus Davis, Wm. Wright, and Thomas Richardson, of Boston; Welcome Farnum, of Blackstone; Charles Ellis, Stephen M. Weld, Joseph N. Brewer, Joseph H. Billings, of Roxbury; Merrill D. Ellis and Oliver Capen, of Dedham.

Finance Committee—Messrs. A. D. Weld, Charles Ellis, Stephen M. Weld, Samuel F. Morse, Benjamin H. Tubbs, Martin Bates.

The general committee were directed to call a meeting of the friends of this route at such time and place as they might deem proper.

(Official) Reading Railroad.

A comparative statement of the business on the Philadelphia and Reading railroad for the month ending Nov. 30th.

	1844.	1845.	1846.
Travel.....	\$7,528 31	\$8,270 49	\$11,095 36
Freight on goods.	3,929 44	5,261 11	10,369 62
Do. do. coal..	49,956 15	111,621 59	160,087 61
Miscell's receipts.		10	65 05
Transp. U.S. mail.	783 33	783 33	783 33
	\$62,197 23	125,946 52	182,401 27
Coal trans., tons..	44,513	88,799	112,104

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending—

	1844.	1845.	1846.
Travel.....	\$1,277 22	\$1,760 96	\$2,494 43
Freight on goods.	992 45	1,760 86	2,624 50
“ coal..	8,468 66	3,912 42	37,510 57
	\$10,738 33	\$7,434 24	\$42,629 50
Coal trans.—tons.	8,620	3,073	26,404

CINCINNATI AND DAYTON RAILROAD.

Books for the subscription of the stock of this road, says a late number of the Cincinnati Gazette, will be opened at the Exchange rooms in this city on the 1st of December, 1846. We hope stock enough will be taken to organize the company under the charter—and that other initiative steps may be taken immediately thereafter. The stock in all probability will yield a good dividend. It certainly will if the charter can be suitably amended.

An article addressed to the city council appeared in Monday's Atlas on the subject. It recommends that the council provide for selling the stock owned by the city in the Little Miami road, and the invest-

ment of the proceeds in the stock of the Cincinnati and Dayton road. Admitting that the city government did its duty in aiding in the construction of the Little Miami road, "for the purpose of increasing our whole business, population and wealth," the writer insists, that council having done its duty in that respect—and done it well—should proceed, with a view of accomplishing like good in like manner, to sell the two hundred thousand dollars stock in the Little Miami road, and use the proceeds to build another and a better road through Hamilton and Dayton, branching to Urbana and the lake on one side, and to Richmond and the valley of the Missisquoi way in Indiana, on the other. In favor of this scheme the writer affirms "these truths," as he insists, establishing "the superior advantages of the new road."

1st. It will be much the quickest route, on account of its lesser grades, straighter lines and wider curves.

2d. It may be the shorter, too, in positive distance, to the lake and eastern cities.

3d. It will be very much cheaper per mile.

4th. It will turn into the current of Cincinnati trade, the vast and infinitely valuable products of a region not yet secured to her.

5th. It will create a new market for our city—that of the raw material for manufactures, at Hamilton, Dayton, etc.—thus rearing them into western Lowells, and Cincinnati into more than a western Boston.

It will do no harm, to examine into the subject, if nothing else is done.

English Iron Trade.

We have, by the Cambria, the London Mining Journal of 21st and 28th November; and make the following extracts. The quotations of November 20th are as follows:

	£.	s.	£.	s.	d.
Bar a Wales—ton.....	8	15	9	0	0
" London	0	0	10	0	0
Nail rods.....	0	0	10	15	0
Hoop (staf.).....	11	5	11	10	0
Sheet.....	0	0	13	0	0
Bars.....	11	0	11	10	0
Welsh cold blast foundry pig.....	5	5	10	0	0
Scotch pig b Clyde.....	3	9	3	12	6
Rails, average.....	0	0	10	0	0
Russian, CCND c.....	0	0	0	0	0
" PSI.....	0	0	0	0	0
" Gourieff.....	0	0	0	0	0
" Archangel.....	0	0	13	10	0
Swedish d, on the spot.....	0	0	11	10	0
" Steel, fagt.....	0	0	16	0	0
" kegs e.....	14	5	14	10	0

a, discount 2½ per cent.; b, net cash; c, discount 2½ per cent.; d, ditto; e, in kegs ¼ and ½ inch.

From our Correspondent.

IRON.—Welsh and Staffordshire continue steady; in Scotch pigs very little has been done since last Mining Journal, and there are sellers at quotations. COPPER is firm in price, with fair demand.

TIN.—(English) continues scarce, the supply being unequal to the demand; and the stock of foreign is very small—a slight improvement in this metal has taken place.

LEAD is steady.

Communicated by Messrs. Whitcomb & Barton.

All descriptions of English iron continue firm, with an upward tendency. Scotch pig iron has been rather quiet, and few sales made this week—mixed Nos. may be quoted at 71s. to 71s. 6d. cash; a further advance of £3 per ton has taken place in English tin. No alteration in other metals.

GLASGOW PIG IRON TRADE.—NOV. 18.—We advised an improvement in prices in our last—this has not been maintained; and we quote prices to-day at 70s. for No. 3; 71s. to 71s. 6d. for mixed Nos.; and 72s. 6d. for No. 1—cash. A moderate amount of business doing.

DOUGLAS & HILL, Metal Brokers.

The quotations of the 27th for rails are a shade lower—being £9 15s. average—other kinds remain much the same as previous week. The price of rail will, however, in our opinion, advance, as the demand will undoubtedly increase.

Hot and Cold Blast Iron.

The following paragraph contains information of great importance to the manufacturer of iron. It is copied from the London Mining Journal of 21st ult.

A correspondent in Newcastle writes as follows: Mr. R. Stephenson, the eminent engineer, has been making a series of experiments upon the relative strengths of hot and cold blast iron, the result of which will be a complete revolution in the iron trade. Hitherto cold blast iron has brought a higher price, and has been considered in every respect superior to hot blast. Previous, however, to the construction of the high level bridge at Newcastle-upon-Tyne, intended to connect the York and Newcastle with the Newcastle and Berwick railway, Mr. Stephenson caused more than 100 experiments to be made with the various sorts of pig iron, the result of which has been to prove that hot blast is superior to cold, in the proportion of 9 to 7; and, moreover, that pig iron, No. 3, is better iron than No. 1, which, up to this time, has sold much higher in the market.

Contract for Iron Rails, etc.

The governor of Brabant has concluded contracts for 2000 tons iron rails, 600 tons iron sleepers, 20 excentrics complete, and 33 tons pins, divided into 10 lots, required for establishing double lines on the state railways of Belgium: 1st lot, 500 tons rails were contracted for by M. Pastor, of Cockerill and Co, Seraing, at £4 16s. 8d. per ton; the other lots, of 500 tons each, were taken by Belgian and French forgemasters at the same rate; 5th lot, 150 tons iron sleepers was taken by M. Elias, of Sclessin, at £8 8s. 2d. per ton; 6th lot, 150 tons to M. Dupont, at £7 16s. 8d. per ton; 7th lot, 150 tons iron sleepers, by Messrs. Cambier & Fontain, at £8 4s. 2d. per ton; 8th lot, 150 tons to M. Dupont, at £7 16s. 8d.; 9th lot, 33 tons pins at £15 2s. 6d.; and 10th lot, 20 excentrics, at £15 8s. 4d. per ton. There was great competition to obtain these contracts, as they are expected to lead to other extensive affairs.

Great Northern, (London and York).—About 75,000 tons of iron rails will be required for the formation of the entire line during 1847 and 1848. The first instalment of sleepers on which to lay them amounts to 500,000.

Menai Tubular Bridge.

We give in this number an abstract of Mr. Stephenson's report in relation to this bold project of his for spanning the straits of Menai, the distance of four hundred and fifty feet, by a wrought iron tubular bridge! The boldness of the project is only in character with the man; and the plan and the place are worthy of his reputation, and show the astonishing progress, within the last twenty years, of civil engineering.

We shall give in succeeding numbers, several well written articles, with illustrations, showing the result of numerous experiments made to decide upon the form and strength of the tube; as we presume that our readers will, as we shall ourselves, watch the progress of this work with interest.

The following is an abstract of the report on this gigantic undertaking, made by Mr. Robert Stephenson to the Chester and Holy-

head railway company, and read at their last meeting.

I have throughout the experiments carefully studied the results as they developed themselves, and I am satisfied that the views I ventured to express twelve months ago were in the main correct, and that the adoption of a wrought iron tube is the most efficient, as well as the most economical description of structure that can be devised for a railway bridge across the Menai straits.

In the course of the experiments, it is true, some unexpected and anomalous results presented themselves; but none of them tended, in my mind, to show that the tubular form was not the very best for obtaining a rigid roadway for a railway over a span of 450 ft. which is the absolute requirement for a bridge over the Menai straits.

The first series of experiments was made with plain circular tubes, the second with elliptical, and the third with rectangular. In the whole of these, this remarkable and unexpected fact was brought to light, viz., that in such tubes the power of wrought iron to resist compression was much less than its power to resist tension, being exactly the reverse of that which holds with cast iron; for example, in cast iron beams for sustaining weight, the proper form is to dispose of the greater portion of the material at the bottom side of the beam, whereas, with wrought iron, these experiments demonstrate beyond any doubt that the greater portion of the material should be distributed on the upper side of the beam. We have arrived therefore at a fact having a most important bearing upon the construction of the tube, viz., that rigidity and strength are best obtained by throwing the greatest thickness of material into the upper side.

Another instructive lesson which the experiments have disclosed is, that the rectangular tube is by far the strongest; that the circular and elliptical should be discarded altogether.

This result is extremely fortunate, as it greatly facilitates the mechanical arrangements for not merely the construction, but the permanent maintenance of the bridge.

We may now, therefore, consider that two essential points have been finally determined, the form of the tube and the distribution of the material.

The only important question now remaining to be solved is, the absolute ultimate strength of a tube of any given dimensions. This is, of course, approximately solved by the experiments already completed; but Mr. Hodgkinson very properly states, that others, with tubes of more varied dimensions, should be continued, in order to clear up some anomalies which still exist.

The formula, as at present brought out by Mr. Hodgkinson, gives the strength of a rectangular tube of the dimensions I proposed, viz., 450 feet long, 15 feet wide, by 30 feet high (assuming the plates to be one inch thick) equal to 1,100 tons applied in the centre, including the weight of the tube itself; but, deducting the latter, equal to 747 tons in the centre, or double this, supposing the

weight to be uniformly distributed over the whole 450 feet.

This amount of strength, although sufficient to carry any weight that can in practice be placed upon the bridge, is not sufficiently in excess for practical purposes. It is on this ground, therefore, I have requested Mr. Hodgkinson to devise a few more experiments in the shape best calculated to free the formula from all ambiguity. In the meantime, however, as I consider the main question settled, I am proceeding with the designs and working plans for the whole of the masonry, which I expect to have the pleasure of submitting to you in a fortnight from this time.

You will observe in Mr. Fairbairn's remarks, that he contemplates the feasibility of stripping the tube entirely of all the chains that may be required in the erection of the bridge; whereas, on the other hand, Mr. Hodgkinson thinks the chain will be an essential, or at all events a useful auxiliary, to give the tube the requisite strength and rigidity. This, however, will be determined by the proposed additional experiments, and does not interfere with the construction of the masonry, which is designed so as to admit of the tube with or without the chains.

The application of chains as an auxiliary, has occupied much of my attention, and I am satisfied that the ordinary mode of applying them to suspension bridges is wholly inadmissible in the present instance; if, therefore, it be found hereafter necessary or desirable to employ them in conjunction with the tube, another mode of applying them must be devised, as it is absolutely essential to attach them in such a manner as to preclude the possibility of the smallest oscillation.

In the accomplishment of this I see no difficulty whatever; and the designs have been arranged accordingly, in order to avoid any further delay.

The injurious consequences attending the ordinary mode of employing chains in suspension bridges were brought under my observation in a very striking manner on the Stockton and Darlington railway, where I was called upon to erect a new bridge for carrying the railway across the river Tees, in lieu of an ordinary suspension bridge, which had proved an entire failure.

Immediately on opening the suspension bridge for railway traffic, the undulations into which the roadway was thrown, by the inevitable unequal distribution of the weight of the train upon it, were such as to threaten the instant downfall of the whole structure.

