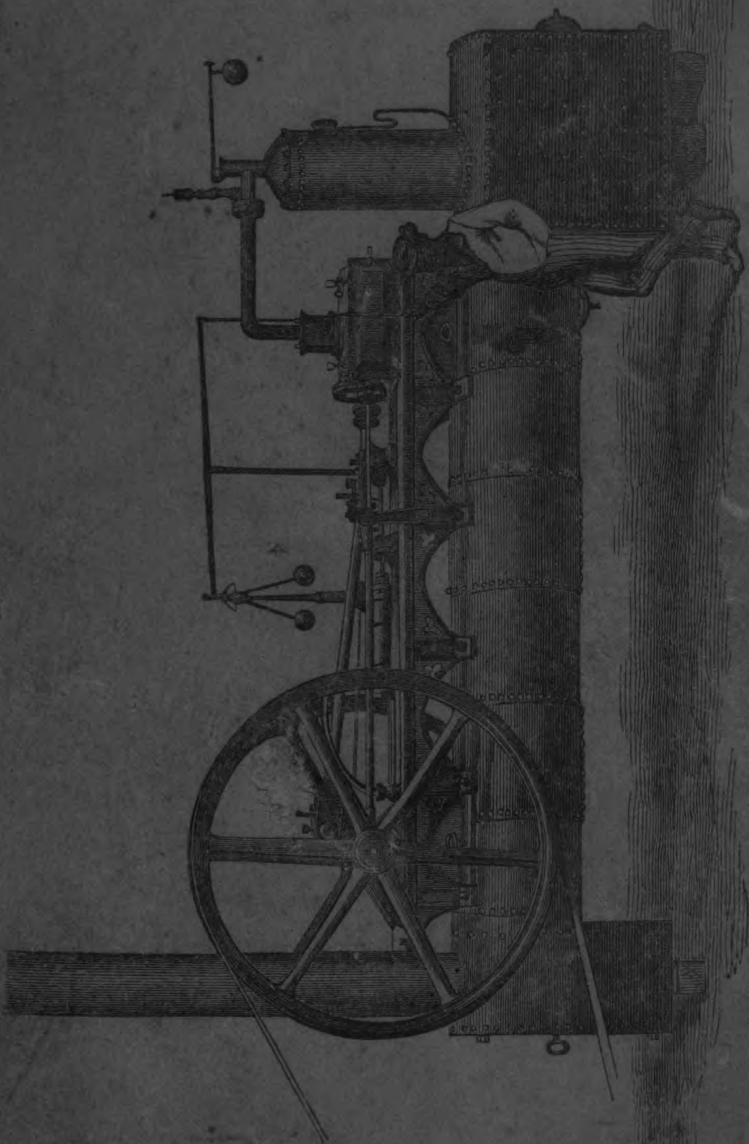
TREDEGAR COMPANY, RICHMOND

An illustrated and descriptive catalogue of manufactures

JOSEPH R. ANDERSON & CO.

Tredegar Iron Works,



RICHMOND, VIRGINIA.

EDMUND M. IVENS, General Agent, 53, St. Charles St. New Orleans.

AN

ILLUSTRATED

AND

DESCRIPTIVE CATALOGUE

OF

MANUFACTURES

OF

TREDEGAR IRON WORKS.

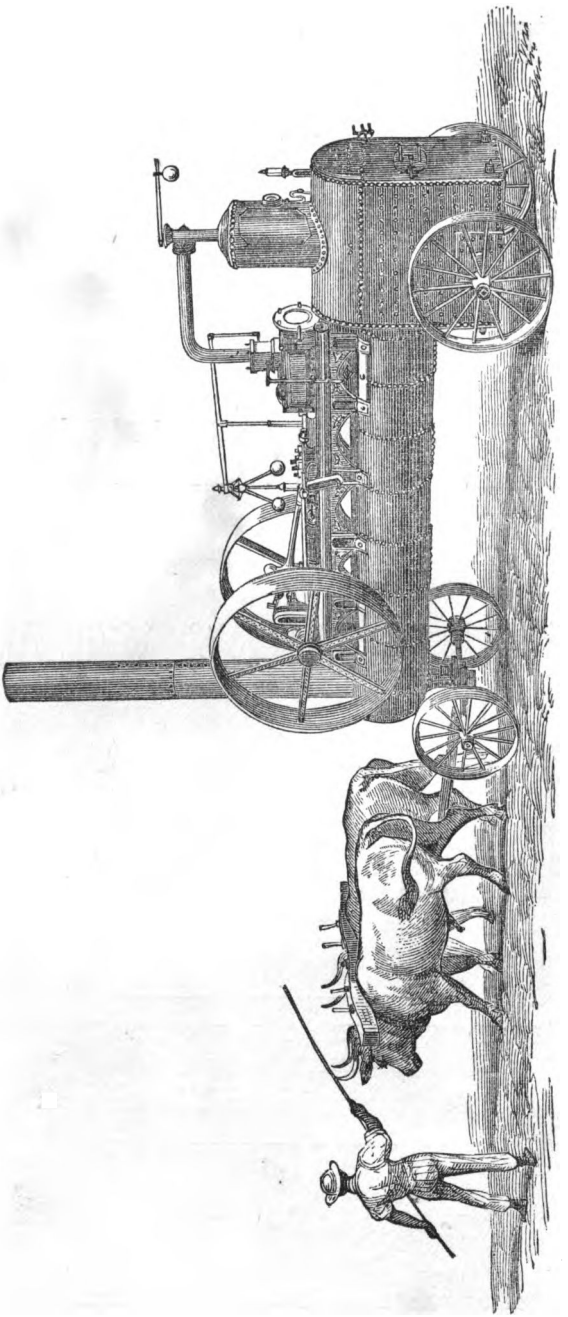
JOSEPH R. ANDERSON & CO.,

RICHMOND, VA.

Tredegar company, Richmond

EDMUND M. IVENS,
GENERAL AGENT,
No. 53 St. Charles Street, New Orleans.

RICHMOND:
MACFARLANE & FERGUSSON, PRINTERS.
1860.



STRICTLY PORTABLE ENGINE.

Tredegar Iron Works,

JOSEPH R. ANDERSON & CO.,

Richmond, Va.

1861.	Sunday.	Monday.	Tuesday.	Wed'day.	Th'rsday	Friday.	Saturday
Jan.	...	...	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31	...	...
Feb.	..	...	...	...	...	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	...	...
Mar.	...	...	...	...	...	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	31	...	...	...	...	...	...
April	...	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	...	...	...	...
May	...	...	...	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	...
June	...	...	...	...	...	...	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	...	...	...	...	...	...

1861.	Sunday.	Monday.	Tuesday.	Wed'day.	Th'rsday	Friday.	Saturday
July	...	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	31	...	...	...
Aug.	...	...	...	...	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31
Sept.	...	...	...	...	...	...	...
	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	...	...	...	...	...
Oct.	...	...	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31	...	...
Nov.	...	...	...	...	...	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
Dec.	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31	...	...	...	...

1862.	Sunday.	Monday.	Tuesday.	Wed'day.	Th'rsday	Friday.	Saturday
Jan.	...	...	...	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	...
Feb.	...	...	...	...	...	...	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	...
Mar.	...	...	...	...	...	...	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31	...	...	...	...	...
April	...	...	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	...	...	...
May	...	...	...	...	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31
June	...	...	...	...	...	...	...
	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	...	...	...	...	...

1862.	Sunday.	Monday.	Tuesday.	Wed'day.	Th'rsday	Friday.	Saturday
July	...	...	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31	...	...
Aug.	...	...	...	...	...	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	31	...	...	...	...	...	...
Sept.	...	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	...	...	...	...
Oct.	...	...	...	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	...
Nov.	...	...	...	...	...	...	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	...	...	...	...	...	...
Dec.	...	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	31	...	...	...

JOSEPH R. ANDERSON,
JOHN F. TANNER,

ROBERT ARCHER,
ROBERT S. ARCHER.

EDMUND M. IVENS,

GENERAL AGENT,

NO. 53 ST. CHARLES STREET,

NEW ORLEANS.

HORSE POWER.

This is a unit of force introduced by Watt to enable him to determine what size of engine to send to his customers, to supersede the number of horses which the new power was to replace. Watt ascertained that the average force exerted by the strongest horse in one of the London breweries was sufficient to raise 33,000 lbs. one foot high in a minute; thus an Engine of 200 horse power, would be a force equal to that of 200 horses, each lifting 33,000 lbs. one foot high per minute. In modern practice, however, owing to various modifications and allowances made for friction and other things, the term horse power has ceased to have so definite a meaning. It is made, now, to refer rather to the size of the cylinder than to the power exerted. It will also be found in practice there is a vast difference in the size of an Engine sold for the same power by different manufacturers. Planters and purchasers being, as a general thing, uninformed as to really what constitutes a horse power in machinery. Some of the knowing Engine dealers have taken advantage of this point by selling them an Engine more to suit the price they were willing to pay for it than the actual amount of power they required. Our plan is to find out exactly what the purchaser wishes to accomplish, and then recommend something of a size and style that may be best suited to his wants. A purchaser in this way may think at first he is paying too much for the machine; but after it is put in operation, he is fully satisfied his interest has been fully served by purchasing from an old, reliable establishment.

BOARD AND TIMBER MEASURE.

To ascertain the surface of a Board or Plank. Rule: Multiply the length by the breadth, and the product will give the surface required, or L × B = surface.

Note—When the piece is tapering add the breadths of the two ends together, and take half the sum for the mean breadth.

Example—The length of a plank is 16 feet, and its breadth 15 inches. What is its surface?

16 × 1.25 (15) = 20 = product of length and breadth = surface required.

Example 2—The length of a plank is 18 feet, and its widths at the ends 17 and 19 inches. What is its surface?

$\frac{17 + 19}{2}$ = 18 in. average width = 15 ft. × 18 = Ans. 27 square ft.

To ascertain the contents of Squared Timber. Rule: Multiply the breadth by the thickness, and this product by the length, and it will give the contents required, or B × T × L = contents.

Example—The length of a piece of square timber is 20 feet, its sides at its less end are 15 inches, and at its greater end 19. What are its contents?

19 + 15 ÷ 2 = 17, and 17^2 × 20 ÷ 12 = contents in square feet. For cubic feet divide product by 12.

Example 2—The ends of a piece of timber are 18 and 22 inches square, and the length of it is 22.5 feet. What are its contents?

Answer—750 square feet. 62.5 cubic feet.

Note—If the piece tapers regularly from end to end, its average breadth and thickness will be at the middle.

To ascertain the contents of Round Timber. Rule: Multiply the square of one fifth of the girth by twice the length, and the product will give the contents nearly.

Example—The diameter of a round piece of timber is 23⅞ inches, and its length is 18 feet. What are its contents.

75, (circumference of 23⅞) ÷ 5 = 15 and 15^2 = 225, and 225 × 18 × 2 = 8100, which ÷ 144 = 56.25 cubic feet.

Note—When feet are multiplied by inches, divide by 144 to obtain cubic feet.

Weight of Superficial foot of Plate Iron.

THICKNESS.

$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$

WEIGHT IN POUNDS.

5	7.5	10	12.5	15	17.5	20

Weight of Flat Iron.

1 × $\frac{1}{4}$	.845	2$\frac{1}{2}$ × $\frac{1}{4}$	2.112
1$\frac{1}{4}$ × $\frac{1}{4}$	1.056	3$\frac{1}{4}$ × $\frac{1}{4}$	2.535
1$\frac{3}{8}$ × $\frac{1}{4}$	1.161	3$\frac{1}{2}$ × $\frac{1}{4}$	2.957
1$\frac{1}{2}$ × $\frac{1}{4}$	1.266	4 × $\frac{1}{4}$	3.380
1$\frac{3}{4}$ × $\frac{1}{4}$	1.479	4$\frac{1}{2}$ × $\frac{1}{4}$	3.800
2 × $\frac{1}{4}$	1.689	5 × $\frac{1}{4}$	4.200
2$\frac{1}{2}$ × $\frac{1}{4}$	1.900	6 × $\frac{1}{4}$	5.000

The weight of *any thickness* of these sizes can be ascertained by using the above proportions.

Weight of Square Rolled Iron.

FROM $\frac{1}{16}$ INCH TO 12 INCHES, AND ONE FOOT IN LENGTH.