These dangerous undulations were most materially aggravated by the chain itself, for this obvious reason—that the platform or roadway which was constructed with ordinary trussing for the purpose of rendering it comparatively rigid, was suspended to the chain, which was perfectly flexible, all the parts of the latter being in equilibrium. The structure was, therefore, composed of two parts, the stability of the one being totally incompatible with that of the other; for example, the moment an unequal distribution of weight upon the roadway took place, by the passage of a train, the curve of the chain

altered, one portion descending at the point immediately above the greatest weight, and consequently causing some other portion to ascend in a corresponding degree, which necessarily raised the platform with it, and augmented the undulation.

So seriously was this defect found to operate, that immediate steps were taken to support the platform underneath by an ordinary trussing; in short, by the erection of a complete wooden bridge, which took off a large portion of the strain upon the chains. If the chains had been wholly removed, the substructure would have been more effective; but as they were allowed to remain, with the view of assisting, they still partake of these changes in the form of the curve consequent upon the unequal distribution of the weight, and eventually destroyed all the connections of the wooden framework underneath the platform, and even loosened and suspended many of the piles upon which the framework rested, and to which it was attached.

The study of these and other circumstances connected with the Stockton bridge lead me to reject all idea of deriving aid from chains employed in the ordinary manner.

I have therefore turned my attention to other modes of employing them in conjunction with the wrought iron tube (as suggested by Hodgkinson,) if such should be found necessary upon further investigation.

As I have already stated in this I perceive no difficulty whatever; indeed there is no other construction which has occurred to me which presents such facilities as the rectangular tube for such a combination.

Having, I trust, clearly explained my views in reference to this important work I have only to add that in two months I expect every arrangement will be completed for commencing the masonry, which shall be conducted with the utmost activity and vigor.

I can scarcely venture to say, until after these arrangements are finally completed, at what period we may calculate upon the completion of this bridge; but I cannot recommend you to calculate upon the whole being accomplished in less than two years and a half.

Miscellaneous Items.

Erie Canal Tolls.—We are indebted to H. P. Thayer, Esq., canal collector at this port, for the following statement of tolls received at his office during the past season:

1846.....	\$763,429 62
1845.....	482,635 41

Increase in 1846.....\$280,794 21

The increase of tolls, which is nearly 100 per cent. over last year, affords good evidence of the rapid increase of business in this city and upon the entire canal. A corresponding increase another season, would swell the tolls collected at this port to a sum exceeding one million of dollars!

Rutland Railroad.—Eighty-four miles of the Champlain and Connecticut river railroad are advertised to be let to contractors on the 1st of January next; 34 miles from Bellows Falls to Mount Holley, including the summit, and 50 miles from Burlington to the vil-

lage of Brandon. The Burlington Free Press informs us that "Mr. Gilbert and his party are now actively engaged on the line of the road from Mount Holley to Duttonville: high in the esteem and confidence of the corporation whose chief engineer he is." We are happy to hear it. If we had any anxiety in the matter, it is now relieved, and we wish Mr. Gilbert and his party all conceivable happiness.

Peterboro' Railroad.—We understand the grading, bridging and masonry, of the Peterboro' railroad, from the Fitchburg track to Townsend, has been put under contract, on favorable terms for the company, and the work will be immediately commenced.

Lewiston and Waterville Railroad.—A committee of citizens of Waterville, says the Portland Advertiser, have prepared and printed valuable tables of statistics to show the estimated trade and travel over the Androscoggin and Kennebec railroad. It is in pamphlet form, and comprises also the report of Mr. Hall on the exploration of the route. We hope it will be thoroughly circulated.

In the Argus of Monday last, was an excellent article of statistics, facts and comparisons, commendatory of the same enterprise from a correspondent in whose authority we have reason to place much confidence.

Wealth of the State of Ohio.—We learn by a letter from a friend in Ohio, that the state board of equalization concluded its labors at Columbus on the 16th ult., after a session of more than three weeks, of which the following are the aggregate results:

The valuation of the real property of Ohio is about \$324,000,000.

The personal property is valued at \$79,117,484, making an aggregate of real and personal property to the amount of \$403,117,484, that is to say, more than four hundred and three millions of dollars.—*Nat. Intel.*

Good Business.—A Boston paper states that all the railroads in Massachusetts are reaping rich harvests at the present time. At no period of the past year have they suffered with the other interests of the country. They are the cheapest and most expeditious modes of conveyance for passengers, merchandize, mails, expresses, etc.; and in peace or in war the public are impelled by their own comfort, convenience and interest, to give them employment, tasking them at times to their utmost capacity. The Maine, Fitchburg, Worcester and Western roads have done the largest business in freights, and the two latter have been doing a most successful general traffic throughout the season. The financial year of the Worcester and Western closes with the present week, when their accounts will be made up; the former for six months, and the latter for five.

RAILROAD IRON.—THE "MONTGOMERY" Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents. Corner of Cedar and Greenwich Sts. 49 1y

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/4 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,
Albany Iron and Nail Works,

RAILROAD IRON.—1000 TONS HEAVY H Railroad Iron, 60 lbs. per lineal yard, expected to arrive within the next 30 days. Apply to
DAVIS, BROOKS & CO.,
October 9. [1042] 68 Broad St.

ENGINEER'S OFFICE PHILA. WIL. & BALT. R. R. }
Wilmington, Del., November 18, 1846. }

PROPOSALS ARE INVITED FOR THE manufacture and delivery in Wilmington, of One Thousand Tons of Rails—to be made of the best iron used for rails, i. e., combining stiffness and toughness—and rolled so as to be perfectly sound, and exempt from flaws and liability to split at ends or intermediate points, or to crush or "spawl off," on the top surface.

Credits from delivery of six, nine, and twelve months—or discount of six per cent. for cash. Iron for wrought iron fastenings at ends to be included in the price of rails, viz: bars about 2 x 1/4 inch and 3/4 special iron, of best quality, for bolts.

Special contracts to be made on bills being accepted—rails of T form, about 62 lbs. per yard, and in lengths as follows:

80 per cent. of the whole.	.....	20 feet.
10 " " "	.....	18 "
5 " " "	.....	16 "
5 " " "	.....	14 to 15 feet.

The inferior lengths are allowed, to work up such bars as may be defective at ends, Rails, etc., to be subject to inspection.

Proposals to be sent to the undersigned on or before the 10th day of December next.

J. R. TRIMBLE,
Engineer and Superintendent.

RAILWAY IRON.—DAVIS, BROOKS & Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.
Nov. 16, 1846. 46tf

CHAMPLAIN AND CONNECTICUT RIVER Railroad.—Notice to Contractors.—Proposals will be received until the 1st day of January, 1847, for the Grading, Masonry and Bridging of that part of the line of the Champlain and Connecticut River Railroad, extending from its termination at Bellows Falls, up to, and including, the Summit at Mount Holly, a distance of about 34 miles—and also from its termination at Burlington to the Village of Brandon, a distance of about 50 miles.

Maps, Profiles and Specifications of the respective divisions will be found after the 15th of December, in the office of the company at Burlington, and at the office of Hon. William Henry, Bellows Falls, where every necessary information will be given.

The line will be divided into sections of convenient length for construction, and from those to whom the lettings may be awarded, satisfactory security will be required. By order of the Board,

T. FOLLETT, President.

Office of the Champlain and Conn. R. R.R.Co. }
5419 Burlington, November 21, 1846. }

LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 11f

PATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

J. BALL & CO.

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee
G. A. NICOLLS,
Reading, Pa. ja45

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,

45 North Water St., Philadelphia,
or by their Agent, ROBT. NICHOLS,
79 Water St., New York 28tf

THE SUBSCRIBERS, AGENTS FOR the sale of

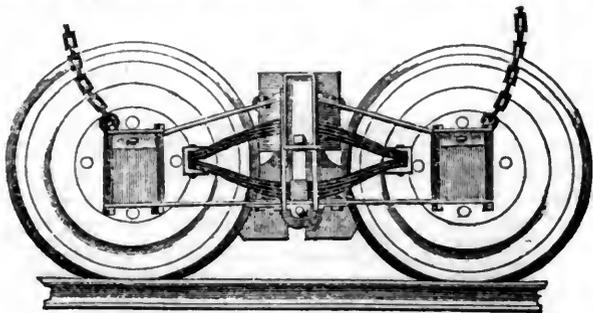
Codorus,
Glendon,
Spring M. I. and } Pig Iron.
Valley,

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L. KIMBER, & CO.,
59 North Wharves,
Philadelphia, Pa. Jan. 14, 1846. [1y4]

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.] WILLIAM ROR, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed.] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed.] T. L. SMITH,

Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, }
Jamaica November 12, 1845. }

[Signed.] JOHN LEACH,

Sup't Motive Power. 1y19



RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

TEST No. 11.—*Certificate.*

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as *entirely fire proof.*

GOREE & KING.

Marion, Ala., Sept. 15th, 1846.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was perched by the extreme heat. RICHARDS & CRONKHITE.

Benton, Miss., December 27, 1815.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 21st July, 1815.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street
Charleston, S. C. 16 tf

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

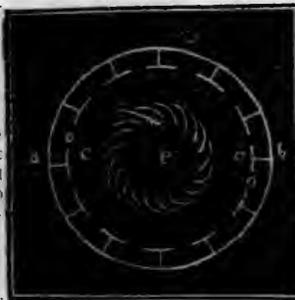
Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

* * The letters in the figures refer to the article given in the Journal of June, 1844.

ja45



PATENT HAMMERED RAILROAD, SHIP AND BOAT SPIKES. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co, Boston. ja45

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
Paterson, N. J., or 60 Wall street, N. York. a45

PATENT RAILROAD, SHIP AND BOAT SPIKES. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

* * Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

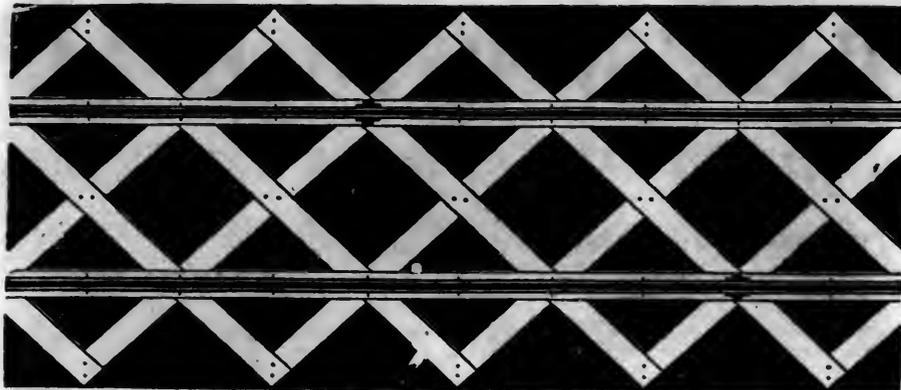
ja45

DAVENPORT & BRIDGES CONTINUE to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

1y1

THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

The undersigned respectfully invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2 1/2 feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.

1,224 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4 1/2 cts. =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.
Civil Engineer and Patentee.
No. 277 South Tenth St., Philadelphia. 331f

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

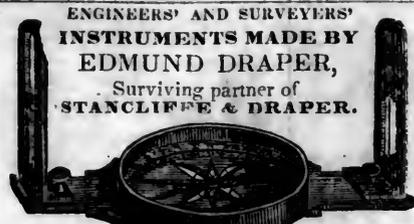
They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.		
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4 1/2	13 5	10	2 1/2	50	15-16	20	
13	3 1/2	8 3	8 1/2	16 -	27	11-16	13 1/2	
14	3 1/2	6 11	7 1/2	12 8	17	9-16	10 1/2	
15	2 1/2	5 2	6 1/2	9 4	13 1/2	1-2	7 1/2	
16	2 1/2	4 3	6	8 8	10 1/2	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24



ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.

No 23 Pear street, below Walnut, 1y10 near Third, Philadelphia.

LAP—WELDED WROUGHT IRON TUBES

FOR TUBULAR BOILERS, FROM 1 1/4 TO 6 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee.

1y25 28 Platt street, New York.

ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co. SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y. JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY, N. Y. ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa. MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston. C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

THE AMERICAN RAILROAD JOURNAL

is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail— which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

TROY AND SARATOGA RAILROAD.
THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug 3, 1846.