SIZE IN INCHES.	WEIGHT IN POUNDS.	SIZE IN INCHES.	WEIGHT IN POUNDS.	SIZE IN INCHES.	WEIGHT IN POUNDS.	SIZE IN INCHES.	WEIGHT IN POUNDS.
$\frac{1}{16}$	.013	2.	13.520	$4\frac{3}{8}$	64.700	$7\frac{1}{2}$	190.136
$\frac{1}{8}$	.053	$2\frac{1}{8}$	15.263	$4\frac{1}{2}$	68.448	$7\frac{3}{4}$	203.024
$\frac{3}{16}$	.118	$2\frac{1}{4}$	17.112	$4\frac{5}{8}$	72.305	8	216.336
$\frac{1}{4}$	.211	$2\frac{3}{8}$	19.066	$4\frac{3}{4}$	76.264	$8\frac{1}{4}$	230.068
$\frac{3}{8}$	.475	$2\frac{1}{2}$	21.120	$4\frac{7}{8}$	80.333	$8\frac{1}{2}$	244.220
$\frac{1}{2}$	.845	$2\frac{5}{8}$	23.292	5	84.480	$8\frac{3}{4}$	258.800
$\frac{5}{8}$	1.320	$2\frac{3}{4}$	25.560	$5\frac{1}{8}$	88.784	9	273.792
$\frac{3}{4}$	1.901	$2\frac{7}{8}$	27.939	$5\frac{1}{4}$	93.168	$9\frac{1}{4}$	289.220
$\frac{7}{8}$	2.588	3	30.416	$5\frac{3}{8}$	97.657	$9\frac{1}{2}$	305.056
1.	3.380	$3\frac{1}{8}$	33.010	$5\frac{1}{2}$	102.240	$9\frac{3}{4}$	321.332
$1\frac{1}{8}$	4.278	$3\frac{1}{4}$	35.704	$5\frac{5}{8}$	106.953	10	337.920
$1\frac{1}{4}$	5.280	$3\frac{3}{8}$	38.503	$5\frac{3}{4}$	111.756	$10\frac{1}{4}$	355.136
$1\frac{3}{8}$	6.390	$3\frac{1}{2}$	41.408	$5\frac{7}{8}$	116.671	$10\frac{1}{2}$	372.672
$1\frac{1}{2}$	7.604	$3\frac{5}{8}$	44.418	6	121.664	$10\frac{3}{4}$	390.628
$1\frac{5}{8}$	8.926	$3\frac{3}{4}$	47.534	$6\frac{1}{4}$	132.040	11	408.960
$1\frac{3}{4}$	10.352	$3\frac{7}{8}$	50.756	$6\frac{1}{2}$	142.816	$11\frac{1}{4}$	427.812
$1\frac{7}{8}$	11.883	4	54.084	$6\frac{3}{4}$	154.012	$11\frac{1}{2}$	447.024
		$4\frac{1}{8}$	57.517	7	165.632	$11\frac{3}{4}$	466.684
		$4\frac{1}{4}$	61.055	$7\frac{1}{4}$	177.672	12	486.656

Weight of Round Rolled Iron.

FROM $\frac{1}{16}$ INCH TO 12 INCHES DIAMETER, AND ONE FOOT IN LENGTH.

DIAMETER IN INCHES.	WEIGHT IN POUNDS.	DIAMETER IN INCHES.	WEIGHT IN POUNDS.	DIAMETER IN INCHES.	WEIGHT IN POUNDS.	DIAMETER IN INCHES.	WEIGHT IN POUNDS.
$\frac{1}{16}$	.0.10	$2\frac{1}{8}$	11.988	$4\frac{1}{2}$	53.760	$7\frac{3}{4}$	159.456
$\frac{1}{8}$	.041	$2\frac{1}{4}$	13.440	$4\frac{5}{8}$	56.788	8.	169.856
$\frac{3}{16}$	.119	$2\frac{3}{8}$	14.975	$4\frac{3}{4}$	59.900	$8\frac{1}{4}$	180.696
$\frac{1}{4}$	.165	$2\frac{1}{2}$	16.688	$4\frac{7}{8}$	63.094	$8\frac{1}{2}$	191.808
$\frac{3}{8}$	.373	$2\frac{5}{8}$	18.293	5	66.752	$8\frac{3}{4}$	203.260
$\frac{1}{2}$	.663	$2\frac{3}{4}$	20.076	$5\frac{1}{8}$	69.731	9.	215.040
$\frac{5}{8}$	1.043	$2\frac{7}{8}$	21.944	$5\frac{1}{4}$	73.172	$9\frac{1}{4}$	227.152
$\frac{3}{4}$	1.493	3	23.888	$5\frac{3}{8}$	76.700	$9\frac{1}{2}$	239.600
$\frac{7}{8}$	2.032	$3\frac{1}{8}$	25.926	$5\frac{1}{2}$	80.304	$9\frac{3}{4}$	252.376
1.	2.654	$3\frac{1}{4}$	28.040	$5\frac{5}{8}$	84.001	10.	266.288
$1\frac{1}{8}$	3.360	$3\frac{3}{8}$	30.240	$5\frac{3}{4}$	87.776	$10\frac{1}{4}$	278.924
$1\frac{1}{4}$	4.172	$3\frac{1}{2}$	32.512	$5\frac{7}{8}$	91.634	$10\frac{1}{2}$	292.688
$1\frac{3}{8}$	5.019	$3\frac{5}{8}$	34.886	6.	95.552	$10\frac{3}{4}$	306.800
$1\frac{1}{2}$	5.972	$3\frac{3}{4}$	37.332	$6\frac{1}{4}$	103.704	11.	321.216
$1\frac{5}{8}$	7.010	$3\frac{7}{8}$	39.864	$6\frac{1}{2}$	112.160	$11\frac{1}{4}$	336.004
$1\frac{3}{4}$	8.128	4.	42.464	$6\frac{3}{4}$	120.960	$11\frac{1}{2}$	351.104
$1\frac{7}{8}$	9.333	$4\frac{1}{8}$	45.174	7.	130.048	$11\frac{3}{4}$	366.536
2	10.616	$4\frac{1}{4}$	47.952	$7\frac{1}{4}$	139.544	12	382.208
		$4\frac{3}{8}$	50.815	$7\frac{1}{2}$	149.328		

RATES OF POSTAGE.

Letters not exceeding ½ oz., within 3000 miles, 3 cents, prepaid. In all cases over 3000 miles, 10 cents. If conveyed wholly or partly by sea and to and from a foreign country, 10 cents within and 20 cents over 2500 miles, unless otherwise fixed by treaty, &c. Every additional 12 oz. or fraction, carries an additional postage. Letters dropped for delivery at the same post office, 1 cent. Advertised letters, 1 cent, and postage penny post delivery to and from post office, 1 or 2 cents.

Valuable letters will be registered on application of the person posting the same, and the payment of a registration fee of 5 cents.

Newspapers, Periodicals, unsealed circulars, or other articles of printed matter, (except books,) when sent to any part of the United States, and weighing not over 3 oz., 1 cent, and for every additional ounce, or part thereof, 1 cent. If within the State, and not weighing over 1½ oz., ½ cent.

Books bound or unbound, not weighing over 4 lbs., for any distance under 3000 miles, 1 cent per ounce, over that distance, 2 cents per ounce.

The above must be all prepaid. If not, double those Rates will be charged.

INTEREST TABLE.

To find the interest on any amount for a given number of days, at 6 per cent., multiply the amount by the number of days, and divide the product by 60; the quotient will be the interest in cents.

The interest on	$1500
For	25 days.
	60)37500
	$6.25

Subtract	⅓ for	4 per cent.
"	⅙ for	5 " "
Add	⅙ for	7 " "
"	⅓ for	8 " "
"	½ for	9 " "
"	⅔ for	10 " "

ANOTHER METHOD.

What is the interest on $1500 for 1 year, 7 months, and 18 days.

For 1 year	it is 6 per cent.	$90 00
For 6 months	it is ½ of 90	45 00
For 1 month	it is ⅙ of 45	7 50
For 15 days	it is ½ of 7.50	3 75
For 3 days	it is ⅕ of 3.75	75
Answer, ...		$147 00

TREVITHICK'S Locomotive, made in 1804, was the result of a wager of 1,000 guineas, made by Mr. Samuel Houfray, of the Pen-y-darren Works, that he would convey a load of iron for a distance of nine miles along a cast-iron tram road.

A TABLE

SHOWING THE NUMBER OF DAYS FROM ANY DAY IN ONE MONTH, TO THE SAME DAY IN ANOTHER MONTH.

From \ To	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Jan.	366	31	60	91	121	152	182	213	244	274	305	335
Feb.	335	366	29	90	90	121	151	182	213	243	274	304
March.	306	337	366	31	61	92	122	153	184	214	245	275
April.	275	306	335	366	30	61	91	122	153	183	214	244
May.	245	276	305	336	366	31	61	92	123	153	184	214
June.	214	245	274	305	335	366	30	61	92	122	153	183
July.	184	215	244	275	305	336	366	31	62	92	123	153
Aug.	153	184	213	244	274	305	335	366	31	61	92	122
Sept.	122	153	182	213	243	274	304	335	366	30	61	91
Oct.	92	123	152	183	213	244	274	305	336	366	31	61
Nov.	61	92	121	152	182	213	243	274	305	335	366	30
Dec.	31	62	91	122	152	183	213	244	275	305	335	366

EXAMPLE.—How many days from the 4th of June to the 4th of September? Look for June at the left hand, and September at the top; in the angle is 92.

The Messrs. Stephensons' Locomotive Works, at Newcastle, were established with the sum of £2,000, £1,000 of which was the amount presented by the leading citizens of Newcastle to George Stephenson, for the invention of the Safety Lamp. The Works have turned out more than twelve hundred locomotives, and for many years paid a profit of between £25,000 and £30,000 a year.

MR. ROBERT STEPHENSON was the Engineer of upwards of 150 railways.

Tredegar Iron Works,

JOSEPH R. ANDERSON & CO.,

RICHMOND, VA.

MANUFACTURE LOCOMOTIVES, WROUGHT IRON TRUCKS, CAR WHEELS AND AXLES, RAILROAD AND SHIP SPIKES, CHAINS, FISH BARS, &c., &c. ALSO BRIDGE BOLTS AND BAR IRON, OF EVERY DESCRIPTION. IRON AND BRASS CASTINGS, ORDNANCE, &c. ALSO,

Portable and Stationary Steam Engines,

WITH EITHER CYLINDER, FLUE OR LOCOMOTIVE BOILERS, SUGAR MILLS, SAW MILLS, GRIST MILLS, DRAINING AND PLANING MACHINES, AND EVERY REQUIRED DESCRIPTION OF MACHINERY FOR MARINE, RAILWAY OR PLANTATION PURPOSES.

Parties finding New Orleans a more convenient and desirable point to purchase from than this city, can be punctually supplied at equally low rates by our agent,

EDMUND M. IVENS,
NO. 53 ST. CHARLES STREET,
NEW ORLEANS.

TREDEGAR IRON WORKS,

JOSEPH R. ANDERSON & CO.,

RICHMOND, VIRGINIA.

EDMUND M. IVENS, GENERAL AGENT,

No. 53 St. Charles Street,

NEW ORLEANS.

☞ Parties wishing to purchase any of our Manufactures and finding New Orleans a more desirable point to purchase from than this City, can do so at equally low prices by addressing our Agent at that City.

J. R. A. & Co.

RICHMOND, VIRGINIA,

AND ITS

MANUFACTURES.

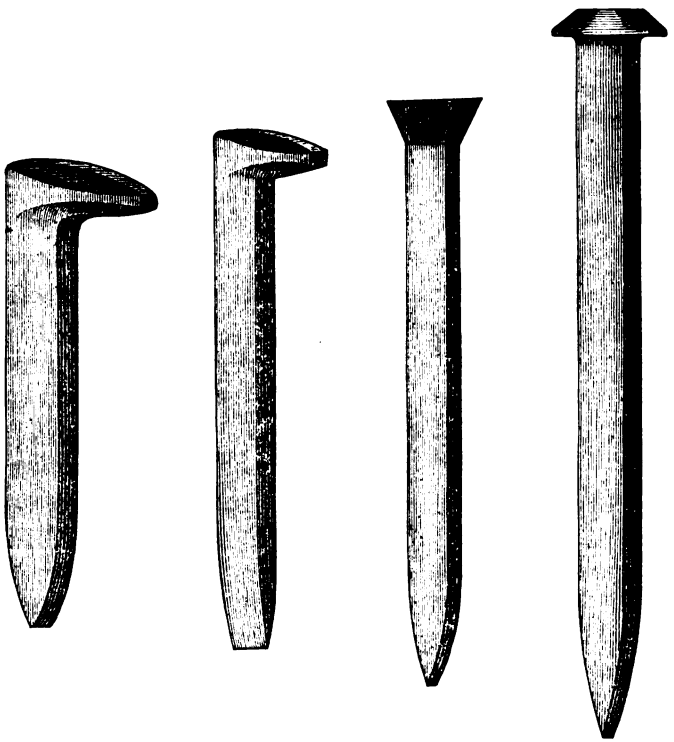
80	Tobacco Factories,	$8,000,000
15	Flouring Mills,	6,000,000
4	Rolling Mills,	1,450,000
14	Foundries and Machine Shops,	1,500,000
6	Agricultural Works,	200,000
1	Nail Factory,	300,000
6	Iron Railing,	60,000
50	Iron and Metal Works,	200,000
2	Cotton Factories,	485,000
11	Carriage Makers,	239,000
13	Cabinet Makers,	346,000
8	Brick Makers,	150,000
1	Paper Mill,	60,000
1	Woollen Factory,	250,000
350	Hands Boots and Shoes,	343,000
2	Circular Saw Works,	75,000
	Miscellaneous,	5,000,000

Southern Manufactures.

In presenting this Catalogue of our Manufactures to our numerous friends and patrons in the South, we beg leave to state that in the continuation of our business, we shall manufacture and use none but the best material for machinery purposes; nor will we ever sell Steam Engines or other machinery that we cannot fully and fairly guarantee as represented, and in doing so, we challenge the entire trade to produce an equally reliable article at less than our prices. Our works are extensive.—The largest in the Union, doing a general machine and iron business; consequently, with our facilities, we produce the best and most effective article of machinery at the lowest price it can be furnished for in any section of the Union. We also claim to be the only Independent Southern Works in existence, as we manufacture the raw material from which we manufacture our machinery. We shall ever do all in our power to make it the interest of our Southern friends to patronise us.

JOSEPH R. ANDERSON & Co.

Railroad, Ship, and Stringer SPIKES.



Rail Road, Ship, and Stringer Spikes.

The preceding cut represents a few of the great variety of Spikes for different purposes we manufacture. Our machines turn out from 20 to 27 tons daily, and we claim for them a superiority in the following respects.

1. In the shape and proportions, being somewhat larger *under the head*, where the greatest strength is always required, and the points are longer, being a perfect taper and sharp, so that they can be driven easily in the hardest cross ties, and with less injury to the timber than any other spike.

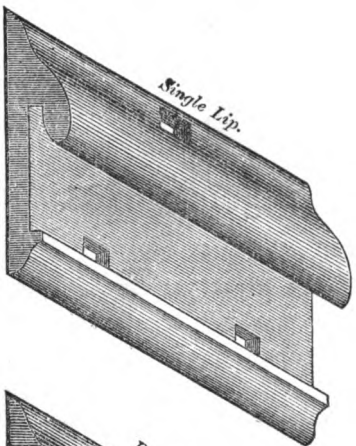
2. In the mode of manufacturing. The furnaces are so constructed that it is only necessary to keep in them half a dozen bars at one time, which supply the machines, thereby avoiding the injury from over-heating incident to putting in a larger quantity at once, which is usual in other modes.

3. In the quality of the iron used. We make our own rods, thereby insuring a uniformly reliable article.

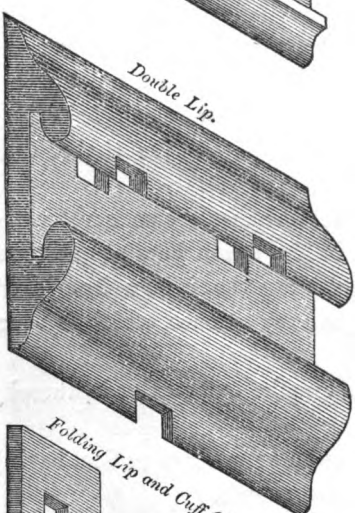
4. In being able to execute large orders on very short notice, having the capacity to supply six thousand tons per annum.

5. From the peculiar formation of our spikes a keg of 150 lbs. weight is found to contain by actual count 25 more spikes than those of any other manufacturer, and at the same time our spike to be equal to, if not superior in strength.

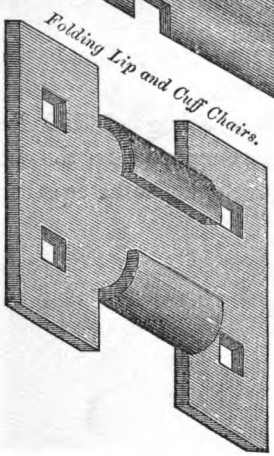
RAIL ROAD CHAIRS.



Single Lip Chairs.



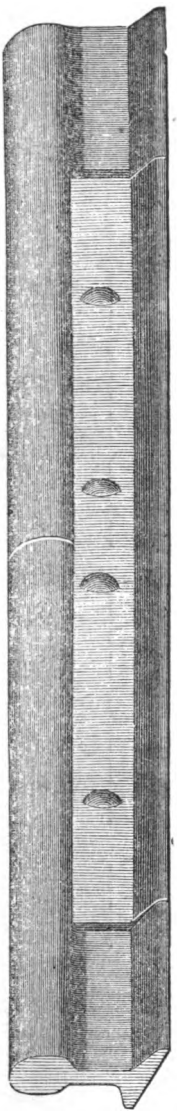
Double Lip Chairs.



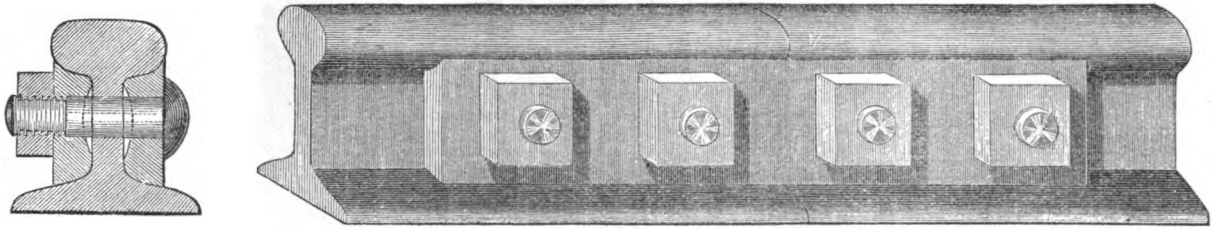
Folding Lip and Cuff Chairs of any size and weight.

We also manufacture any required description of Chair not here enumerated to order when required.

Davidson's Patent Continuous Rail Connection.



We commend this effective and beautiful Splice to the notice of all Rail Road Companies. It makes a perfect continuous Rail, superior to any device heretofore suggested. The ingenious machinery for rolling and straightening this splice is entirely novel and the invention of one of our skilful workmen. It differs in every respect from that ordinarily used for rolling grooved Iron, and which, (from the depth of the groove required in the splice,) after much labour and expense, we found totally inapplicable and abandoned.



Fish Bar Rail Connection.

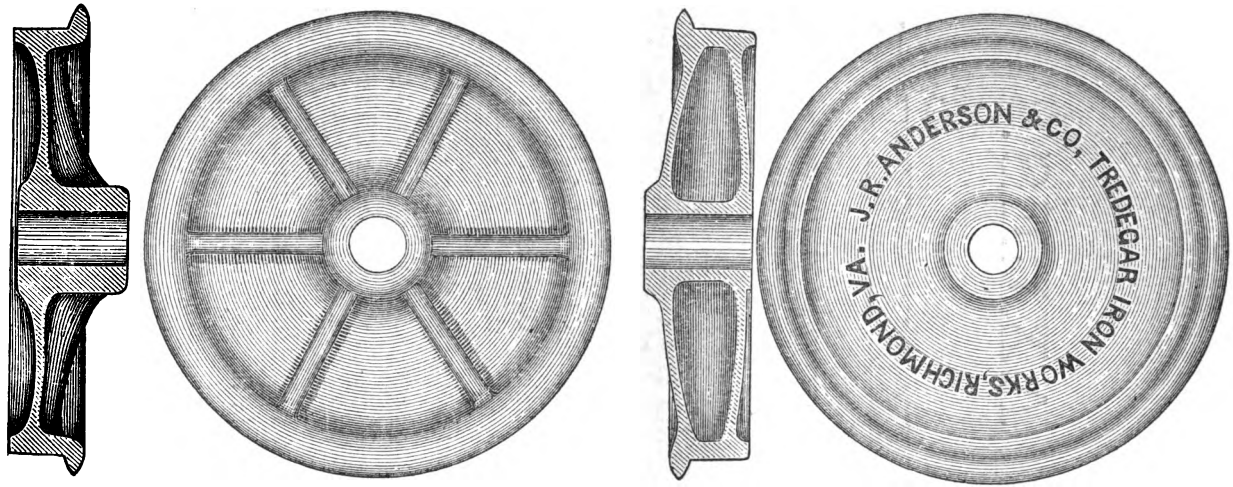
Fish Bars and Bolts of every description furnished to order

AT SHORT NOTICE.

CAR AXLES.

Locomotive and Car Axles either Hammered or Rolled.

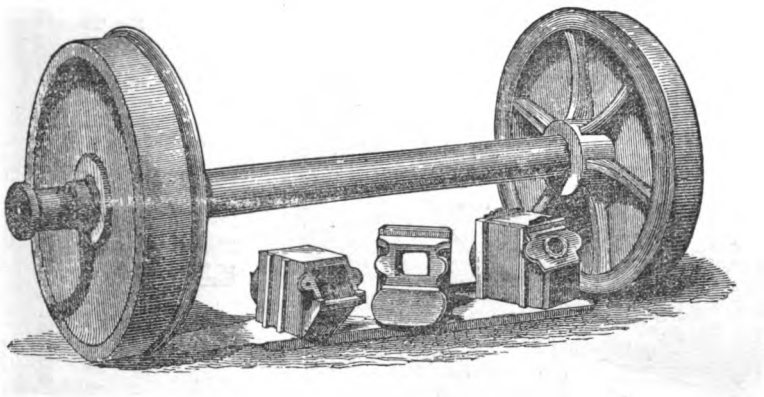
We warrant all our axles equal to the best made in this country, as we make them from the best Virginia Charcoal Iron. We have been supplying them for twenty years to many of the principal Railroads of the United States, and have yet to hear of the failure of one, although we agree to replace any defective ones with such as are satisfactory. An examination of our mode of making them cannot fail to convince any one acquainted with the subject of their entire reliability and superiority. We have erected a suitable Hammer for the express purpose of facilitating our business in this department.



Car Wheels, Single and Double Plate.

Car Wheels, either Single or Double Plate, of any diameter, either bored to fit the axle or not, as ordered. Of these we can supply every variety of wheel made from the best gun metal, giving the usual guarantee as to endurance.

CAR WHEELS AND AXLES FITTED.

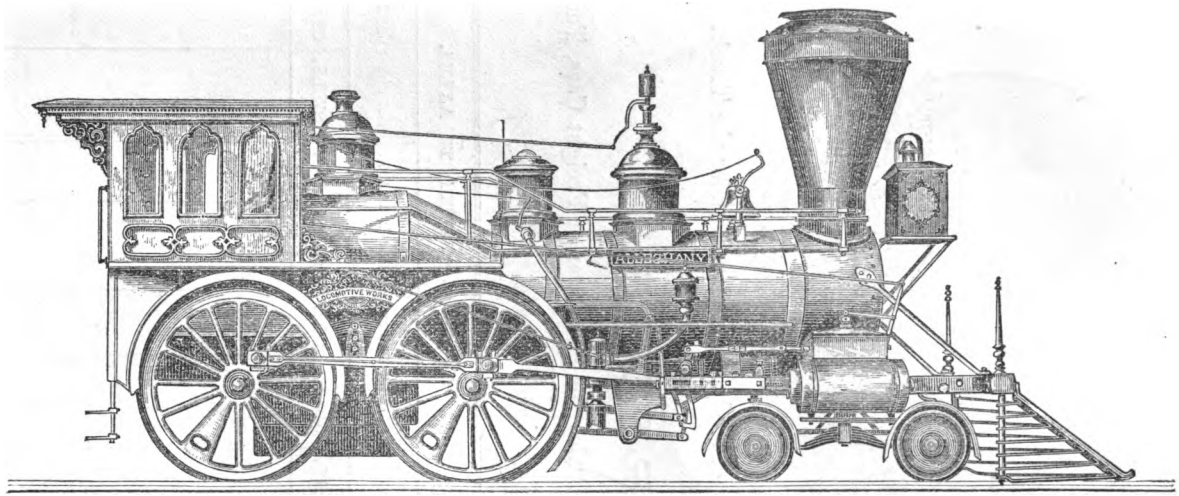


Car Wheels and Axles fitted ready to be placed under the Truck.