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BALTIMORE AND OHIO RAILROAD.
MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7 1/2 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry — with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Ship. New York.

ly 10

NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.

Passengers destined for

Columbus and Cincinnati, J. Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance..... 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance..... 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

TIME.

From Buffalo to Sandusky..... 2 1/2 hours.
Leave Sandusky 5 a.m. to Columbus.... 14 "
From Columbus to Cincinnati..... 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.

From Buffalo to Sandusky, Cabin.....\$6 00
" " " Steerage..... 3 00
" Sandusky to Columbus..... 4 50
" " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Sup't, etc.
M. & S. C. R. R. Co.

Sandusky City, Ohio.

NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrianna, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisania only.

Leave City Hall for Harlem, Morrisania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] and 3 45 p.m.

RETURNING.

Leave Pleasantville, at 8, 10, [freight train,] and 11, a.m.; 1 30, and 4, p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20, p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35, a.m.; 2 05, and 4 35, p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 10, 4, and 4 50 p.m.

Leave Morrisania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. ly49

BALTIMORE AND SUSQUEHANNA RAILROAD.—Reduction of Fare. Morning and Afternoon Trains between Balt-

more and York.—The Passenger trains run daily, except Sunday, as follows:
Leaves Baltimore at.....9 a.m. and 3 1/2 p.m.
Arrives at.....9 a.m. and 6 1/2 p.m.
Leaves York at.....5 a.m. and 3 p.m.
Arrives at.....12 1/2 p.m. and 8 p.m.
Leaves York for Columbia at.....1 1/2 p.m. and 8 a.m.
Leaves Columbia for York at.....8 a.m. and 2 p.m.

FARE.

Fare to York.....\$1 50
" Wrightsville..... 2 00
" Columbia..... 2 12 1/2
Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg..... \$9
Or via Lancaster by railroad..... 10

Through tickets to Harrisburg or Gettysburg... 3
In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5 1/2 p.m.

Returning, leaves Owing's Mills at.....7 a.m.

D. C. H. BORDLEY, Sup't.
Ticket Office, 63 North st.

31 ly

LEXINGTON AND OHIO RAILROAD.
Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

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SOUTH CAROLINA RAILROAD.—A
Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculum Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculum..... 22 00

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

ly25 JOHN KING, Jr, Agent.

CENTRAL RAILROAD—FROM SAVANNAH TO MACON. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.
On measurement goods..... 13 cts. per cubic ft.

On brls. wet (except molasses and oil).....\$1 50 per barrel.
On brls. dry (except lime)... 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.

On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.
On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, Gen'l. Sup't. Transportation.

ly40

MANUFACTURE OF PATENT WIRE
Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

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GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1½ in. to 2½ in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. 1y1

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 63,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 fe. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS, 48 State st.,** or to **CURTIS, LEAVENS & CO., 106 State st., Boston,** or to **A. & G. RALSTON & Co., Philadelphia.** ja45

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ½ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



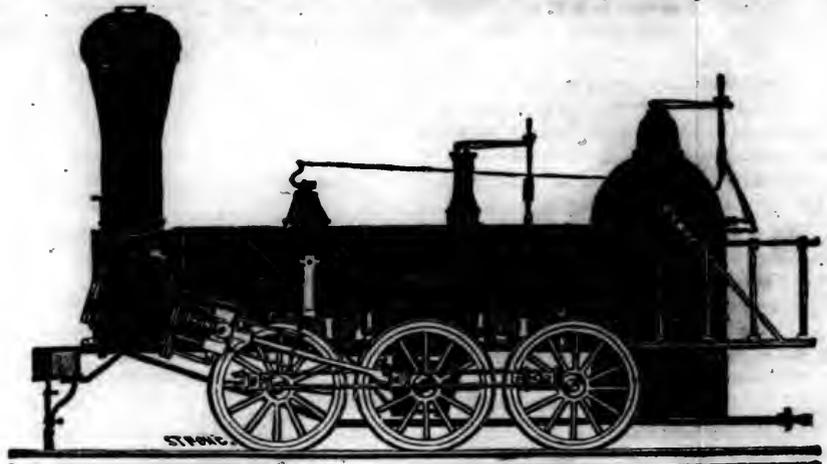
Manufactured and for sale by **MORRIS, TASKER & MORRIS.** Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

RAILROAD IRON.—THE NEW JERSEY Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to **FULLER & BROWN, Agent.**

No. 139 Greenwich, corner of Cedar street. September 18, 1846. 10:39

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	15 inches Diameter of Cylinder,	× 20 inches Stroke.
1,	15 inches	× 20 " "
2,	14 " "	× 24 " "
3,	14½ " "	× 20 " "
4,	12½ " "	× 20 " "
5,	11½ " "	× 20 " "
6,	10½ " "	× 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** President of the Newcastle Manuf. Co.

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20th 4 South Front St., Philadelphia.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

- James P. Allaire, } New York.
- Peter Cooper, } New York.
- Murdoch, Leavitt & Co. } New York.
- J. Triplett & Son, Richmond, Va.
- J. R. Anderson, Tredegar Iron Works, Richmond, Va.
- J. Patton, Jr. } Philadelphia, Pa.
- Colwell & Co. } Philadelphia, Pa.
- J. M. L. & W. H. Scovill, Waterbury, Conn.
- N. E. Screw Co. } Providence, R. I.
- Eagle Screw Co. } Providence, R. I.
- William Parker, Supt. Bost. and Worc. R. R.
- New Jersey Malleable Iron Co., Newark, N. J.
- Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly. 35

"Railways at Home and Abroad."

THE EDINBURGH REVIEW, AND ITS ARTICLE ON RAILWAYS. (ART. VII.)
(Continued from page 791.)

It may, perhaps, be urged, that the operations of past years have not been productive of any such effects. It is necessary, however, to remember that the seventy-five millions of capital, which have already been invested in railways, have been spread over a period of more than fifteen years—giving an average annual absorption of only five millions, while we are now to supply forty millions, and that generally that period was one of great national prosperity.

But let us assume the work to be done.—Let us suppose the capital to be sunk, and the 9000 miles of railway to be in full operation. The shareholders will expect at least as good average profits as those who have already made a like investment. We have seen that a gross revenue of £3000 per mile, on the existing lines, only pays an average profit of about 5 per cent. What must be the gross revenue of the system of lines, now contemplated, to give the same profits?

In order that 9000 miles of railway should produce £3000 per mile, it is necessary that the public should expend on that species of inland transport twenty seven millions a year! Assuming that this expenditure is distributed between passengers and merchandize, as it is at present, seventeen millions will be paid for passengers and ten millions for merchandize.

At present the number of passengers booked on 2000 miles of railway annually is nearly thirty-four millions. When the enlarged system comes into complete operation, the number must be a hundred and fifty three millions!

This subject opens many curious and interesting views; but our limits warn us that we must at present dismiss it.

When the results of the operations in England became known in America, the advantages which such means of intercommunication must produce in that country became immediately apparent; and in various parts of the union, the enterprising spirit of the population was directed to the construction of railways. The progress was rapid; and a few years witnessed an extensive system of steam communication by land throughout the most populous and active of the Atlantic states.

The total length of railway now actually constructed, and in operation in the United States, amounts to about 4500 miles; of which 500 miles consist of short lines, connected with coal works and private establishments; leaving about 4000 miles of swift steam conveyance, by railway, for passengers and merchandize. Besides this, there are about 10,000 miles projected, the construction of most of which has been suspended, since the financial and momentary revulsions which took place some years since. Of the railways completed and in operation, the chief part are in the Atlantic states. A few short lines, however, have been constructed in the south and west. Thus there are seven railways in Alabama,

four in Florida, ten in Louisiana, and five in Mississippi.

Pennsylvania, New York, and the states of New England, are the great theatres of American railway enterprize. The state of Pennsylvania is intersected by nearly a thousand miles of railway; and an equal length is in operation, or process of construction, in the state of New York. The New England states are in every direction intersected by railways. Boston is connected towards the west with the Hudson, at Albany, by a continuous line. It is connected towards the south, with Long Island Sound, by lines to Providence and Stonington, and to Worcester and New London. The communication is carried on from these points to New York both by railway over Long Island and by steamboats on the sound and the East river.

From the Hudson, there is an unbroken line of railway communication to the great northern lakes. By these and the Illinois river, the communication is continued by steamboats nearly to the banks of the Upper Mississippi; where it is continued for some thousand miles westward by the Missouri towards the Rocky Mountains; and southward by the Lower Mississippi to New Orleans and the Gulf of Mexico.

Another artery of railway communication proceeds from New York southward—traversing the states of New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North and South Carolina—and turning westward through Georgia, terminates near the banks of the Alabama river; there the line is continued by steamboats to the north of that river: and thence to lake Pontchartrain, where it meets a line of railway which terminates finally at New Orleans. The entire territory of the union is thus enclosed in an uninterrupted circle of steam communication.

Nor are great transverse arteries wanting to complete the interfusion of the commerce of the country. From the artery running north and south just mentioned, there issues a lateral branch at Baltimore, proceeding westward towards the Allegheny range. At present this is continued only as far as Cumberland—at the foot of the ridge, which is from that point crossed by an excellent Macadamized road, on which stage coaches work at a speed equal to the best English coach travelling. It is, however, intended to supersede this road, by a continuation of the railway to Wheeling and Pittsburg on the Ohio. Thence the communication is carried on by steamboats on that river, to the point where its waters are received by the Mississippi.

We have here traced the great main arteries of the internal commerce of the United States, but these only. From these at every point diverge innumerable ramifications, either by tributary navigable rivers, by branch railways, or by common roads.

There are also isolated instances of the irrepressible spirit of enterprize, which so strongly characterizes this people, to be found in railways constructed and in operation, where the highest refinements of locomotion would be the last thing the wanderer of the wiles would expect to meet. In the back-

woods of Mississippi, traversing native forests where, till within a few years, human foot never trod, through solitudes the silence of which was never disturbed even by the red man, we are now transported on railways. The impression produced on the traveller as he is whirled through these wilds, and sees the frightened deer start from its lair at the snorting of the ponderous machine which moves him, and reflects on all that man has accomplished in these regions within half a century, cannot be described.*

When the expenditure involved in the construction and operation of British railways is considered, the financier, the statistician, and the economist, will naturally ask how, with a population so sparse and a territory so vast, such a system of communication could be established and sustained? If the great mass of the passenger lines in England have cost at the rate of thirty-five thousand pounds per mile, and the profits gained even on the most successful among them do not exceed 10 per cent., while the average profits of all do not amount to more than half that rate—how, it may be asked, can this stupendous system of American railways, with a traffic comparatively so insignificant, among a people where profits on capital are high and the rate of interest from 6 to 10 per cent., be made to answer?

This difficulty is explained, partly by the general nature of the country, partly by the mode of constructing the railways, and partly by the manner of working them.

With certain exceptions, few in number, the tracts of country over which these railways pass form nearly a dead level. Of earth-work, therefore, there is but little. Occasionally low embankments and shallow cuttings are all the difficulties the engineer has to surmount. Of works of art, such as viaducts and tunnels, there are almost none. Where the lines have to be conducted over streams or rivers, bridges are constructed, in a rude but substantial and secure manner, of timber, which is supplied from forests at the road side, subject to no other cost save that of hewing it. The station houses, booking offices, and other buildings, are likewise slightly and cheaply constructed of timber.

Where the lines of road intersect considerable rivers, such as the Hudson, the Delaware or the Susquehanna, the latter are crossed by steamboats, the railway being resumed on the opposite bank. This operation is effected without objectionable inconvenience or delay, and is often so regulated as to correspond with the meals of the passengers, which are in that case supplied in the boat while crossing. The passengers' luggage, and such light goods as are transported by passenger trains, are carried in vans, supported on cast iron rollers, which are placed on the railway trucks. On the arrival at a ferry, these vans are rolled without delay along a platform level with the truck, to the upper deck

* A railway is in operation between Vicksburg, on the eastern bank of the Mississippi, and the town of Jackson, in the centre of the state, which throughout its entire length traverses the native forests, where the engineers who made it were probably the first of the human race that had ever set their foot.

of the steamboat, which is at the same level, or nearly so; and on arriving at the opposite bank they are rolled by a like expedient upon the trucks of the train which waits.

But, besides the facilities afforded for the construction of railways by the flat and level character of the country, and the boundless supply of timber at a trifling cost, a further and much larger economy is effected, as compared with European lines, by the method of construction.