PRICES:

Chilled Car. Wheels and Axles for Passenger or Freight Cars, Tenders, &c., delivered at Richmond:

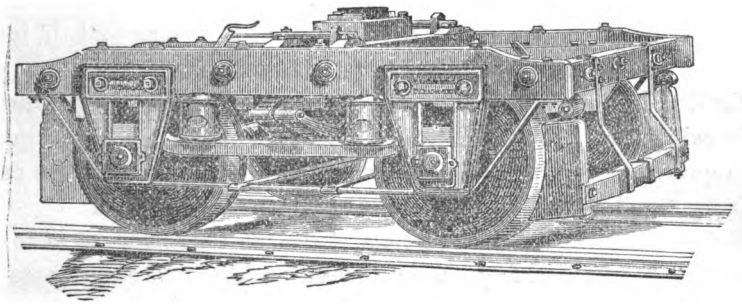
	FITTED TO AXLES.							
	SINGLE PLATE.		DOUBLE PLATE.		SINGLE PLATE.		DOUBLE PLATE.	
	DOLLS.	CTS.	DOLLS.	CTS.	DOLLS.	CTS.	DOLLS.	CTS.
24 inch diam, . .								
26 " " . .								
28 " " . .								
30 " " . .								
33 " " . .								
36 " " . .								
For Construction Cars, .								
18 " " . .								
20 " " . .								
24 " " . .								
30 " " . .								

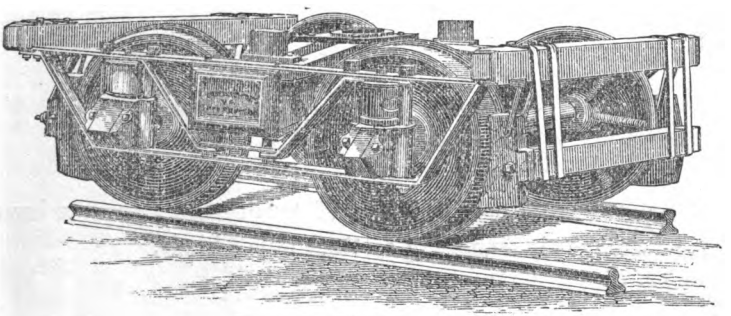


LOCOMOTIVES AND FREIGHT CARS.

Our Works being immediately on the line of the great system of Railways from North to South, we can deliver these most important items in Railway furniture at the Depots of every road south of us and on western side of the Mississippi river with expedition, and at comparatively low cost, and in much better condition than when such articles are forwarded by sea.

WROUGHT IRON TRUCKS.





We manufacture on an extensive scale, a superior article of wrought iron Car Truck, which is now extensively used. We will either furnish the Irons, or fit them up complete with wheels, axles, springs and wood work.

Bolts and Nuts,

For bridges, trestle work, depots, &c. Of these we make every variety of length and size, say from half inch to two-and-a-half inches diameter, and from twelve inches to forty feet in length.

The iron in these bolts is similar to that used in the manufacture of chain cable for the United States Navy, of which we have supplied large quantities for the last twenty years, and which has stood the extraordinary tensile strain of 71,600 pounds to the square inch.

We use superior hot-pressed nuts, faced on the inside, so as to give a perfect bearing surface, which affords additional security to the strength of the bolt.

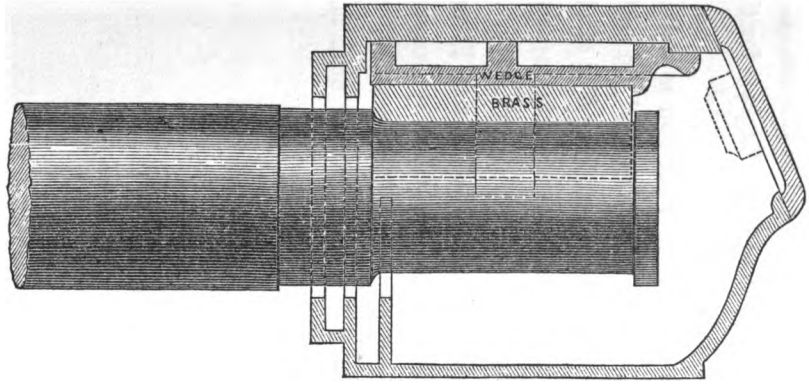
We furnish the irons complete for Bollman's, Howe's, or Fink's bridge, including the castings.

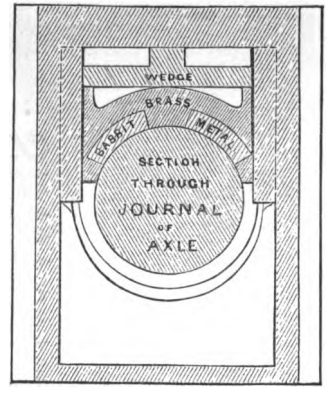
Castings.

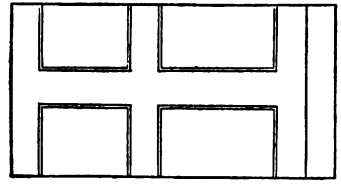
Having patterns the accumulation of twenty-five years, we have important advantages in supplying castings of all kinds.

Forgings.

We have extensive arrangements for making forgings of all kinds, having a heavy Nasmyth Steam Hammer, and two Trip Hammers.







CAR BOXES,

OF THE LATEST AND MOST APPROVED CONSTRUCTION.

MARINE ENGINES.

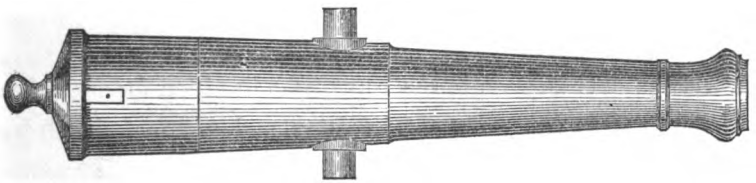
A large amount of Marine work has been executed at this establishment. Among others built here, are the four powerful Engines for the United States Frigates Roanoke and Colorado.

These Engines elicited the highest praise from our own as well as many English engineers, who witnessed their performance and the workmanlike manner in which they were constructed; and the files of the Tredegar Office contain in relation to them the most complimentary certificates from the chief Engineer and the Secretary of the Navy.

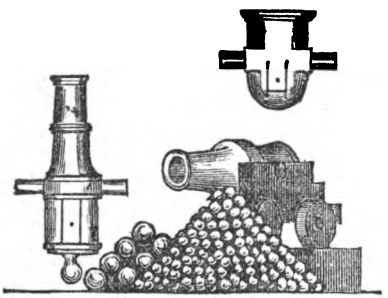
The capacity of the Engines in each ship is 1200 Horse Power. The cylinders are 79 inches in diameter, and are propelled by immense Boilers, having an aggregate heating surface of 12,000 square feet.

We are prepared to execute any description of Marine work that may be entrusted to us *with despatch.*

ORDNANCE.



IRON AND BRASS CANNON OF EVERY DESCRIPTION, MOUNTED READY FOR SERVICE.



SHOT AND SHELL OF ALL SIZES.

ORDNANCE.

A distinguished Captain in the Navy, who has been for severa! years engaged in superintending the fabrication and proof of the Ordnance manufactured at the Tredegar Works and elsewhere, has kindly furnished us with the following testimonial:

"The Tredegar Foundry has been successfully engaged for a number of years in the fabrication of Cannon and Projectiles, for both the Army and the Navy of the United States.

"The testimony of the Officers superintending, and the records on file at Washington, will show that the iron used at this Foundry is of the most superior and durable kind. Of the twelve hundred guns already manufactured, *all of them* have stood the test to which they were subjected, while some of them have endured without apparent injury more than *a thousand rounds*. In no instance has a failure occurred, so it is with entire confidence that the Cannon and Projectiles made at the Tredegar Foundry can be recommended. It can safely be said that they are fully equal to any made in this Country or in Europe."

Tensile Strength of Fifteen Samples,

(Part of a cargo of one hundred tons) Cable Iron, furnished by Messrs. J. R. ANDERSON & Co., Tredegar Iron Works, Richmond, Virginia, tested at Washington Navy Yard, in Major Wade's dinameter:

3	samples,	2¼	inch,	averaged	65,400	to	the	square	inch.
3	"	2⅛	"	"	66,000	"	"	"	"
3	"	1⅝	"	"	66,070	"	"	"	"
3	"	1¼	"	"	70,070	"	"	"	"
3	"	1⅛	"	"	68,950	"	"	"	"

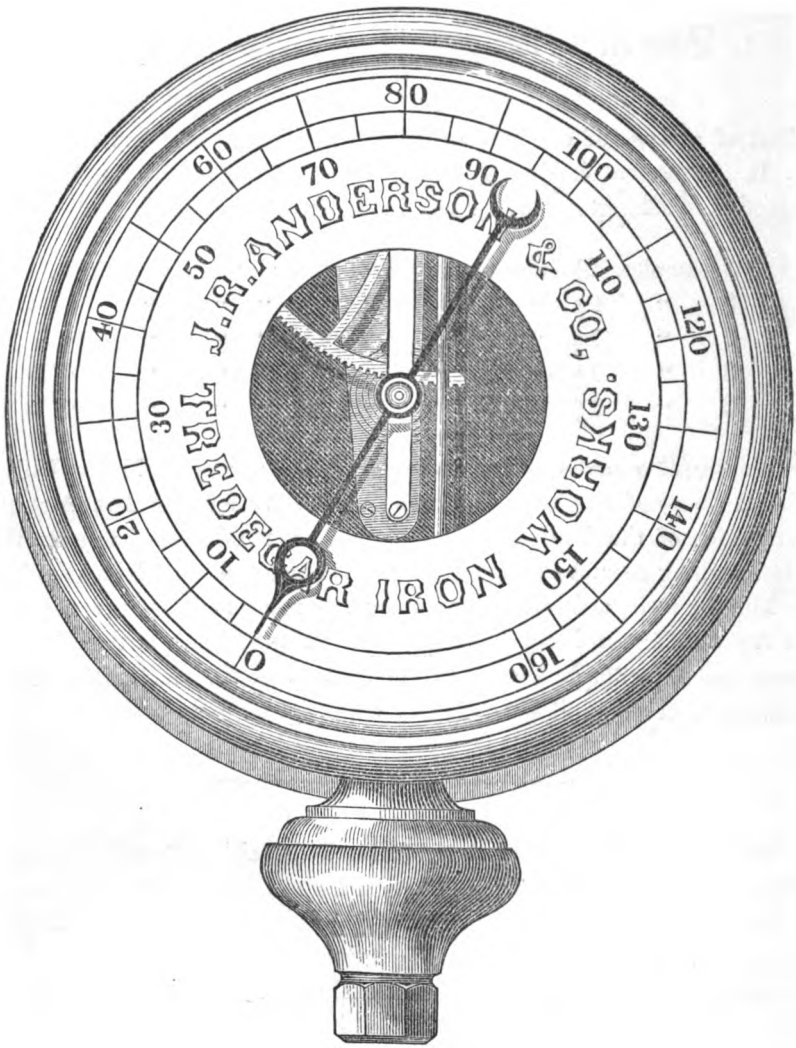
We are also authorized by Captain Montgomery C. Meigs, United States Corps of Engineers in charge of the Washington Aqueduct and Extension of the United States Capital at Washington, to state that after making careful experiments upon several makes of Iron submitted to him for tests, and after examining the results of experiments made at the Washington Navy Yard, he gave the preference te the Tredegar Iron, and accordingly has used it extensively in the construction of the United States Capital Extension at Washington.

We also manufacture all sizes of Bar Iron, either Round, Square or Flat. Horse Shoe Iron from Charcoal Billets. Screw Moulds. Angle L and T Iron of various sizes. Shafting and other Iron cut to lengths. Also, every description of Iron Work done to order.

Scrap Iron purchased or taken in exchange for other work.

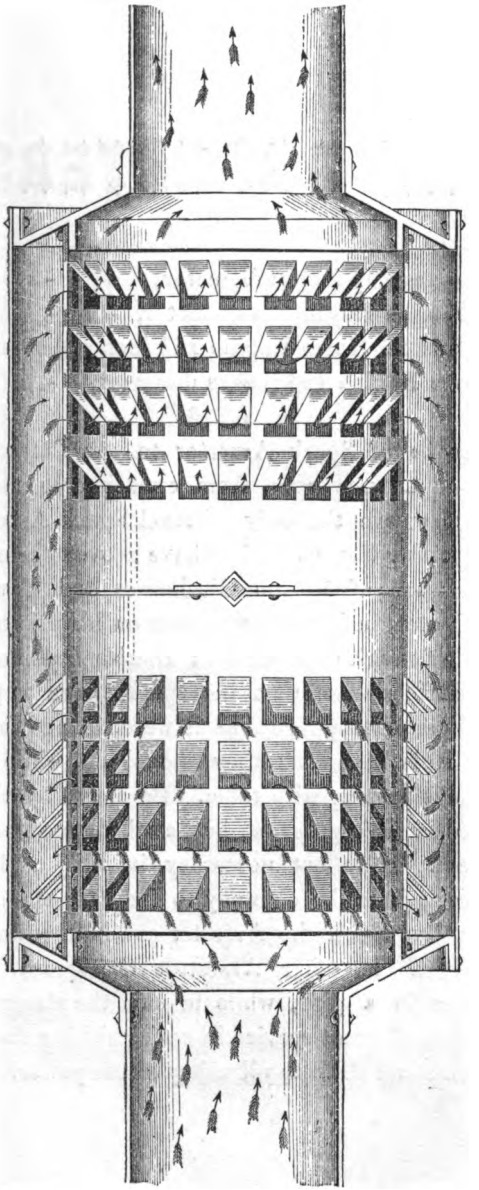
Steam Gauges.

Steam and Water Gauges always on hand.



PRICE:

Steam Gauge, No. 1,	$25
" " No. 2,	20
" " No. 3,	15
Water Gauge,	20



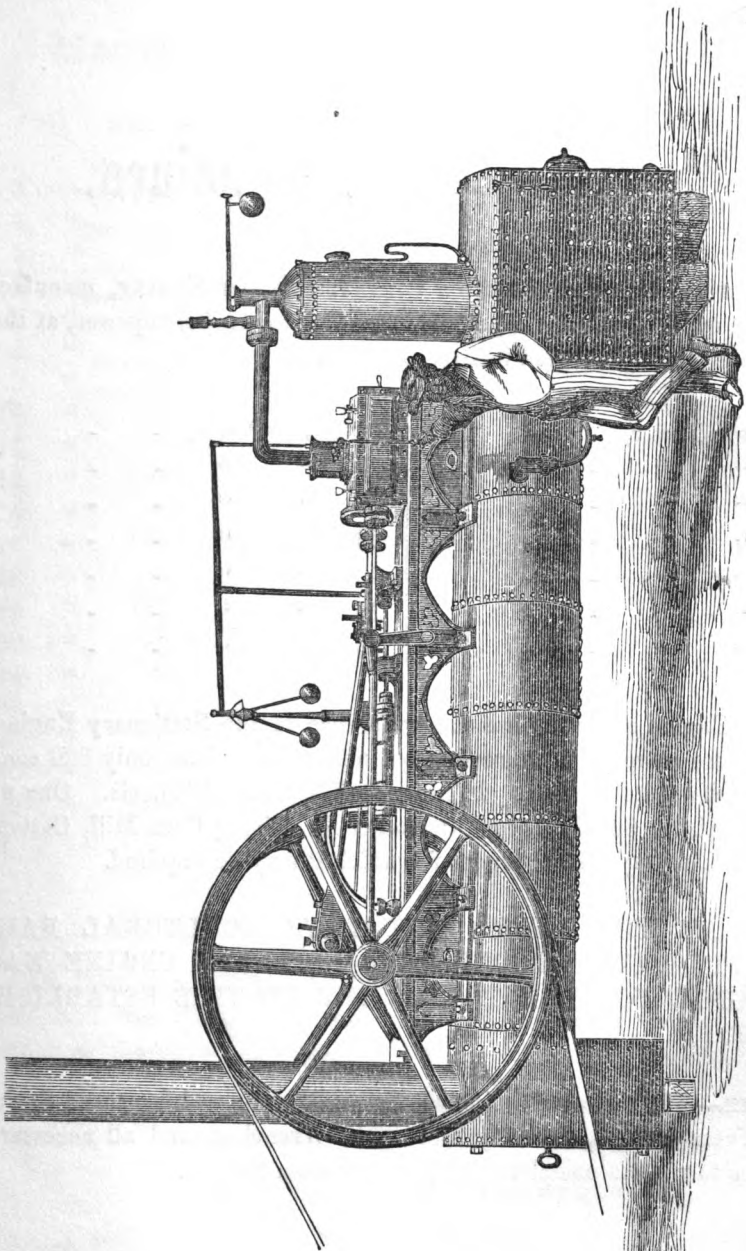
SPARK ARRESTER.

SPARK ARRESTERS.

6 and 8 Horse Engines 10½ inches diameter, - - -	$40 00
10 and 12 Horse Engine 12½ inches diameter, - - -	45 00
14, 16, 18, 20, 22 and 26 Horse Engine 14½ inches diameter,	50 00
30, 35 and 40 Horse Engine 16½ inches diameter, - -	55 00

In offering our make of Spark Arrester to our Patrons, we would say, as far as our experience goes, from experiments made on them when in use, that they are the only effectual Spark Arresters now in use in our Cotton-growing States. They have proved themselves invaluable in the preservation of Cotton Gin-houses and Saw Mills from fire. No cotton planter, using steam power on his plantation, should be without one. We fit each of them with *Double Deflectors*—between which is a Perforated Plate—so that the sparks have to pass through three different breakers or stoppages, as it were, before they reach the chimney, and this it is necessary they should do, while the exhaust steam of the Engine is passing with them. So they, by this Arrester, are not only arrested in their progress, but, at the same time, are extinguished by the steam. It is not necessary in this, as it is in other Arresters, to remove it from the chimney to increase the draft, as it is fitted with a valve, by which the Arrester can be thrown on or off at pleasure in an instant. In other Arresters the steam is conducted through the Arrester in a pipe, while in ours the steam goes openly with the sparks, and is of great service in extinguishing them.

We strongly recommend them to all using steam power.



PORTABLE ENGINE.

Portable Steam Engines.

The preceding cut represents a PORTABLE STEAM ENGINE, manufactured at our Works, of various sizes, from 4 to 40 horse-power, at the following prices, delivered in New Orleans:

4	Horse-Power,	-	-
6	" "	-	-
8	" "	-	-
10	" "	-	-
12	" "	-	-
14	" "	-	-
16	" "	-	-
18	Horse-Power,	-	-
20	" "	-	-
22	" "	-	-
26	" "	-	-
30	" "	-	-
35	" "	-	-
40	" "	-	-

This Engine generally has the preference to the Stationary Engine, being more compact, more readily put up, and requiring only 300 common bricks in its erection. It has two Fly or Band Wheels. One we use for driving Saw Mill, and the other for driving Corn Mill, Cotton-Gins, &c., or any other purpose for which it may be required.

☞ AT THE LAST ANNUAL AGRICULTURAL FAIR THE PREMIUM FOR THE BEST PORTABLE ENGINE WAS ASSIGNED FOR THE THIRD TIME TO THIS ESTABLISHMENT.

NOTE.—The above prices include Steam Whistle and Improved Steam and Water Gauges, Monkey and Plain Wrenches, and all necessary articles to make a complete and perfect Steam Engine.

Warranted Extra Cast Steel Circular Saws.

HARDENED, TEMPERED, AND GROUND PERFECTLY TRUE.

3	inches	diameter	each,	$0 70	34	inches	diameter	each,	$17 33
4	"	"	"	0 75	36	"	"	"	20 00
5	"	"	"	1 00	38	"	"	"	25 00
6	"	"	"	1 17	40	"	"	"	30 00
7	"	"	"	1 33	42	"	"	"	36 00
8	"	"	"	1 58	44	"	"	"	43 00
9	"	"	"	1 83	46	"	"	"	50 00
10	"	"	"	2 17	48	"	"	"	60 00
11	"	"	"	2 33	50	"	"	"	70 00
13	"	"	"	2 67	52	"	"	"	84 00
14	"	"	"	3 33	54	"	"	"	100 00
16	"	"	"	4 00	56	"	"	"	125 00
18	"	"	"	5 00	58	"	"	"	150 00
20	"	"	"	6 00	60	"	"	"	175 00
22	"	"	"	7 00	62	"	"	"	200 00
24	"	"	"	8 00	64	"	"	"	230 00
26	"	"	"	9 33	66	"	"	"	255 00
28	"	"	"	11 00	68	"	"	"	285 00
30	"	"	"	12 67	70	"	"	"	310 00
32	"	"	"	14 67	72	"	"	"	335 00

TERMS OF WARRANTY.

All Cast Steel Mill, Cross-cut and Circular Saws, are warranted true, and free from flaws or seams; and if found to be defective in either of these particulars, a new one will be given in exchange, if returned.

PRICES OF MILL SAW FILES.

12 inch Files, per dozen, - - - - - - -	$6 00
14 inch Files, per dozen, - - - - - - -	7 50

INDIA RUBBER MACHINE BELTING.

3 PLY.			4 PLY.		
2 inches,	-	11 cents per foot.	2 inches,	-	12 cents per foot.
3 "	-	17 " "	3 "	-	19 " "
4 "	-	22 " "	4 "	-	26 " "
5 "	-	28 " "	5 "	-	33 " "
6 "	-	34 " "	6 "	-	42 " "
7 "	-	40 " "	7 "	-	49 " "
8 "	-	46 " "	8 "	-	56 " "
9 "	-	52 " "	9 "	-	63 " "
10 "	-	60 " "	10 "	-	72 " "
11 "	-	68 " "	11 "	-	80 " "
12 "	-	74 " "	12 "	-	90 " "
13 "	-	80 " "	13 "	-	100 " "
14 "	-	90 " "	14 "	-	110 " "
15 "	-	100 " "	15 "	-	120 " "
16 "	-	110 " "	16 "	-	130 " "
18 "	-	120 " "	18 "	-	145 " "
20 "	-	130 " "	20 "	-	160 " "
22 "	-	145 " "	22 "	-	180 " "
24 "	-	160 " "	24 "	-	200 " "

Intermediate widths at proportionate prices.

Heavy 5 and 6 ply Belts made to order for purposes where great strength is required, (as a substitute for double leather,) at an advance of twenty-five and fifty per cent on 4 ply prices.

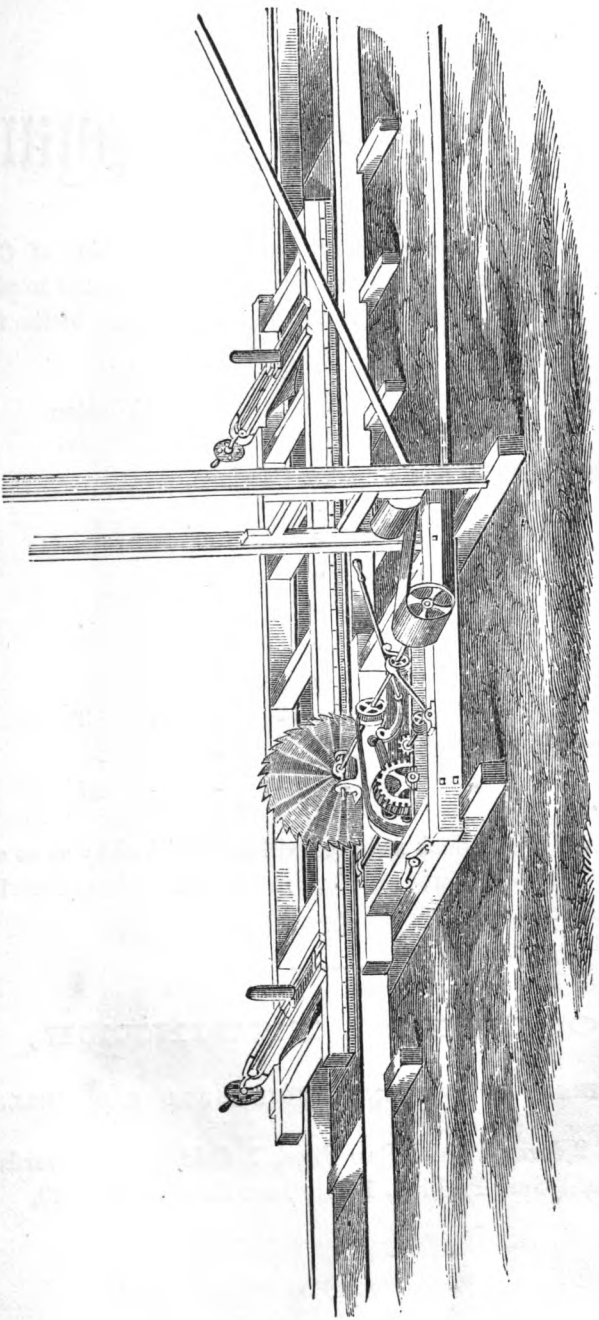
TWO PLY MACHINE BELTING,

FOR AGRICULTURAL MACHINES, AND OTHER LIGHT WORK.