Formed to supply a very limited amount of traffic in proportion to their length, the American railways are, generally, single lines. Sidings are of course provided at convenient stations, in which one train waits until the train in the contrary direction has passed. Collision is impossible, for the first train which arrives must, by the rules of the road, move into the siding. This arrangement would be attended with inconvenience on lines where a frequent passage of the trains takes place; but on the principal American lines, the quick trains seldom pass in each direction more than twice a day, and the time and place of their meeting is perfectly regulated. In fact, no inconvenience is felt or complained of from this cause in the practical working of the lines. In cases where the traffic is so considerable as to require them, double lines have been constructed.

In the structure of the roads themselves, principles have been adopted which have been attended with great economy compared with European lines—the application of which was rendered admissible by the lightness of the traffic and the moderate speed contemplated. In laying out these lines the engineers did not, as in England, impose on themselves the difficult and expensive condition of excluding all curves but those of a large radius. On the other hand, curves having a radius of one thousand feet are usual, and occasionally those of five hundred feet, and even less, are allowed. Nor are the gradients restricted to the same low limits as with us. Acclivities rising at the rate of one foot in a hundred and thirty, are considered a moderate ascent; and there are not less than fifty lines, in which the gradients are laid down at a rate varying from one in a hundred to one in seventy-five. Nevertheless, these rises are worked without difficulty by locomotives without the expedient either of assistant or stationary engines. The consequences of this have been to diminish the cost of earth work, bridges and viaducts; even in parts of the country where the character of the surface is least favorable. But the chief source of economy in the construction of these lines has arisen from the structure of the road surface. In many cases where there is a light traffic, the rails consist of flat bars of iron two and a half inches broad, and from five to seven-tenths of an inch thick—nailed or spiked down to planks of timber laid longitudinally on the road in parallel lines, at the proper width, so as to form what are called continuous bearings. Some of the most profitable lines, and those of which the maintenance has proved the least expensive, have been constructed in this manner.

The structure of the road, however, varies in its character according to the traffic. Rails are sometimes laid down weighing from 25 to 30 lbs. per yard. In some cases of still greater traffic, the rails are laid on transverse sleepers of wood, in the same manner as on the European railways; but, in consequence of the comparative cheapness of wood and high price of iron, the strength necessary for the road is obtained by reducing the distance between the sleepers, so as to supersede the necessity of giving greater weight to the rails.

In all cases where augmented traffic may be expected from the increase of population and commerce, the earth work and structures on the lines are made so as to admit of a double line of rails, whenever they may be required.

In the working of their railways, the same attention to the economy rendered necessary by their limited traffic is observable. The engines are strongly built, perfectly safe and sufficiently powerful; but they are destitute of much of that elegance of exterior, and luxurious beauty of workmanship, which are seen upon the British locomotives. The fuel used to work them is generally wood. On certain lines, however, in the neighborhood of coal mines—such, for example, as the Philadelphia and Pottsville railway, which penetrates into the great coal fields of Pennsylvania—coal is the fuel used. The use of coke is nowhere resorted to. Its expense would make it inadmissible; and in a country so thinly inhabited, the smoke proceeding from coal or wood is not objected to.

The ordinary speed, stoppages included, is fourteen or fifteen miles. Independently of other considerations, the light structure of most of the railways would not allow of a greater velocity without considerable danger; on some of the better constructed lines we have, however, frequently travelled at the rate of twenty-five miles an hour when at full speed. This is not uncommon on some of the New England lines—on the railways from Baltimore to Washington, and some of the southern lines; as for example that between Charleston and Augusta in Georgia, the Columbia line in South Carolina, and the line from Augusta to the University of Athens in Georgia.

Notwithstanding the apparently feeble and unsubstantial structure of some of the lines, accidents to passenger trains are scarcely ever heard of in America. With an experience of nearly twenty thousand miles of railway travelling in the United States, we have never encountered an accident of any kind, or heard of a fatal or injurious one. This security may be explained by the moderate speed of the trains, and the absence of a highly active traffic.*

* In some cases of lightly constructed roads, where the bars spiked down to the planks are not kept in good order, an accident called (from its analogy to a catastrophe common on American rivers) *snagging*, is said sometimes to have happened. In this case the iron bar, worn thin and unspiked, gets detached from the plank, and as the wheel passes upon it, springs up and pierces the bottom of the carriage to the great danger of the passengers. We have, however, never met with a well authenticated case of this kind.

The form and structure of the carriages is a source of considerable economy in the working of the lines. The passenger carriages are not distinguished, as in Europe, by different modes of providing for the ease and comfort of the traveller. There are no first, second or third classes. All are first class, or rather all are of the same class. The carriage consists of a long body like that of a London omnibus, but much wider and twice or thrice the length. The doors of exit and entrance are at each end; a line of windows being placed at each side, similar exactly to those of an omnibus. Along the centre of this species of caravan is an alley or passage, just wide enough to allow one person to walk from end to end. On either side of this alley are seats for the passengers, extending crossways. Each seat accommodates two persons; so that four sit in each row, two at each side of the alley. There are sometimes fourteen of these seats, so that the carriage accommodates fifty-six passengers. In cold weather, a small stove is placed near the centre of the carriage, the smoke pipe of which passes out through the roof; and a good lamp is placed at each end for illumination during the night. The vehicle is perfectly lighted and warmed. The seats are cushioned; and their backs, consisting of a simple padded board, about six inches broad, are so supported that the passenger may at his pleasure turn them either way, so as to turn his face or his back to the engine. For the convenience of ladies who travel unaccompanied by gentlemen, or who otherwise desire to be apart, a small room, appropriately furnished, is sometimes attached at the end of the carriage, admission to which is forbidden to gentlemen.

It will occur at once to the engineer, that vehicles of such extraordinary length would require a railway absolutely straight; it would be impossible to move them through any portion of a line which has sensible curvature. However, in the construction of American railways curves are admitted without difficulty or hesitation, which would be wholly inadmissible on any European line, and thro' these curves the vehicles just described move with the utmost facility. This is accomplished by a simple and effectual arrangement. Each end of this oblong caravan is supported on a small four wheeled railway truck, on which it rests on a pivot; exactly similar to the expedient by which the fore wheels of a carriage sustain the perch. These railway carriages have in fact two perches, one at each end; but instead of resting on two wheels, each of them rests on four. The vehicle has therefore the facility of changing the direction of its motion at each end; and in moving through a curve, one of the trucks will be in one part of the curve while the other is at another—the length of the body of the carriage forming the *cord* of the intermediate arc! For the purposes they are designed to answer, these carriages present many advantages. The simplicity of the structure renders the expense of their construction incomparably less than that of any class of carriage on an European railway.—

But a still greater source of saving is apparent in their operation. The proportion of the dead weight, to the profitable weight, is far less than in the first and second class carriages on the English railways, or even than the third class. It is quite true that these carriages do not offer to the wealthy passenger all the luxurious accommodation which he finds in the best first class carriages on the English railways; but they afford every necessary convenience and comfort, and are decidedly preferable to any second class carriages on European lines.

In several of the principal American cities, the railways are continued to the very centre of the town, following the windings of the streets, and turning without difficulty the sharpest corners. The locomotive station is, however, always in the suburbs. Having arrived there, the engine is detached from the train, and horses are yoked to the carriages, by which they are drawn to the passenger depot, usually established at some central situation. Four horses are attached to each of these oblong carriages. The sharp curves at the corners of the streets are turned by causing the outer wheels of the trucks to run upon flanges, so that they become (while passing round the curve) virtually wheels larger than the inner ones. We have seen, by this means, the longest railway carriages enter the depots in Philadelphia, Baltimore, and New York, with as much precision and facility as is exhibited by the coaches that enter the gateway of the Golden Cross or the Saracen's Head.

The cost of construction of the American railways has varied between very wide limits, as the traffic upon them has been greater or less. The average cost of the passenger lines may be taken at about £9000 per mile.

Of all the European states, after Great Britain, that which first and most energetically directed its efforts to the establishment of improved means of intercommunication, was Belgium. The revolution of 1830 having separated this country from Holland, it lost the mouths of the Scheldt as an issue for its commerce. The communication with the German states could not be continued by sea, and were attended with expenses by land, on the common roads, which rendered them impracticable. The coal producing province of Liege, which, before the revolution, supplied the Dutch markets, was now isolated, while those of Hainault communicated with all the chief cities. Pressed by these difficulties, the new government decided on constructing an effectual and economical communication between the ocean and the point of the frontier nearest to the Rhine, crossing the kingdom from east to west. A canal was first suggested, but MM. Lebeau and Rogier had the sagacity to perceive that an extensive system of railways would conduce much more effectually to the national prosperity: and the project was presented to the chambers, and passed into a law, on the 1st of May, 1834; in virtue of which, the railways which now overspread Belgium were constructed at the charge of the state. The works were commenced on the 1st of June, 1834, and were completed,

and successively brought into operation, in the following years. In 1843, ten years after the project was adopted, the following system of lines was completed and in full work:

	Miles
EASTERN LINE—From Malines to Cologne by Louvain, Tirelemont, Landon, Warrenme, Liege and Verviers, with a branch to St. Trond.....	91
WESTERN LINE—From Malines to the sea on the north, by Termonde, Ghent, Bruges, and Ostend, with a branch from Ghent to the French frontier by Menin and Coutrai.....	126
NORTHERN LINE—From Malines to Antwerp, with a branch to Lievre.....	16
SOUTHERN LINE—To the frontier of France by Brussels and Mons, with a branch to Charleroi and Namur.....	115
Total.....	348

The earlier of these lines were opened in 1838, and the others followed in quick succession. The result of the first year fully justified the government in the policy which dictated this measure. Before the establishment of these lines of communication, the number of passengers between Brussels and Antwerp per annum, was 75,000. In the eight months after the opening of the railway, the number was 541,129; and afterwards the annual intercourse between these cities amounted to a million! The profits on the capital expended on the line between Brussels and Malines, amounted in the first year to 8 per cent; and those on the line between Brussels and Antwerp, to 16 per cent. A secondary system of lines (about 200 miles,) to communicate with the inferior order of towns, has been undertaken, with the authority of the state, by private companies. Considered relatively to the population and territory of Belgium, this is the greatest work of public utility which any European state has executed in our times.

The general character of the country was favorable to the construction of railways, but this facility was not without some qualification. In the parts of the country through which the lines first constructed, passed, the surface is generally flat, and no earthworks or great works of art are necessary. It was, however, intersected by numerous and important rivers and canals, over or under which the lines were conducted by means of bridges and aqueducts. On the eastern line, a series of deep valleys were crossed by deep embankments from fifty to seventy-five feet in height, alternated with cuttings from thirty to forty-five feet deep, and a tunnel of nearly three quarters of a mile in length. In crossing these valleys, the railway is carried over and under the roads and canals by means of innumerable bridges, aqueducts and viaducts. From Ans to Liege, the declivity leading to the valley of the Meuse is worked by an inclined plane; on which the trains are drawn by a pair of stationary engines of 360 horse power. From Liege to the frontier of Prussia the imaginary difficulties have been as considerable as on any of the English railways.

The cost of construction and other statistical particulars connected with the Belgian

railways, for the years 1842, 1843, and 1844, are given in this table:

Year.	Miles worked.	Cost of construction.	Number of passengers.	Receipts from passengers.
1842	246	£3,454,804	2,724,104	£187,372
1843	398	5,784,000	3,085,349	219,296
1844	348	5,789,872	3,381,529	271,583

Year	Receipts for merch'dize &c.	Total receipts	Expenses of working	Net profit.
1842	£111,090	£298,462	£188,013	£110,449
1843	141,960	361,256	219,064	142,192
1844	177,837	449,220	230,613	218,603

Hence it appears, that the average cost of establishing the system of Belgian lines, has been £16,600 per mile. This sum consists of the following items;

Construction of the lines.....	£12,900
Stations and their appendages.....	1,100
General expenses, salaries, offices, &c.....	500
Material.....	2,100
	£16,600

To be continued.

Experiments on Wrought Iron Hollow Beams for Railway Bridges.

In our last number, we presented some illustrated experiments by the Messrs. Fairbairn and Hodgkinson, and we give to day, further experiments by these gentlemen, on the rectangular tube. The first were upon circular tubes. Below, the reader will see the results upon the other shape.