1	inch	2 ply,	-	5	cents per foot.	3	inch	2 ply,	-	13	cents per foot.
1½	"	"	-	7	" "	3½	"	"	-	15	" "
2	"	"	-	9	" "	4	"	"	-	17	" "
2½	"	"	-	11	" "	5	"	"	-	22	" "

COTTON SEED CARRIER.

This machinery is used for carrying the seed off from the Gins, and is considered a great labor saving machine. Price, for Iron work, together with 100 feet of band and small driving belt, $80.



SINGLE CIRCULAR SAW MILL.

Single Circular Saw Mills.

The preceding cut represents an Isometrical Drawing of CIRCULAR SAW MILLS, with Head Blocks suitable and best adapted to plantation use complete to main belt, delivered in New Orleans at the following prices:

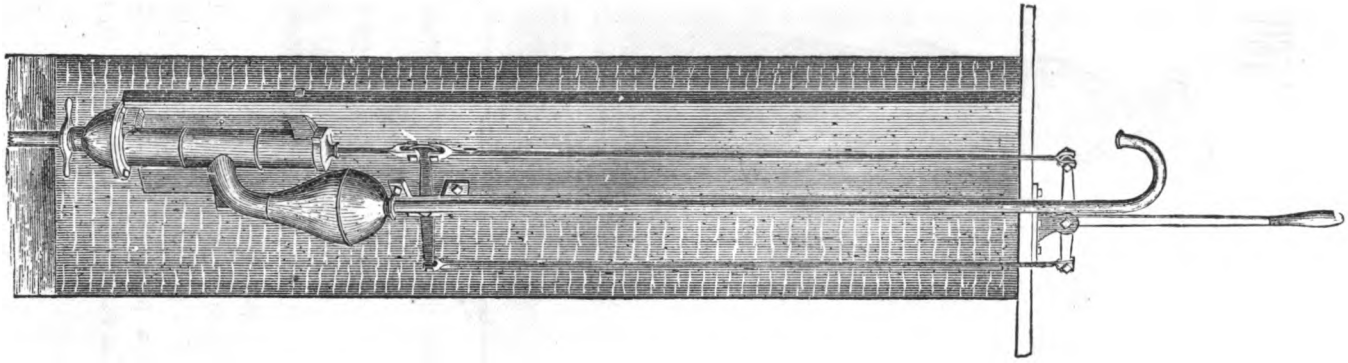
	Wooden frame.	Iron frame.
48 inch Saw Mill, 30 feet 6 inches Carriage,		
50 " " " " "		
52 " " " " "		
54 " " " " "		
56 " " " " "		
58 " " " " "		
60 " " " " "		
Extra Carriage, per foot, - - - -	3	
Extra Screw Head Blocks, - - - -	25	
Ratchet, - - - - - - -	40	

Any style of Head Block required will be furnished by us as ordered. If, however, left to us, we will furnish the one we have found to give general satisfaction.

TOOLS FOR ENGINEER,

REQUIRED AT STARTING ENGINE AND SAW MILL.

1 hammer, 2 dozen 12-inch Saw Files, 1 Cold Chisel, 6 yards Hemp Packing, ½ yard Gum Packing, 1 Side Lace Leather, $20 00.



This cut represents our three inch Cylinder Deep Well Pump. It is placed down in the well below the reach of frost, and is always in prime order for working. These pumps are bolted on a plank six feet long, with the rods whiffletree and plates, and sufficient discharge pipe to reach above the platform. PRICE, delivered at New Orleans, $40. For any length over six feet, 75 cents per foot extra.

IMPROVED DOUBLE ACTING COLD WATER PUMP.

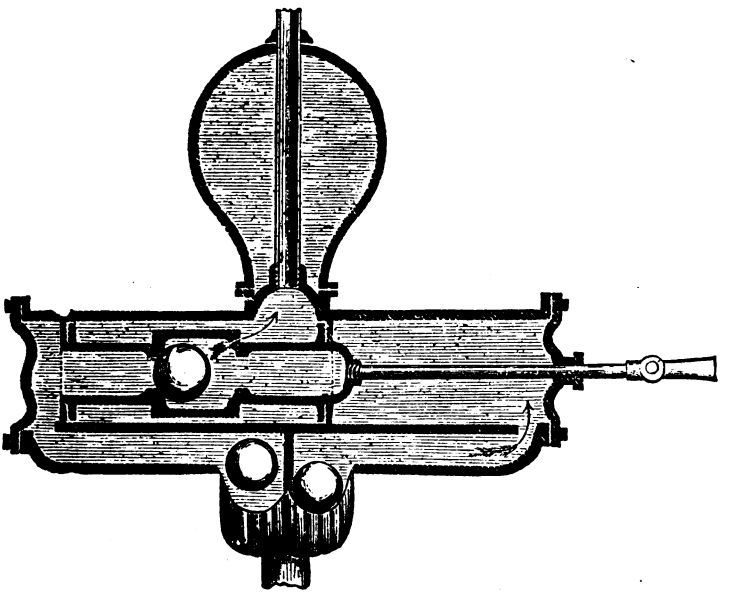
These pumps we use to bring the water from Well, River, or Bayou, within reach of the Engine Pump.

3 inch Cylinder Horizontal Pump complete, $40 00
Capacity 20 gallons per minute.

4 inch Cylinder Horizontal Pump complete, $60 00
Capacity 40 gallons per minute,

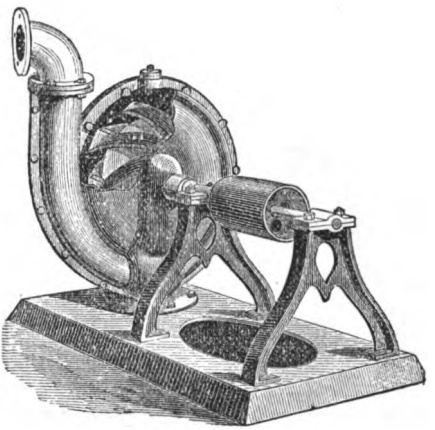
The above pumps are complete for working by hand. Connections to work by Engine cost from $15 to $30 extra, according to location.

Every Engine should have a pump of this kind to fill the boiler at starting. It can also be made very useful in cleaning it, and in cases of fire.



This cut represents a sectional view of the Horizontal Pump. Showing the form of the piston, the location of the Ball Valves, together with the water passages, &c. The piston in the upright Pump is the same as here represented, and the other two Balls are in the section at the bottom of the Pump.

Draining Machines.



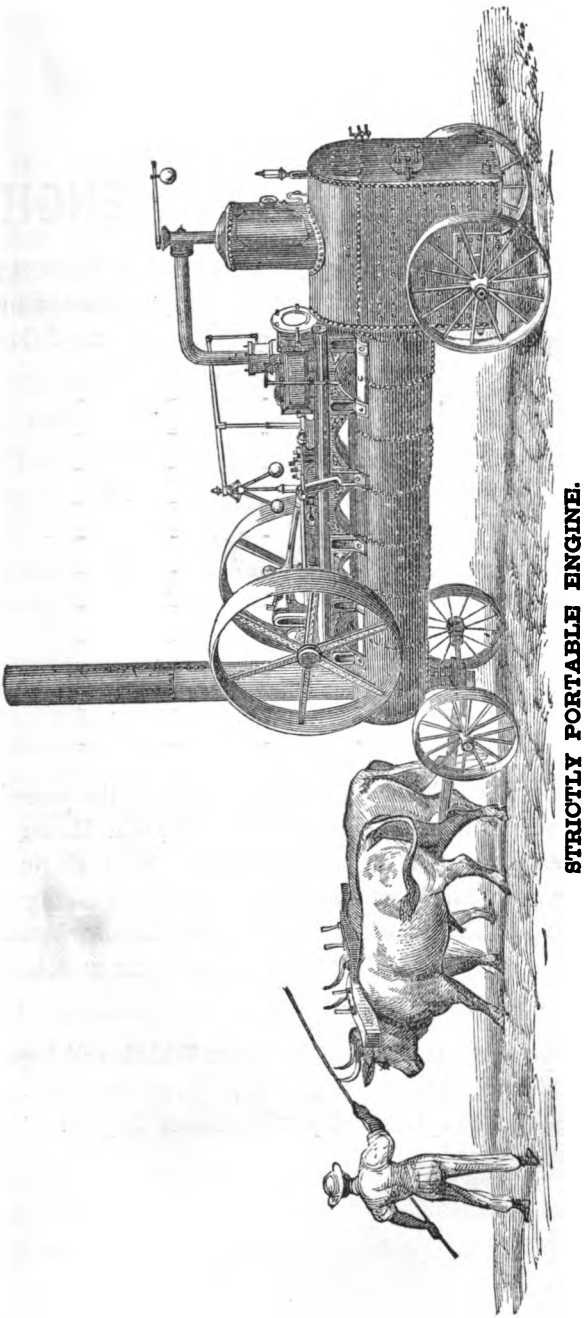
DELIVERED IN NEW ORLEANS.

No.	Size of Discharge in inches.	Diameter of Pulley in inches.	Width of Belt in inches.	Capacity in Gallons per minute.	Revolutions per minute.	Price delivered in New Orleans.
1	4	4	4	1,000	700	$125 00
2	6	8	6	3,000	500	300 00
3	9	10	8	6,000	400	450 00
4	12	12	10	10,000	300	650 00
5	15	14	10	14,000	250	775 00
6	18	18	12	20,000	225	925 00

This includes eight feet Suction and Discharge Pipe.

These Pumps are fully guaranteed as represented, and are the cheapest and most effective Pumps for Draining sold in this market.

We also supply Pumps for Railway Stations, or any other purpose.



STRICTLY PORTABLE ENGINE.

STRICTLY PORTABLE ENGINES.

The cut on the preceding page represents a STRICTLY PORTABLE ENGINE, of which we manufacture the following sizes, ranging from 4 to 26 Horse-Power, delivered in New Orleans at the following prices:

4	Horse Power,	- - - -
6	"	- - - -
8	"	- - - -
10	"	- - - -
12	"	- - - -
14	"	- - - -
16	"	- - - -
18	"	- - - -
20	"	- - - -
22	"	- - - -
26	"	- - - -

The Strictly Portable Engine, represented by the preceding Cut, is a very convenient machine indeed where the Gin House of necessity must be some distance from the Saw Mill. This Engine, having its own running gear, can be at once removed without taking it apart, and put to work again the same day. The only difference between this and the Portable Engine is, that this has running gear attached to it, while the Portable Engine has none.

NOTE.—The above prices include Steam Whistle and improved Steam and Water Gauges, Monkey and Plain Wrenches, and all necessary articles to make a complete and perfect Steam Engine.

GIN SHAFTING.