Although the circular form of tube was probably the most natural form which immediately suggested itself as the fittest for the construction of a tunnel of wrought iron plates, like that to be thrown across the Menai straits for the Holyhead railway; yet it is by no means the form which is either the most convenient, the most easy of construction, or the most scientifically appropriate.—The rectangular form has been adopted both for cast iron beams and for malleable iron rails, in the universal practice of the profession. The experiments of Mr. Hodgkinson and of Mr. Fairbairn have long made known the appropriate forms of beams; and a flat web form is undoubtedly the proper form for this purpose. Let us take a common malleable rail, of the Π form, and suppose the middle web to be split in two, and placed on both sides of the top and bottom flange, then we should have a hollow iron rail, truly representing the conditions of the great Holyhead tunnel, with only this difference of large and small, and of the train running on the one and in the other. It is true there are lateral strains on both tunnel and rail; but they are by no means the greatest; and the precautions in both cases necessary for the vertical strain are, in all probability, at least sufficient for a casual horizontal strain from wind or other causes.

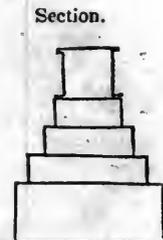
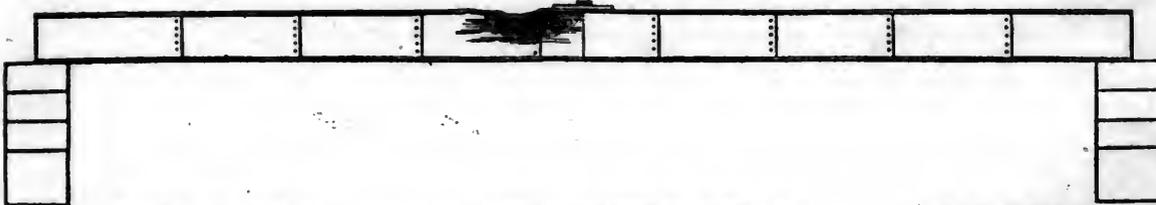
The former series of experiments which we have given, were made by Mr. Fairbairn on circular tubes; but that which we now give is on the rectangular form, being that ultimately intended for the bridge, and certainly that which is every way best suited for the general purposes of railway practice. It will also be observed that the experiments give greater strength than in the cylindrical experiments.

EXPERIMENTS ON RECTANGULAR TUBES.

In the first experiment a square form was adopted, 9.6 in. every way; top, bottom and sides being 1.16th of an inch in thickness.

The span was 17 ft. 6 in. In the second the same form and dimensions were used, only the top plate was increased in thickness; and this, it will be seen, more than doubled its sustaining power.

Fig. 14. Showing the fracture on the upper side. Elevation of beam.



Experiment XIV. (a.)
Span 17 ft. 6 in.
Thickness—top, bottom and sides, .075 in.
Width—top, bottom and sides, 9.6 ft.
Bent, 1.10 in.
Breaking load, 3,738 lbs.

Experiment XIV. (b.)

The same beam, with a top plate of 0.272 in. thick—bent, 1.13 in.; broke, 8,272 lbs.

This is very instructive. We give no diagram of the second fracture, because it was a simple opening up of the lower side of the plate by tearing it asunder in a large crack at the rivets. It is plain, however, that great practical strength is gained by making the top strong enough to prevent it from getting crushed or buckled up by compression. The same remark is illustrated by the following:

Experiment XV. (a.)

Span, 17 ft. 6 in.
Thickness—top, 0.75; bottom, .142; sides, .75 in.

Width—top, bottom and sides, 0.6 ft.
Bent, .94 in.
Broke, 3,738 lbs.

Fig. 15. Showing the fracture.

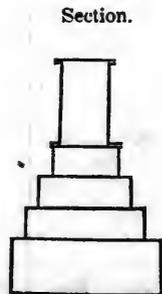
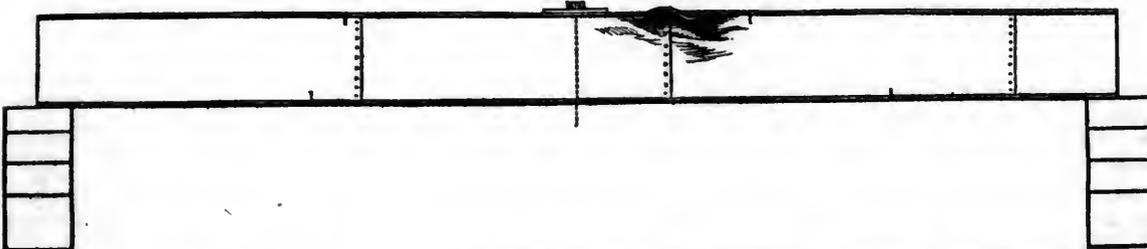


Experiment XV. (b.)



This was the same tube reconstructed with

Fig. 16. Showing the fracture in Experiment XVI. (a.) Elevation of beam.



Experiment XVI. (b.)

This was the same upside down, and the result was nearly double the sustaining power—for it bent, 1.73 in.; broke, 12,188 lbs.—Still, however, the top plate was not strong enough to break the bottom, but doubled up, as in

Fig. 16. (b.) Showing the fracture.



In the next experiment the sides were brought much nearer, and the upright tubes are brought within 2 1/4 inches of each other, the top tube being 6 in. wide, and the bottom 10 in., and the thickness of the sides increased to .149 in. The space being extended to 24 in. shows a great increase of strength.

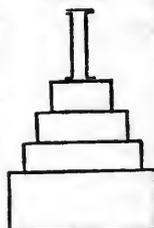
Experiment XVII.

Span, 24 ft.
Thickness—top and bottom, .160; sides, .149 in.
Breadth—top, 6 in.; bottom, 10 in.; sides, 15 in.
Bent, 2.66 in.
Broke, 17,600 lbs.

Fig. 17. Showing the fracture. Elevation.



Section.



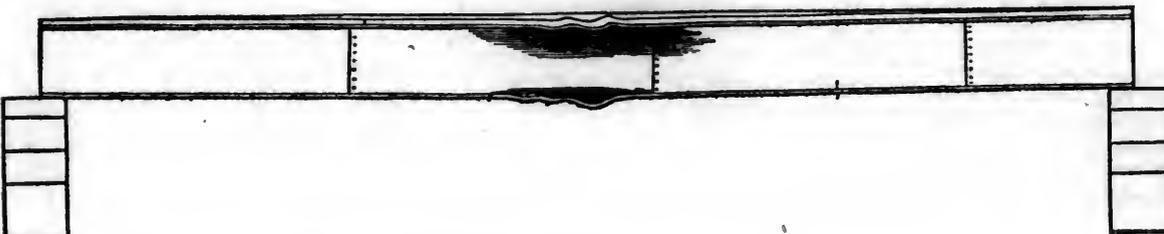
From these experiments we are disposed to deduce the general conclusion, that the compressed or top side should be of considerably greater thickness than the bottom, and also that thickness of the sides seems a great element of strength. The experiments themselves are also valuable as units of calculation.

The necessity of preventing the crumpling of the upper or compressed side suggested a tubular or corrugated form; it was tried in the following experiment:

Experiment XXIX.

Span, 19 ft.
Thickness—top, .230; bottom, .180 in.
Width—top, 7.75; bottom, 15.40 in.
Bent, 1.59 in.
Broke, 22,469 lbs.

Fig. 29. Showing the fracture in Experiment XXIX. Elevation of beam.



This appears to have suggested the cellular tube as a convenient form for the larger experiments, the results of which we have already quoted.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

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Saturday, December 26, 1846.

RAILROAD IRON.

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THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured. Address J. M. HOWE, Pres't. Mt. Savage Iron Works, Maryland. Dec. 25, 1y*

CLOSE OF THE YEAR.

The present number closes the second volume of the new series, and completes the nineteenth volume of the RAILROAD JOURNAL. This number is so crowded with other matter, that but little space is left us to say an appropriate word or two at the close of the year. We embrace the opportunity, however, to present to our readers, the compliments of the season, and to express our thanks for the favors we have received at the hands of our patrons, during the past twelve-month. In the next volume we hope to number all our present subscribers—and many more—for whose benefit we shall always labor, and whose continued support we hope to deserve. The course we have pursued in the Journal, speaks for itself, and at the end of 1846, we refer to it with pleasure. The future is before us, and for 1847 we cordially wish our readers and friends "A HAPPY NEW YEAR!"

Railroads in the United States.

It will probably be recollected by many of our readers that we published in the Journal of 1845, a tabular statement in relation to the railroads in the United States. In February last we discontinued the publication of that table, with the intention of preparing, at an early day, another much more extensive and accurate; but we found it a much more difficult task to perform than we anticipated, and hence the delay of its appearance until after the close of the volume for 1846. We have at length, however, through the untiring efforts of our late associate, Mr. GEORGE C. SCHAEFFER, completed a table of the railroads in the United States, comprising a greater amount of useful information, on this subject, than has ever before been collected into so small a compass. No one can, from an inspection of it, imagine the amount of labor required and bestowed upon this table—and no description we can give will convey as correct an idea of the labor required as the following extract from the letter accompanying the last pages of the copy. Mr. Schaeffer says:

"I think it would be well to say that every known road has been inserted, because from the table the merits of the line may be discovered, and valuable charters yet in force, good routes nearly ready for the rails, may for a small sum be obtained, and the whole put in profitable operation. I have, almost by accident, discovered several which are actually in this condition. The old Monroe road is an example of what may be done. I have no doubt that the Illinois routes will, before long, attract the attention of eastern capitalists, and the state will be glad enough to get helped out of its scrape. Indiana has given very favorable terms to the Madison and Indianapolis company, and they are making money, and before long the state will receive a handsome dividend. I mention these things to show the necessity of naming all the roads. Eastern people know almost nothing of western roads, and when the western people see the ghosts of their old speculations rise up again, they may be tempted to try to reanimate those which are worth the trouble. At any rate they may be induced to correct whatever may be wrong, and to supply omissions. As an instance of De Gerstner's accuracy, I might mention that in one or two instances where letters have been published in the Journal, in the last year or so, giving accounts of unfinished or abandoned works, such as from Alabama and Ohio, I find that even to the number of miles of grading, etc., already done, he is exact.—Moreover he gives, and I have inserted in the table, what few persons would send, and in some instances what no one can now tell, the grades, curves, etc., upon located lines, as all his information was obtained from engineers, etc., upon the spot. But I have not rested upon him alone; I have searched the Journals for nearly every road, and for some through many volumes. Of course the information obtained is worth the more for the pains, although it does not appear. Sometimes a long hunt decided me to omit some figures. The table looks to be imperfect, but it is really more perfect than if I had merely copied what proved to be wrong. If you had seen me with chairs, tables and floor covered with maps, open pamphlets, etc., etc., stooping first over one, then over another, you would have seen that the mere bodily labor was severe. Although I have been picking up materials for it for six months, I had no idea of the job; probably if either you or I had had an idea of the undertaking, we would never have attempted it—upon the present scale at least."

The number of roads and branches described exceeds 210; and the introduction and accompanying notes, illustrating the table, will occupy nearly as much room as the table itself.

It was our intention to have inserted this map of important information in this volume of the Journal, but we are obliged reluctantly to defer it for a week or two yet, in order to have it put in type, and the proof properly corrected.

New England Railroads.

Within a few days the annual reports from all the Massachusetts railroads will be forthcoming, and it is expected that these reports will show an unexampled advance in the business prospects of the routes in that state. All accounts agree in the belief that a very greatly increased business has been done during the past, over any preceding year, and in the case of the Fitchburg road, which, last season, paid a dividend of *ten per cent.*, the receipts for the week ending on the 14th inst. were \$1,400 over the same week last year. The business upon the Western road last week, was near \$6,000 over the amount of the corresponding week of last year.

The reports will be highly interesting the present season, and we shall look anxiously for the documents.

**Long Island Sound Navigation.
Another Steamboat Gone!**

We learn with regret, that the elegant steamer "MOHEGAN," running between N. York and Bridgeport, was totally lost on Saturday, by running on a ledge of rocks near *Sands' Point*, L. I. Sound. She sunk to within two feet of her hurrican deck. It is said no lives were lost. Does not this suggest another argument in favor of the early establishment of the railroad route through from Boston to New York?

Telegraph to Cincinnati.

It is now thought that the magnetic telegraph will be finished, and in working order to *Cincinnati*, at latest, by the 1st of July next. It is the opinion of the parties interested that it will not require over six months to complete it.

Whitney's Railroad Project.

Our citizens were gratified on Wednesday evening last, at the Chinese Museum, by an address from Mr. WHITNEY, on the subject of his immense project of a railroad to Oregon. There was a good deal of anxiety evinced to hear him, before the lecture took place—and a very intelligent and highly respectable audience attended on him, upon this occasion.

Mr. Whitney addressed the meeting for a considerable length of time, upon the importance and magnitude of his scheme, and presented, as plainly as could be done upon such an occasion, the advantages which must accrue from this stupendous project. Mr. W. gave his views at length upon his plan, and the benefits to be derived from the consummation of his proposals. The project for this road has been already reported favorably upon by a committee of the U. S. Senate, and a bill was last year introduced into that body, authorizing the work.—The *Inquirer* of this city, alluding to the matter, remarks that

"Unless something of a definite character be done upon this subject in the course of a short time, the lands which are necessary to the undertaking, will be taken up, and this magnificent project will be greatly retarded. Thus far, public opinion has been expressed upon the subject in the most unequivocal manner. Demonstrations of approval have been made in Pittsburg, Cincinnati, Louisville, St. Louis, Dayton, Columbus, Wheeling, and other cities and towns. Mr. Whitney is of opinion that the work may be constructed in fifteen years, and with no other cost to the government than the lands provided for in his scheme. The distance is 2,400 miles.—The work will commence on lake Michigan, and terminate on the Pacific at the Columbia river, or some equally available point. The vast influence of such a road can scarcely be estimated."

Mr. Whitney estimates that by this route "an individual may travel from London to China in thirty-one days—or from Philadelphia to China in twenty-one, and proceed no faster than we now do by steamboats and railroad."

This country, adds the *Inquirer*, would in a measure be rendered the centre of the active and commercial world—the great highway—and the English mail for Calcutta would no doubt pass over this route as well as the trade and travel to and from Asia.—These, at least, are the views of the enterprising and energetic projector of the undertaking, and while they are calculated to startle, they cannot but interest. The fact that a committee of so grave and dignified a body as the senate of the United States

reporting favorably to the road, after a full examination of the subject, is well calculated to make an impression, or at least to direct to the subject the attention of the thoughtful, the enlightened and the patriotic.

Mr. Whitney deserves well for his ardent and continued endeavors in this cause, and we most heartily wish him the fullest success in this great undertaking. He has gained the good will of thousands of influential citizens in behalf of his object—and, stupendous as is the work, it may be rendered feasible in time.

The meeting at the Museum was also eloquently addressed by his honor, Mayor SWIFT, who presided, and also by Josiah Randall, Esq., Hon. Peter A. Browne, Wm. D. Kelley, Esq., and others. They all spoke in glowing terms of the enterprize, and of the great revolution, commercial, political, and moral, that it was destined to work. The speakers were listened to with the greatest attention, and were much applauded. To afford a better idea of the geography of the two great continents of America and Asia, which the project is intended to connect, a map was suspended over the platform, and to which frequent reference was made by the speakers.

The following gentlemen composed the officers of the meeting:

President—His Honor, JOHN SWIFT, Mayor.

Vice Presidents—Col. James Page, Hon. Richard Vaux, David S. Brown, Federick Stoever, Dr. G. F. Lehman, Robert Toland, William M. Meredith, Hon. J. F. Belsterling, A. G. Ralston, Peter A. Browne, Thomas D. Grover, Charles B. Trego, Gen. William Dungan.

Secretaries—Hon. W. A. Crabb, Wm. D. Kelley.

A preamble and the following resolutions were submitted to the meeting, and unanimously adopted:

Resolved, That we cordially approve of the project of Asa Whitney, Esq., for the construction of a railroad to the Pacific, and respectfully petition Congress to grant or set apart before the close of the present session, the lands prayed for by Mr. Whitney for this purpose.

Resolved, That we request the senators from Pennsylvania and members of Congress from the city and county of Philadelphia, to give this measure their earnest attention and support.

Resolved, That we respectfully suggest to his Excellency, Francis R. Shunk, Governor of the commonwealth, the propriety of calling the attention of the legislature to this great national project.

Resolved, That the officers of this meeting be requested to transmit copies of the proceedings to his excellency the governor, and the senators and members of Congress from this state.

The meeting adjourned, after listening to the speeches of the gentlemen named, and the utmost good feeling marked the proceedings of the convention. In connection with the above, we refer the reader, with pleasure, to the following extract, which we make from the late Message of the governor of Ohio, who, it will be seen, alludes to the subject of Mr. Whitney's great plan in the most approbatory manner:—

"I deem it proper," says the governor in his Address, "to call your especial attention to an enterprize which is proposed, of a great national character, magnificent in its object, and having a direct bearing upon the future commerce of Ohio, as well as that of the entire union, and probably of the whole world. Mr. Asa Whitney, a gentleman of intelligence, of practical business capacity, and extraordinary energy of character, has suggested the means and submitted to Congress a proposition for the construction of a national railroad from Lake Michigan to the Pacific ocean, near the mouth of the Columbia river. This projected public improvement would complete a chain of communication by means of railroad and navigable waters between the Atlantic cities and the Pacific ocean, crossing the state of

Ohio in its course. It would connect together the vast interests of our extensive country, make the commerce of the Pacific tributary to the U. States, and open to us an immediate, easy, and direct communication with China and other countries of Asia, the Eastern Archipelago and other islands in the Pacific, as well as with the countries on the western shores of North America. Such a chain of communication across our continent, being on the nearest and most direct route, and furnishing by far the safest, easiest, and most speedy medium of communication between the commercial nations of Europe and the countries of Asia, would be crowded by the merchant, the traveller, and the curious from all quarters of the world. It would produce results in commercial, moral, and political points of view, vast beyond our limited capacity of conception at this time.

The feasibility of Mr. Whitney's proposition is susceptible of easy and plain demonstration. To pronounce it visionary on account of the magnitude of the project, would evince a forgetfulness of the vast achievements of the age, and a prevalence of the benighted prejudice which clouded the prospects of the enterprising benefactors of mankind in ages gone by. The work proposed is one that will cost the United States nothing in case of failure; and it is wholly unobjectionable, even to the most cautious, in relation to the grant of special privileges by the government.

I, therefore, submit to your consideration the expediency of aiding this most magnificent project of the age, directly connected as it is with the future prospects and interests of Ohio, by every legitimate influence and authority."

Sunbury and Erie Railroad.

We understand from an exchange paper that a convention of the parties friendly to the *Sunbury and Erie railroad*, will be held in this city about the middle of January next, having in view to prosecute the enterprize of a *northern* route by railroad, hence to Pittsburg. A special meeting of the Erie Board of Trade was recently held, and the Hon. James Thompson, Gen. C. M. Reed, W. Milner Roberts, Esq., civil engineer, J. B. Johnson, Esq. state senator, and Messrs. Gould and Sanborne, representatives, were appointed delegates to the Philadelphia convention.

This route, says the *Miners' Journal*, was surveyed several years ago, when the state canal was in contemplation, and was abandoned at that time for the existing route, upon the ground that it was thought that from its more northern latitude, the canal would close earlier in the season. It has been ascertained that there are 2000 feet less rise and fall on the northern route than on either of the others, which, in the opinion of experienced engineers, would make it preferable to a route which might be a few miles shorter, but in which there would be heavy grades to overcome. The long and troublesome passage of the Alleghany mountains would be avoided, as there is a gap at the head of Bennett's branch, through which a railroad could be laid without difficulty.

The route of the proposed road would be from Sunbury to Williamsport; thence up the west branch of the Susquehanna and the Smnemiahoning creek to Bennett's branch. From this point two branch roads would be constructed, the one leading to Erie, the other passing down the Clarion and Alleghany rivers to Pittsburg. The road would pass through the rich iron regions of Pennsylvania, and would, it is evident, derive a heavy trade from this source alone. By means of the Williamsport and Elmire railroad, it would tap the New York and Erie road at a point nearer to Philadelphia than New York, and if a railroad communication was secured from that point to Philadelphia, an immense western trade would be secured to that city.

We agree with a cotemporary that the friends of

the Sunbury and Erie route, in all the counties along the proposed line, will do well to appoint delegates to this convention. By making a railroad from Harrisburg to Sunbury, Philadelphia would be united to Pittsburg and Erie by a route which possesses great and decided advantages. But while we urge upon the friends of the northern route, that they push on their enterprize with spirit and energy, it must not now be allowed to interfere with the movements connected with the great *central* route, which, we are gratified to learn, *promises well*. We have not a doubt but that there will be ample business for *both* roads, when completed.

The northern route, even if it only reaches Erie, is a very important link in the great chain of intercommunication north-westward, which must be established, we think, at an early day, and while we go heart and hand for the great *central* road, we shall be glad indeed to see the Sunbury and Erie project prosper as well; the more especially as it will open a communication between the city of Philadelphia and Lake Erie.

The Magnetic Telegraph.

A good suggestion is made in a late number of a Baltimore paper, in reference to the proprietorship of the magnetic telegraph. A general desire seems to have been evinced that this invention shall become the property of the government—and that it should be "placed under the control of the postoffice department; and such a representation will be made to congress, it is thought, as will induce members to vote for its purchase."

"It would certainly yield," continues the paper from which which we quote, "a considerable revenue to government; whereas, managed by private companies, it greatly reduces the income of the post-office department. There is a use to which it might be advantageously applied under government which we have not seen noticed—that is, in the transfer of money from one place to another. We will illustrate what we mean. Suppose a person in Baltimore has to pay a sum of money in New York, or other place to which the telegraph may be extended; instead of purchasing a draft, as at present, and sending it by mail, let him deposit the amount with the agent of the telegraph here, who instructs the agent in New York to pay the amount as per order. This can be done and an answer received in a few minutes. For this service, the telegraph should be paid the usual price of transmitting intelligence, together with the difference of exchange, should it be deemed expedient. By this process, the merehant in Baltimore would not be compelled to lose the use of his funds for an hour, and would be guaranteed against all risk. It would be applying the telegraph to a legitimate purpose, as an appendage to the post-office—and a daily amount of such transactions might, if required, be rendered to the postmaster general, or treasury department. But, whether this idea be adopted or not, the telegraph should be taken out of the hands of private individuals, and be applied to public purposes."

The plan proposed appears to us to be a very excellent one—and well worthy the notice of congress. If the present proprietors would dispose of their interests at a fair price, the bargain would turn out a most profitable one for the United States, in the end, we think.

The Central Railroad.

The best feeling is being evinced in relation to the *great Central Pennsylvania railroad*—and we see no obstacle to its completion at an early date, if the same favorable disposition *continues* towards this great enterprize, which has thus far crowned the ef-

forts of those who have commenced in the undertaking. The U. S. Gazette says that upwards of *twenty-four thousand four hundred shares* have been taken by individuals, of which amount twenty-four thousand shares are subscribed for by citizens of Philadelphia. We learn from the Inquirer that the bank of the Northern Liberties has subscribed 100 shares—also the bank of Penn Township has subscribed 50 shares. The other banks of the city and county should follow these good examples. We also learn that the committee obtained in the block between Arch and Race, and Second and Fourth streets, subscriptions to 300 shares. Among the subscribers are several draymen and porters. We mention the fact to their honor. Philadelphia is moving in the proper spirit in relation to this great work, and our citizens who are exerting themselves with such energy and activity, deserve hearty praise.

The board of trade, too, has subscribed for twenty shares, which comprises nearly all their funds. This is, all things considered, the most liberal subscription that has yet been made to the stock. It is said that the individual members of the board of trade are among the largest subscribers to the stock of this road.

This argues well for the project, and we are happy to know that the city of Philadelphia has come up nobly to this work. It will now be pushed on as fast as is practicable, without doubt.

Pittsburg and Baltimore.

The Baltimore Sun states that the proposition of Mr. McLane, relative to the Pittsburg and Connellsville railroad, and the resolution adopted by the board of directors, to be presented at the special meeting of the stockholders in February next, has given great dissatisfaction at Pittsburg. At a meeting of the directors of the Pittsburg and Connellsville railroad company, held on Monday, the 14th inst., the following resolutions were adopted:

Resolved, That this board have seen with surprise and sincere regret, the conditions upon which the directors of the Baltimore and Ohio railroad company recommend a subscription of six hundred thousand dollars to the stock of the Pittsburg and Connellsville railroad company, for the following reasons:

First. Because we have heretofore been led to believe that if a liberal grant of the right of way could be obtained, that the Baltimore and Ohio railroad company would take upon itself the greater share of the expense of making the road, while now it seems that the company is disposed to defray the smaller portion of the cost, and at the same time to require from this company a pledge which would secure to the Baltimore company for all future time the control of the action of this company upon all questions of connection.