No. 1.—12 feet nicely turned Shafting, with all necessary Pulleys, Universal Boxes, Patent Conical Steel Keyed Couplings, Holding-down Bolts, &c., turned and finished throughout, complete for driving one Cotton Gin, $ 75 00

No. 2.—22 feet Shafting, with all necessary Pulleys, Universal Boxes, Bolts, &c,, to the complete working of two Gins, $115 00

No. 3.—32 feet Shafting, with all necessary Pulleys, Universal Boxes, Bolts, &c., to the complete working of three Gins, $155 00

No. 4,—42 feet Shafting, with all necessary Pulleys, Universal Boxes, Bolts, &c., to the complete working of four Gins, $195 00

No. 5.—52 feet Shafting, with all necessary Pulleys, Universal Boxes, Bolts, &c., to the complete working of five Gins, $235 00

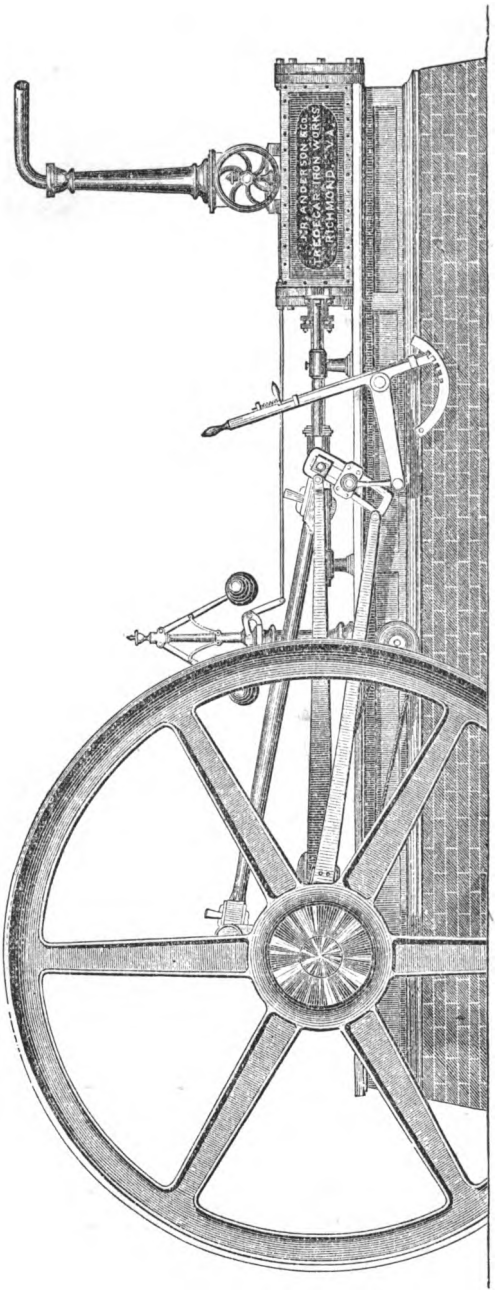
Extra Pulleys and Boxes always on hand.

The above is the finest and most accurate Shafting that has ever been made for Ginning purposes, being nicely turned and equally balanced throughout. This is very necessary to a regular motion of the Gin, which is so indispensable to the Ginning of a good staple of Cotton.

Shafting, Pulleys, &c., furnished to order at short notice.

Cast Iron Stands, to dispense with timber-work, and to elevate the Pulleys above the lower floor of Gin-house when required, are extra of Shafting prices, and will cost:

Lot No. 1,	two stands,	$12 50,	each,	- -	$25 00
" 2,	three "	"		- -	37 50
" 3,	four "	"		- -	50 00
" 4,	five "	"		- -	62 50
" 5,	six "	"		- -	75 00



STATIONARY ENGINE.

Stationary Steam Engine.

The preceding Cut represents one of our improved Stationary Steam Engines. We make these with any desired description of Boiler, (thou generally double Flue), and of any capacity.

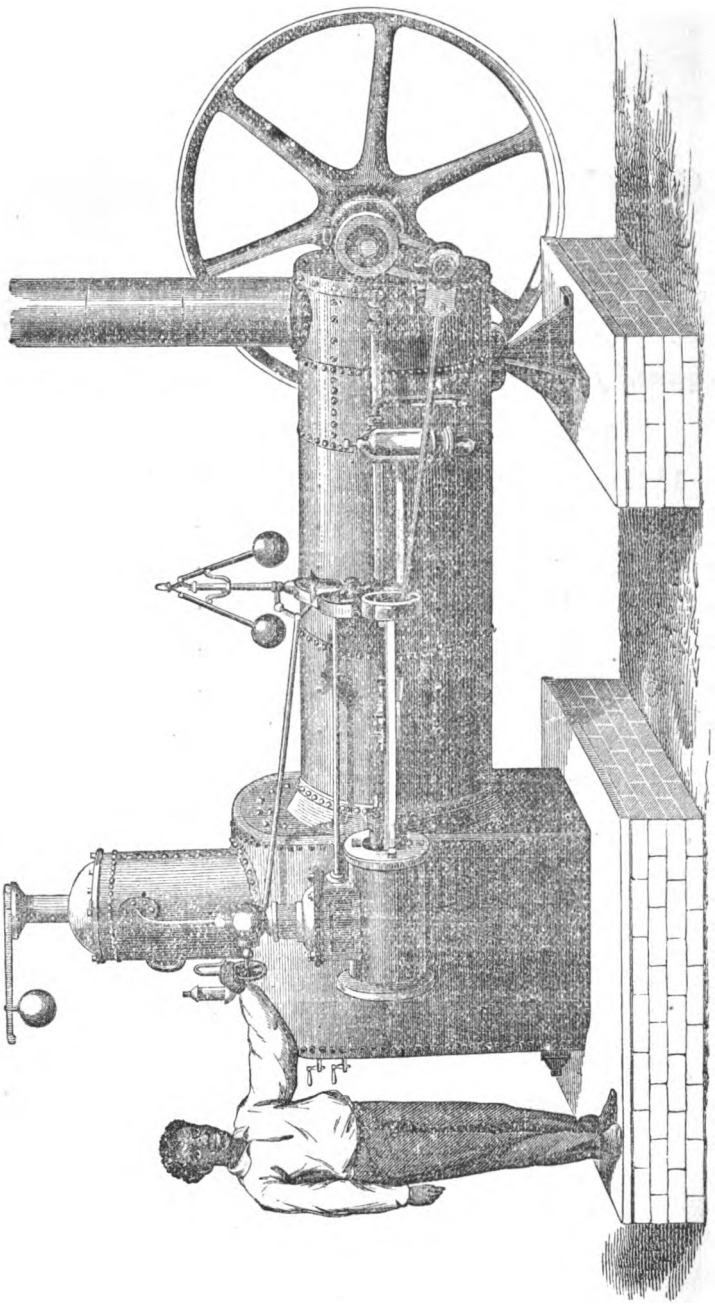
PRICE, DELIVERED IN NEW ORLEANS.

15	Horse Power,	$
18	"	
20	"	
25	"	
30	"	
35	"	
40	"	

The above prices include Steam Whistle, Steam and Water Gauges, Monkey and Plain Wrenches, Hammer, Chisel, &c., complete.

SUGAR MILLS,

With suitable Steam Engines, for driving them, furnished to order.



SIDE CONNECTED PORTABLE ENGINE.

SIDE CONNECTED PORTABLE ENGINE.

The preceding cut represents an improved Portable Engine on side of Boiler. We build these either with wheels to move them about on or not as requested. They are quite as good an Engine as can be made, and quite as effective. Are generally preferred by Rail Road men to saw wood and pump water along a Rail Road, and by Planters requiring a cheap small Engine for ginning or sawing.

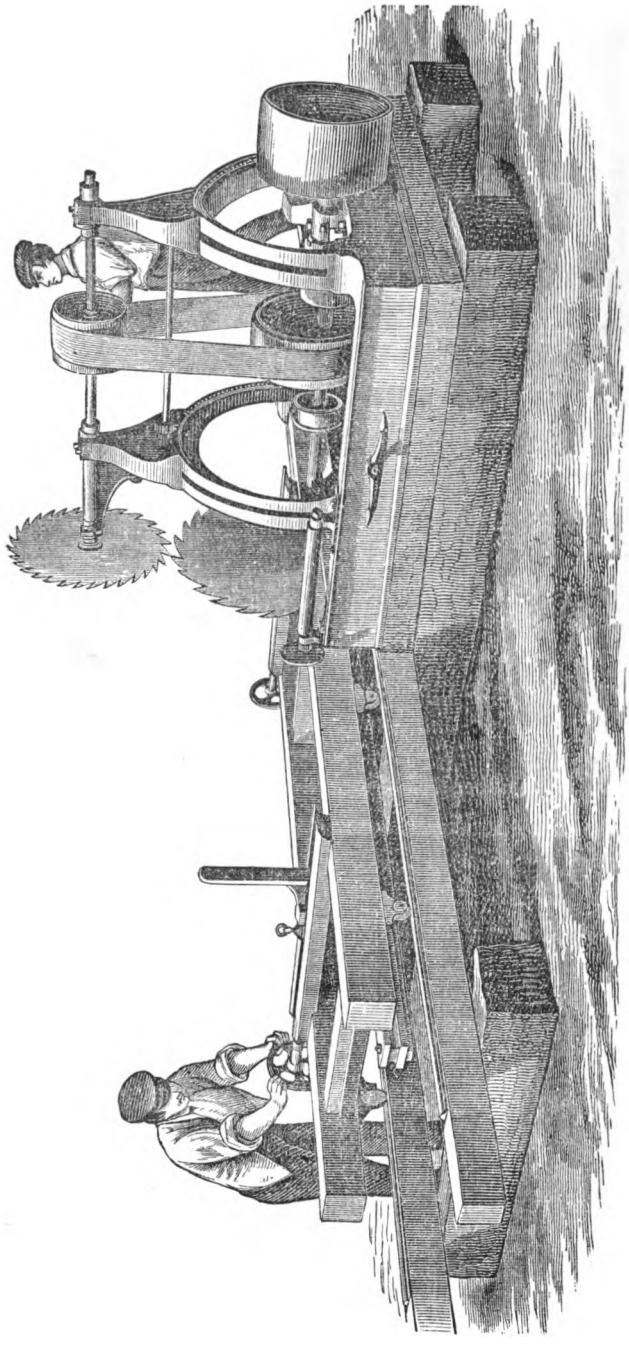
PRICE, DELIVERED IN NEW ORLEANS.

10 Horse Power,	. . .	$
14 "	. . .	
18 "	. . .	

This price includes Steam and Water Guage Whistle, &c., complete.

STRICTLY PORTABLE ENGINES

Of this construction, and of either of the above sizes, will cost $175 additional.



DOUBLE SAW MILL.

DOUBLE SAW MILL.

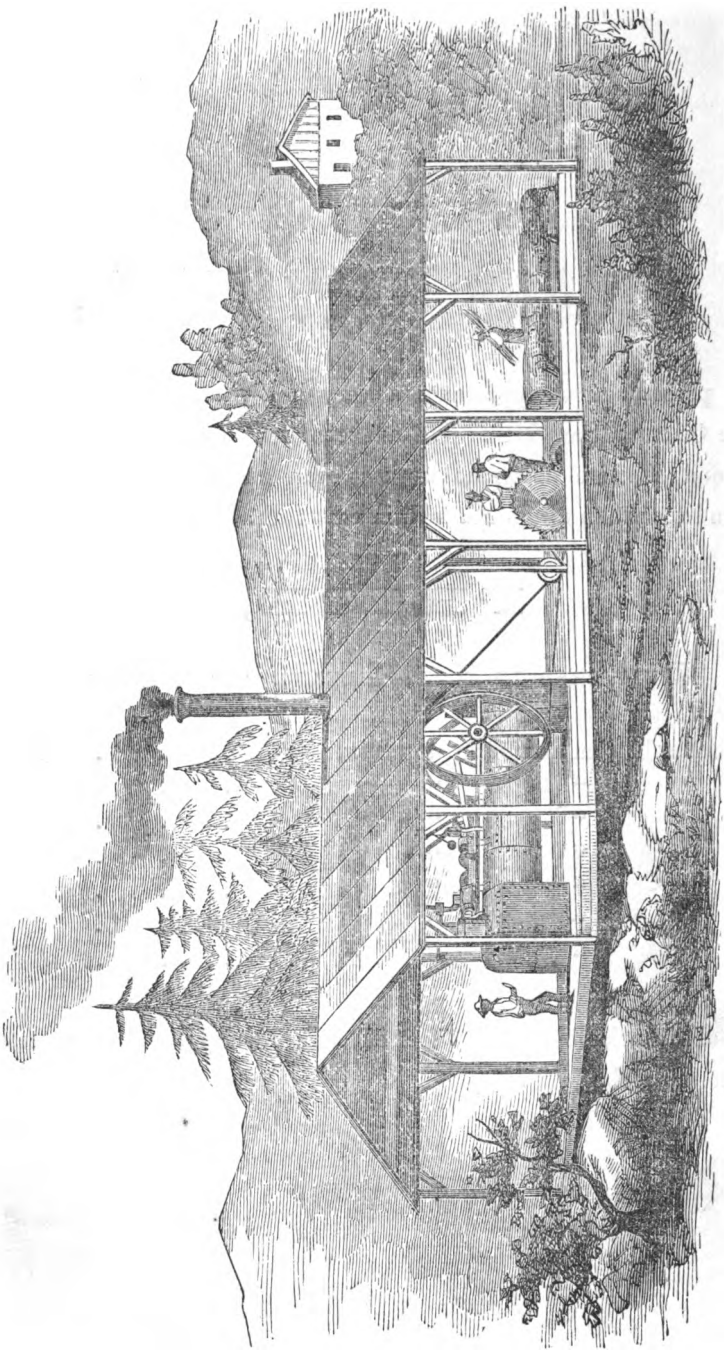
The preceding cut represents a very heavy massive Iron Framed Double Circular Saw Mill. We are confident this Mill, with appropriate and effective power to work it, can cut more timber with less wear and tear than any other Mill in existence.