Second. Because the Baltimore company, not only by one of their conditions decline to become the principal undertaker in the completion of a work which must benefit their city more than Pittsburg, but call upon the Pittsburg company to insure the completion of the work to a point not even on the preferred route to Cumberland.

Third. Because after the Baltimore and Ohio railroad company have given to any company in Virginia the right to connect a railroad from Wheeling, Fishing creek or Parkersburg with the Baltimore and Ohio

railroad, they now ask us to act a more churlish part to our brethren of Pennsylvania.

Resolved, That for the foregoing reasons, among others, the board of directors of the Pittsburg and Connellsville railroad company deem the conditions recommended to be attached to the subscription by the Baltimore and Ohio railroad company to be wholly inadmissible.

Resolved, Therefore, that inasmuch as it is highly desirable that the negotiation with the Baltimore company, which has been so perseveringly protracted, should be brought to a close at as early a day as practicable, that the president of this board be requested to address a letter to the president and directors of the Baltimore company, urging the propriety and expediency of calling the stockholders together prior to the first Monday of February, the day on which the stockholders of this company must at the latest assemble.

Resolved, That a refusal or declination to call their stockholders together at an earlier day than February, so as to give the stockholders of this company the means of acting understandingly in relation to the proposed subscription of the Baltimore and Ohio company, shall be considered a persistence in those conditions, and that the president of this company be then directed to call the stockholders together at the earliest legal day.

Letter from Professor Morse.

The following letter from Prof. S. F. B. Morse appears in the Philadelphia Ledger, in relation to his new telegraphic invention for printing the alphabet, (instead of the present hieroglyphics,) and for which he proposes taking out a patent.

MESSRS EDITORS: I noticed an announcement in your paper of yesterday, that I had recently made "some improvements in my telegraph, for which I had entered a caveat at the patent office." It is true that I am taking measures to secure by patent some recent modifications of my telegraphic apparatus, simplifying the printing of my telegraphic alphabet; my experiments upon this point having been satisfactory. It is true, also, that I have applied a fact in electro magnetism, (never to my knowledge before applied,) in the construction of an apparatus for printing the common letters of the alphabet, and I have devised an apparatus of the greatest simplicity.

But simple as it is, incomparably more so than any contrivance for that purpose as yet published, I really do not attach any great importance to it, for the reason that it is mathematically demonstrable, and that from the very nature of such a contrivance, it cannot successfully compete in the rapidity of recording intelligence, with the simple mode I have in use, and which is a consequence, mainly, of the intervention of my telegraphic alphabet. For example, the President's message, entire, on the subject of the war with Mexico, was transmitted with perfect accuracy, [exclusively for, and at the expense of the Baltimore Sun,] at the rate of 99 letters per minute. My skillful operators in Washington and Baltimore, have printed these characters at the rate of 98, 101, 111, and one of them actually printed 117 letters per minute, and I have little doubt that the accomplished opera-

tors in your Philadelphia office could easily show similar results. He must be an expert penman who can write legibly more than 100 letters per minute; consequently, my mode of communication equals, or nearly equals, the most expeditious mode known of recording thought.

A Rochester paper recently contained a paragraph, which has been extensively copied—to the effect that there was a new invention about to appear, which was to "impress every letter perfectly distinct on paper," and "of course," the writer observes, "do away with the characters to represent the alphabet."—This effect of any such invention is by no means such a matter of course as the writer supposes. Allow me a word on that point.

My very earliest conception of the telegraph embodies this idea, to wit: "The marking, in a permanent manner, of a character to denote the intelligence transmitted." It was certainly very natural, then, that the marking of the common letter of the alphabet should be suggested to my mind, and I of course expended sufficient thought upon the subject to perceive that it was practicable in several ways, but also that any way, at that time was necessarily complicated. I was intent on simplicity, and adopted my present system because of its simplicity and greater efficiency.

My friend and co-proprietor in the telegraph Mr. Vail, some time in the spring of 1837, was intent on producing an instrument of this kind, and gave the project much thought. I uniformly discouraged him, however, on the ground, not that such a plan was impracticable, but, in comparison with the method I had devised, worthless, since, were such a mode perfectly accomplished and in actual use, my more simple mode would inevitably supersede the more complicated mode. Mr. Vail, in his work entitled, "The American Electro-Magnetic Telegraph," discusses this whole matter from page 157 to 171. Experience has proved that when my system has been put to the test in competition with the common letter printing telegraphs in Europe, mine has been proved superior. In Vienna, for example, Mr. Bain's letter printing telegraph, (the most ingenious as yet published,) was explained with mine publically before one of the largest and most learned assemblies ever convened in that capital, comprising the Count and notables of Austria, and the American telegraph carried the day by acclamation, and is now adopted by that government.

I wish it distinctly understood, therefore, that my present invention of an apparatus for printing the common Roman letter, was not induced by any expectation that it will supersede my present plan, but solely to give the choice to any, (if there are any,) who, after all the evidence which has long been published, of the intrinsic unimportance of such a result, may be desirous of seeing the common Roman letter printed, instead of my simpler character signifying the same thing. I accomplish this result by means of an apparatus very far less complicated than any published here or in Europe. I remain gentlemen, your most obedient servant,

SAMUEL F. B. MORSE.

The Coal Region.

The Cumberland Civilian, of a late date, contains an able and highly interesting article upon the subject of the coal region of Allegheny county, Maryland, from which we make the following extracts. The account here given will repay an attentive perusal:—

The "coal measures," as they are technically called, are composed, says the Civilian, of a number of strata of bituminous coal, embraced between the elevations of six hundred and eighteen hundred feet above the basin of the Chesapeake and Ohio canal at Cumberland, and the Maryland section is comprised in an area, speaking generally, of two miles in width, and twenty miles in length.

The arrangement of these strata follows one general system, the curves and inclinations peculiar to one set being, with slight local modifications, common to all the veins in the series. Their shape is that of a trough, its longitudinal direction being from northeast to southwest, the traverse section rising gradually from the lowest level or bottom on either side. These inclinations constitute, in mining phrase, the "dip" of the seam, and give to the miner facilities for carrying proper draining galleries into the scene of mining operations.

The Preston spur of Dan's mountain, which projects across the northern portion of the coal trough, practically leads to a division of the coal measures into two sections, the northern and southern. They are both favorably situated and easily accessible to the operations of the miner, and are rendered independent of each other by the Potomac valley and the tributaries of that river.

The surface covered and the exposure of the coal strata are by far more extensive in the southern than the northern section, but extensive improvements must be carried up the Potomac valley to a distance of thirty-four miles, either by railway or slack water navigation, before such advantage can be taken of the otherwise excellent position of the southern section as profitably to develop its resources.

The northern section lies upon Braddock's and Jennon's run, at an average distance of ten miles from Cumberland, and all the veins are accessible by the valleys of these two streams. It is proper, however, to state that, although the series of coal strata in the aggregate of veins is computed to be sixty feet in workable thickness, in seams varying from eighteen inches to fourteen feet, yet the great or fourteen feet vein, has thus far attracted the chief attention of capitalists to its development.

This magnificent seam of almost pure coal is cut by the valleys of the two streams above mentioned, which take their rise in its very lap.

On Braddock's run the property of the Maryland mining company is situated, and at the short distance of three-fourths of a mile to the north that of the New York mining company. Both of these associations have completed extensive improvements which are calculated to perform a large amount of transportation, the railway of the New York mining company acting as a feeder to that of the Maryland mining company, and having a connection with it near their mines and depot. These two companies occupy about three thousand acres of the great vein, nearly every part of which can be readily reached for mining operations. There are also numerous private properties situated on the Preston run and its tributaries, many of which are already opened, and have become feeders to the railroad leading from the mining region to the town of Cumberland.

On Jennon's run the entire series of coal strata is exposed by its valleys, including several valuable properties in the great vein. The Mount Savage iron works, which are among the most extensive in the United States, are located upon this stream, and likewise possess a railway communication with Cumberland. These works have been for some length of time in operation, and have called for an investment of nearly a million of dollars to place them in their present condition. A railway, extending up the valley to the foot of the Frostburg hill, and worked by horse power, has also been completed and is in operation. The Cumberland, the Alleghany, and the Clifton companies, all chartered associations, find an outlet by this new avenue to the railway of the Mount Savage company. Many individual properties will also be opened and ad-

vantageously worked by means of this improvement.

Through the southern section of the coal measures passes the stream called George's creek, which taking its rise near Frostburg, and flowing in a southerly direction, empties into the Potomac at Westernport.

At Lonaconing, midway between the source and the mouth of George's creek, are situated the iron works and collieries of the George's creek coal and iron company, who contemplate opening a communication with the railway of the Maryland mining company, intersecting it at Clary's eight miles from Cumberland. The length of the contemplated branch will be about seven miles, and will open a rich section of the coal and iron region. The surveys have been completed, and it is hoped that a great length of time will not elapse before this important improvement will be commenced.

By means of these various improvements the whole northern section, and a portion of the southern section of the great coal field of Maryland, will be provided with cheap and expeditious means of communication with the markets, through a common outlet at Cumberland. The Mount Savage road passes down Jennon's run to its junction with Will's creek, and following that stream through the gorge in Will's mountain, connects with the Baltimore and Ohio railway at Cumberland. A ready connection can also be formed with the Chesapeake and Ohio canal on its completion.

The railway of the Maryland mining company commences at the foot of the Frostburg hill on Braddock's run, and, following the southern side of the valley, receives in its course the branch of the George's creek company, and also from individual proprietors located on Preston's ridge. This road crosses Will's creek at the western end of the gorge, two miles above Cumberland, and joins the Mount Savage railway, making this latter a common outlet at Cumberland. When the Chesapeake and Ohio canal is completed to Cumberland, the Maryland mining company will be able to make an independent location and connection with the canal basin on the Potomac. By leaving their road where it crosses the depression between Dan's and Will's mountains, with the aid of a mile of railway and two planes, each one half of a mile in length, the coal can be placed on the canal, at the depot already purchased by that company for the purpose, on the north side of the Potomac above Cumberland. The trade intended for the canal will thereby be entirely disconnected from the trains intended for railway transportation to Baltimore, and will save the distance of three miles in reaching the common outlet at Cumberland.

It is not possible at this time to make any probable estimate as to the amount of coal which can be furnished by these various companies. The amount must necessarily be vast, whenever the trade shall justify the full expansion of their capacities. The following statement as to the probable capacities of the two most important companies now in operation will convey an adequate idea of the vast and inexhaustible resources of this much favored region:

The Maryland mining company, with the addition of the necessary engines and cars, would possess at the present time facilities for the transportation of five hundred thousand tons of coal per annum; and the New York mining company, with the same improvements, could make arrangements to do a similar amount of business. From these two collieries alone a supply of coal can be produced and transported equal to one million of tons per annum.—This amount of tonnage would require 3,334 tons of coal to be mined and transported daily, employing a force of 1,200 miners, or 600 in each of the great companies now in operation.

The plan of mining operations will admit of great expansion. From the horizontal main gallery, six men will be required for each transverse gallery and its adjacent rooms; therefore one hundred of these galleries of the size of nine by ten feet, would be constantly employed in discharging their excavated contents into the main gallery and depot. A progress of four feet per day in the galleries and rooms would insure the delivery of a million of tons per annum from the collieries of the Maryland and N. York mining companies. The available length of the main galleries will be twenty-one thousand feet, and as seventeen hundred feet front will be required on the main gallery to accommodate the transverse

entries and their separating columns, the whole can be worked twelve years, at the rate of a million of tons per annum, without modifying the present plan of working operations.

It will thus be seen that, if the supply of coal is derived from these two sources alone, with the facilities of transportation already completed, it must, under any circumstances, equal the demand.

(Official) Reading Railroad.

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending—

	Dec. 21, 1844.	Dec. 20, 1845.	Dec. 19, 1846.
Travel.....	\$1,362 88	\$1,948 92	\$1,942 90
Freight on goods.	1,244 26	2,919 26	2,900 18
" coal...	9,650 50	14,662 63	22,001 30
	\$12,237 64	\$19,530 81	\$26,844 38
Coal trans.—tons.	9,800	12,175	15,925

Miscellaneous Items.

A Log Bridge.—A bridge is now nearly finished, which extends across the Delaware river at Narrowstown, Pa., a distance of two hundred and sixty feet, by a single span, and without support of check braces at the ends. This bridge is constructed on the plan invented by Mr. George W. Thayer, of Springfield, Mass., and which has in many places taken the preference over other kinds of timber bridges. It is twenty-two feet wide, with twenty feet posts; its entire elevation above the water is fifty-five feet: constructed of white hemlock timber, and is the longest span of bridge in the United States.

Machine for Measuring the Velocity of Railway Trains.—Mr. M. Ricardo laid before the late meeting of the British Association, a model of his very beautiful machine for registering the velocity of railway trains. The object of it is to furnish the railway companies with a record of the work done. By this means they would be often enabled, in cases of any accident, to assign correctly the nature and cause of such accident, and so prevent its recurrence. The machine is closed up under the seat of a railway carriage and when placed there it marks on a strip of paper the speed of the train, the time of its passing every half mile, and the length of every stoppage at a station. It is, in short, a mechanical inspector of trains. He described the apparatus and stated that it had gone some thousand miles without accident.

Boston Aqueduct.—The following statement respecting the method adopted for the construction of this work, appears in a late Boston paper. At Needham about a fourth of a mile above the west depot, on the Worcester railroad, 300 feet of the brick conduit have been laid, by way of experiment, and a most beautiful specimen it is of this class of work. The form of the conduit is oval, or egg shaped. The height in the clear is six feet four inches, its width five feet, the arch eight inches in thickness. The column of water which is to flow in the conduit, is not to be more than three feet ten inches in depth. The committee passed through it erect, with their hats on. The best quality of brick has been used, and they are handsomely laid in hydraulic cement. The work is firm and substantial, capable of bearing any pressure that will ever be put upon it. This specimen of the masonry is highly creditable

to the contractors. There are now between seven and eight hundred men employed on the earth excavations, which are to be prosecuted with energy through the winter.

The State Bridge at Clark's Ferry.—The towing path and road bridge across the Susquehanna, which connects the Pennsylvania canal at Clark's Ferry, and which was destroyed by fire during the present year, has been re-built, and is now in use for travel.—The Harrisburg Union says:

This new bridge is built on the Burr plan, with the exception of the bracing, which is different from any heretofore used. It is an elegant and substantial structure, and will compete in mechanism with any similar work in the state. It is 21 feet in length, and to secure it against floods, the piers have been raised three feet and the ice breakers seven feet over their former height, being an increase in the masonry of over 1500 perches. The time occupied in the completion of the work was only four months from the period the framing was commenced until the first stage passed over the roadway.

This bridge was constructed under the direction of our townsman, Samuel Holman, Esq., the supervisor of the line, and is as creditable to his skill as a mechanic, as it is to his industry and efficiency as a public officer. He has thus given us another evidence that his reputation as a bridge builder is only equalled by that which he has already acquired as an architect and builder of private and public edifices.

The canal commissioners are entitled to much praise for the energy and promptitude which they manifested in ordering the speedy construction of this bridge, and thereby removing a serious impediment to the uninterrupted use of an important portion of the canal.

Androscoggin and Kennebec Railroad.—A meeting of the corporators and subscribers to the stock of the above road, was held at Lewiston on the 9th ult. It was very fully attended by delegates from Waterville, Fairfield, Belgrade, Winthrop, Leeds, Greene, Lewiston, etc. It was voted to make a formal opening of the books on the 10th. A delegation from the Atlantic and St. Lawrence road met them, who were authorized to make liberal offers on their part. This offer involved the question of broad and narrow gauge, and an animated discussion arose in which Messrs. Preble, Boutelle, Benson, Clark, Taylor, Pierson, Small, Little, Gargelon, Foster and others participated. Nothing definite, however, was done, and the meeting adjourned to meet at the town house in Waterville, on the 29th of this month, at 10 o'clock, for further consideration of the subject, and also to organize the company.

Central Route from Boston to New York.—The Bostonians are determined to have a direct central route for travel thence to New York city, and have taken hold of the matter in earnest. Surveys have been made for an independent route, passing through Roxbury, Dedham, Medfield, Franklin and Medway to Blackstone, thence directly to the

Connecticut state line, connecting with such routes in Connecticut as shall offer the best and shortest route. This road connects with the Harlem railroad at Harlem, and with the Housatonic railroad at Bridgeport, 18 miles from New Haven, distance from New Haven to Harlem, 62 miles.—*Hartford paper.*

We are informed that there is a company organized to extend the telegraph west from Buffalo. The Erie and Michigan telegraph company propose to extend their line from Buffalo, N.Y., to Milwaukee, Wisconsin, passing through Dunkirk, Erie, Cleveland, Huron, Sandusky, Toledo, Detroit and Chicago. Stock is to be issued equal to \$250 per mile, adding thereto \$20,000 as a reserve fund, the shares to be \$50 each. The line is to be constructed of strong iron cords. A line from Buffalo to Toronto, has been commenced.—The distance will be about 100 miles.—*Scientific American.*

The counties and towns on the line of the Cleveland and Columbus railroad have subscribed towards making the work. Knox county has subscribed \$100,000; the town of Mount Vernon will subscribe \$50,000; and doubtless other towns and counties will lend their aid.

We learn from the Worcester Spy that most of the grading and masonry of the Worcester and Nashua road are put under contract at rates within the estimates of the engineers, and the contractors agree to take 20 per cent. of the amount in the capital stock of the company. The contracts that have been made are to be completed in November next.

The capital stock of the Attica and Hornelsville railroad has all been subscribed—\$250,000 having been readily taken at Buffalo. This road is to connect the Albany and Buffalo railroad at Attica, with the N. York and Erie railroad at Hornelsville.

Telegraph to Pittsburg.—Mr. O'Reilly states that the telegraph from Philadelphia to Pittsburg will be completed by the 25th of this month and in operation, at the latest, on the 1st of January. We shall then receive our western news a day in advance, by telegraph from Philadelphia.—*Pittsburg paper.*

The Northern Railroad.—The Boston Post says that a party of directors, etc., will pass over this road to Franklin to-morrow, Friday, and on Saturday the stockholders will take a view of their property. It is understood that the cars will run to Frankfort next week.

We learn from the Boston Post that the railroad commissioners have decided to locate the Nashua and East Wilton railroad and proceed to award damages for land taken thereby. We are informed that preparations are making by the Lowell and Nashua company for the construction of this branch, and purchases of sleepers, etc., made, so that permission from the legislature will only be needed to ensure its completion.

Maine Railroads.—The Gardiner, (Me.,) Blade, states that upward of \$75,000 have been subscribed in Waterville to the stock of

the Androscoggin and Kennebec railroad and it is expected that before many weeks the subscription will reach \$100,000. The people are wide awake for the enterprize, and are moving forward with great unanimity and energy, as well as with the utmost confidence of success. We learn that in Fairfield, also, and in Scowhehan, Norridgewock, and the adjoining towns, the friends of the enterprize are getting up a good deal of steam in its favor.

Our own enterprize, adds the Blade, the P. and K. railroad, has received a new impetus in Gardiner, of late, and the subscriptions have been materially increased. We are confident our town will not long lag behind its neighbors, in its zeal and enthusiasm for the project, but will soon come up to the work in a style that will be a caution to steamboats.

Northern Railroad.—A correspondent of the Lowell Journal says, the work on the Northern railroad is progressing rapidly, and thinks the trains may be run as far as Franklin this month.

Valuable Improvement in Saw Mills.—Messrs. Morrison & Cushing, of Frankfort, Me., have recently secured a patent for a valuable improvement in saw mills, which is of great utility, and far superior to the usual methods of feeding logs through gang saws. Manufacturers of timber state that the new invention will be a great saving of time, labor, material and expense in their business.

Strength of Materials for Boilers, Copper.—The strength or cohesive power of copper plates for boilers, is about 30,000 lbs. per square inch of area. Heated to the temperature of 550 degrees it is weakened one-fourth, and at the temperature of 800 degrees one-half.

Iron.—The best iron boiler plates have a cohesive power of 60,000 lbs. per square inch of area, and a common or inferior article one-sixth less. The tenacity of iron increases at a moderate degree of temperature.

Weather-proof Cement.—Take of fine sand one part, clay two parts, and sifted wood ashes three parts; mix with linseed, cotton seed or palm oil to the consistency required, and put on with a trowel or stiff brush. It is said to be equal in durability, when exposed to the weather, to marble.

A large establishment, called the Clinton Iron Works, has been put in operation near Pittsburg, Pa., by Cuddy, Jones & Co. It contains eleven furnaces, and will consume twelve tons of pig iron per day in the manufacture of bar, boiler, sheet and all sizes of small iron. A nail factory in one of the wings of the building has eight machines in operation. The fly-wheel of the engine in use in the works weighs twenty-three tons, and measures thirty-two feet in diameter.

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,** Agents. Corner of Cedar and Greenwich Sts. 43 1y

RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

TEST No. 11.—*Certificate.*

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as entirely fire proof.

GOREE & KING.

Marion, Ala., Sept. 15th, 1846.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CRONKITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,
138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

*. The letters in the figures refer to the article given in the Journal of June, 1844. ja45

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J., or 60 Wall street, N. York. a45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

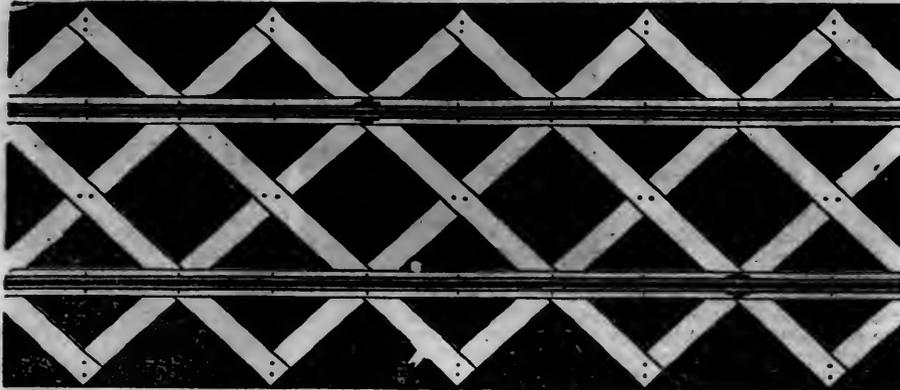
Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*. Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

DAVENPORT & BRIDGES CONTINUE to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes. 1y1

THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

The undersigned respectfully invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 44 cts =		101 25
Workmanship free of patent charge =		600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.
Civil Engineer and Patentee.
No. 277 South Tenth St., Philadelphia. 331f

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.		
11	4½	13 5	10	24 -	50	15-16	20	
13	3½	8 3	8½	16 -	27	11-16	13½	
14	3½	6 11	7½	12 8	17	9-16	10½	
15	2½	5 2	6½	9 4	13½	1-2	7½	
16	2½	4 3	6	8 8	10½	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY **EDMUND DRAPER,** Surviving partner of **STANCLIFFE & DRAPER.**



No 23 Pear street, below Walnut, Philadelphia. 1y10 near Third,

LAP—WELDED WROUGHT IRON TUBES FOR **TUBULAR BOILERS,** FROM 1 1-4 TO 6 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee.

1y25 28 Platt street, New York.

ENGINEERS and MACHINISTS.

- THOMAS PROSSER,** 28 Platt St. N. Y. (See Adv.)
J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)
TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)
ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)
S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)
NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)
FRENCH & BAIRD, Philadelphia. (See Adv.)
NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)
ROSS WINANS, Baltimore, Md.
CYRUS ALGER & Co., South Boston Iron Co.
SETH ADAMS, Engineer, South Boston.
STILLMAN, ALLEN & Co., N. Y.
JAS. P. ALLAIRE, N. Y.
PHENIX FOUNDRY, N. Y.
ANDREW MENEELY, West Troy.
JOHN F. STARR, Philadelphia, Pa.
MERRICK & TOWNE, do.
HINCKLEY & DRURY, Boston.
C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

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