PRICE,

DELIVERED IN NEW ORLEANS, AS FOLLOWS:

52	inches	bottom	and	30	in.	top	Saw,	. . . .	$	.
54	"	"		30	"	"		. . . .		
56	"	"		30	"	"		. . . .		
58	"	"		30	"	"		. . . .		
60	"	"		30	"	"		. . . .		
66	"	"		30	"	"		. . . .		
72	"	"		30	"	"		. . . .		

The above price includes 30 feet effective Carriage, and all necessary items to make the Mill complete.



SAW MILL ESTABLISHMENT.

Saw Mill Establishment.

The preceding cut represents a SAW MILL AND BUILDING complete, as we have erected them on various plantations. It also shows how simple and at what little cost our Mills can be erected, when sawing alone is the object.

The Engine and Mill are so arranged that they saw the lumber for the building to make the house to cover them. This building is 25 feet wide, 60 feet long, and 10 feet high in the clear, and is the size we generally put up, when not used in connection with Cotton-gin house. The engine used here requires simply 300 common brick in its erection.

MEMORANDUM OF TIMBER

REQUIRED TO ENABLE THE PURCHASER TO PUT UP ONE OF OUR IMPROVED PORTABLE CIRCULAR SAW MILLS AND ENGINES, VIZ:

6 pieces 5 inches × 8 inches, 22 feet long, ways for Saw Carriage.

14 pieces 8 inches × 10 inches, 6 feet long, Cross-ties for Carriage-way.

2 pieces 10 inches × 12 inches, 12 feet long, Mud Sills for Saw Frame.

2 pieces 12 inches × 12 inches, 8 feet long, for end of Boiler.

Also, about 300 common bricks for Ash Pit.

The above items should be on the ground where the Mill is to be erected before the Machinery arrives, so as not to detain the workmen for the want of them.

Directions for Keeping Saw in Order.

1st. In hanging the Saw, make the side nearest the log run as true as possible. This can be done by inserting writing paper between it and the Collar of Saw Shaft.

2nd. Round the Saw, by holding a file firmly on the frame of the guide, and turning the Saw slowly around by the hand. This will turn off the longest teeth.

3rd. File off the top of each tooth, until it comes to an edge.

4th When nearly all the teeth touch, then file both on the top and in the front of each tooth, until properly sharpened.

5th. Then set the teeth right and left, just sufficient for the Saw to clear itself.

6th. As the Saw becomes dull, hold the file as before, to merely touch the longest teeth, then file to an edge on top.

7th. After the Saw is round, file the most in front when dull, as it diminishes the diameter less, and keeps proper depth of tooth.

8th. In filing, when dull, file no more than to bring to an edge.

Sizes and Prices

OF COMPLETE STEAM ENGINE AND SAW MILL, WITH MECHANIC TO ERECT THE SAME.

SIZE No. 10.—Portable Steam Engine of 10 Horse-power, with 46 inch Circular Saw Mill, with 30 feet 6 inches carriage, all necessary Belts, Bolts, Screws, Engineer Tools, and everything complete, including Pulley for driving Grist Mill or Gin Shafting, Steam Whistle, Steam and Water Gauge, &c., delivered on board a steamer at New Orleans and expressly guaranteed perfect machinery and to cut readily, when properly managed, 2500 feet of one inch boards in ten hours, we furnishing mechanic to erect without additional cost, for the sum of $1,800

SIZE No. 9.—Portable Steam Engine of 12 Horse-Power, with 48 inch Mill and 30 feet 6 inches Carriage, complete as above, and guaranteed to cut 3000 feet of one-inch boards in ten hours, for the sum of $2,000

SIZE No. 8.—Portable Steam Engine of 14 Horse Power, with 48 inch Mill and 30 feet 6 inches carriage, complete as above, and guaranteed to cut 3500 feet of once-inch boards in ten hours for the sum of $2,150

SIZE No. 7.—Portable Steam Engine of 16 Horse-Power, with 48 inch Saw Mill and 30 feet 6 inches Carriage, complete as above, and guaranteed to cut 4000 feet of one-inch boards in ten hours, for the sum of $2,300

SIZE No. 6.—Portable Steam Engine of 18 Horse-Power, with 50 inch Saw Mill and 30 feet 6 inches Carriage, complete as above, and guaranteed to cut 4500 feet of one-inch boards in ten hours, for the sum of $2,500

SIZE No. 5.—Portable Steam Engine of 20 Horse-Power, with 52 inch Saw Mill and 30 feet 6 inches Carriage, complete as above, and guaranteed to cut 5000 feet of one-inch boards in ten hours, for the sum of $2,700

SIZE No. 4.—Portable or Stationary Steam Engines, of 22 Horse-Power, with 54 inch Saw Mill and 30 feet 6 inches Carriage, complete as above, and guaranteed to cut 5500 feet of one-inch boards in ten hours, for the sum of $2,900

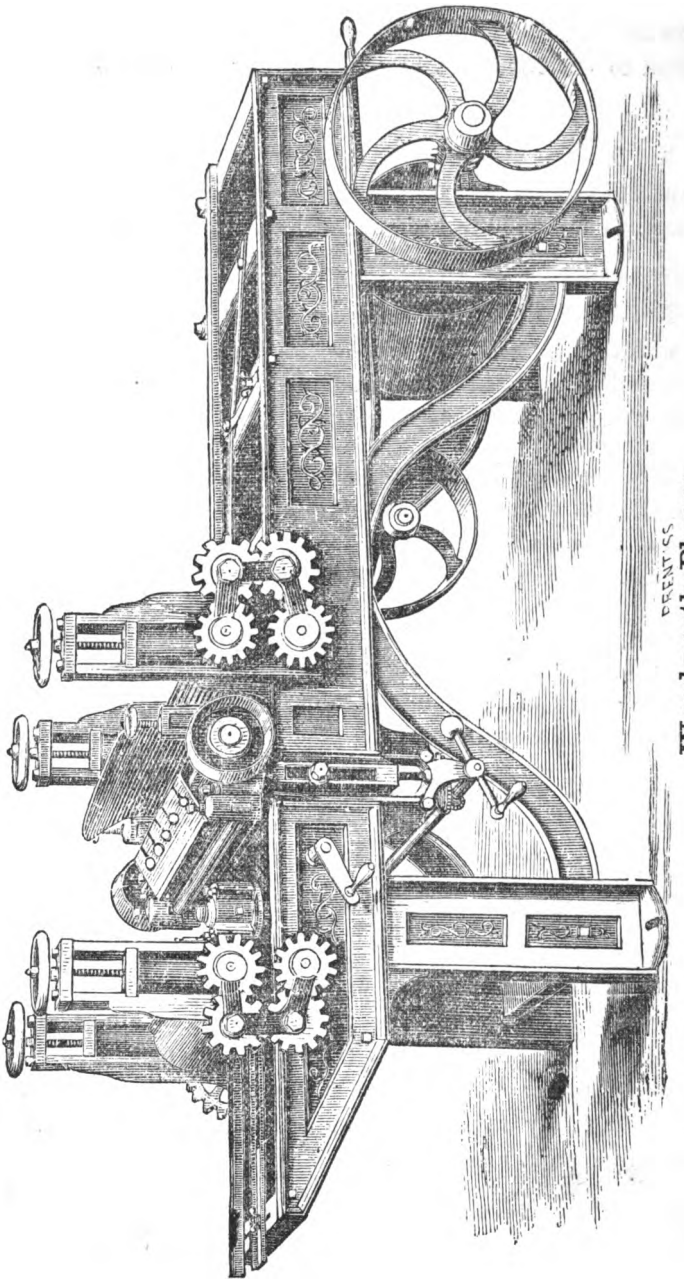
SIZE No. 3.—Portable or new pattern Stationary Steam Engine of 26 Horse-Power, with 56 inch Saw Mill and 50 feet 6 inches Carriage, complete as above, and guaranteed to cut 6000 feet of one-inch boards in ten hours, for the sum of $3,100

SIZE No. 2.—Portable or new pattern Stationary Steam Engine of 30 Horse-Power, with 60 inch Saw Mill and 30 feet 6 inches Carriage, complete as above, and guaranteed to cut 7000 feet of one inch boards in ten hours, for the sum of $3,500

SIZE No. 1.—Portable or new pattern Stationary Steam Engine of 40 Horse-Power, with one 60 inch and one 48 inch Circular Saw Mill, with 30 feet 6 inches Carriage, and expressly guaranteed to cut 10,000 feet of one-inch boards in ten hours, for the sum of $4,600

In all contracts, as above, we furnish a competent Mechanic to erect and start machinery properly at work. Every machine is sold under an express guaranty as represented. In event of a failure, all moneys paid will be refunded and machine taken back at our expense.

We would prefer that parties wishing to purchase Machinery, should confer freely with us, as we believe a proper understanding will generally lead to a contract.



Woodworth Planer.

WOODWORTH'S PLANING MACHINE.

MANUFACTURED IN RICHMOND.

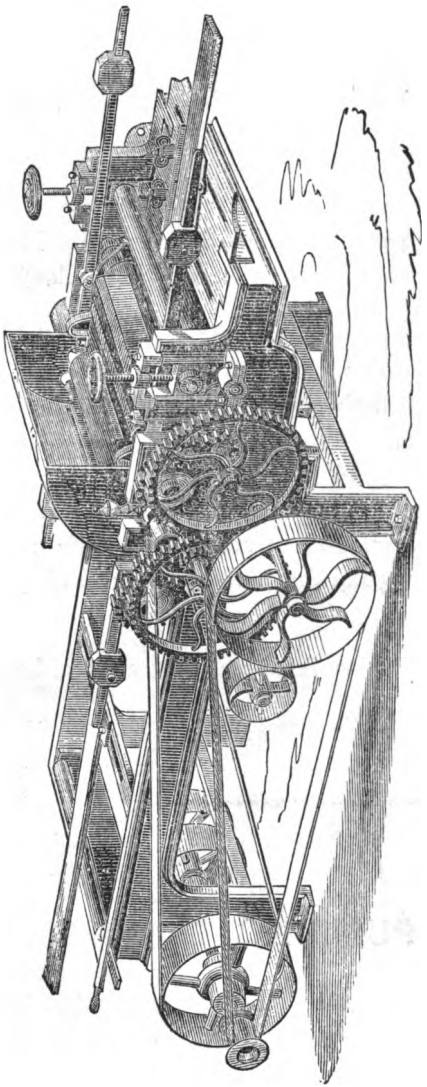
The cut on the preceding page represents Woodworth's Planing Machine, which will be delivered in New Orleans at the following prices;

Woodworth's Planing Machine, with Iron Frame, Gun Metal Boxes, &c., to surface 24 inches wide, and Plane, Tongue and Groove 12 inches wide, or any desired width less that 12 inches,	$600 00
Extra set Surfacing Cutters, 24 inches long,	18 00
Extra set " 14 "	12 00
Extra matches Bitts, complete, for Tonguing and Grooving,	15 00
Grindstone, with iron frame, and arranged with slide so that a negro can accurately grind the cutters, Stone, Pulley and all, complete,	50 00

Larger Machines than the above furnished only when ordered.

CORNISH PUMPING ENGINES.

We are now prepared to estimate for these economical Engines of any size and capacity, and of either High or Low Pressure for Mining purposes or for Water Works of Cities. We build a superior direct acting Bull Engine on the High Pressure principle, and though it is not equally economical as to fuel with the real Cornish Engine, it is nevertheless more economical than the old style American Pumping Engine, and less liable to get out of order, as we not only dispense with the gearing used in the American Engine, but we also dispense with the Balance Bob used in the Cornish Engine.



PLANING MACHINE.

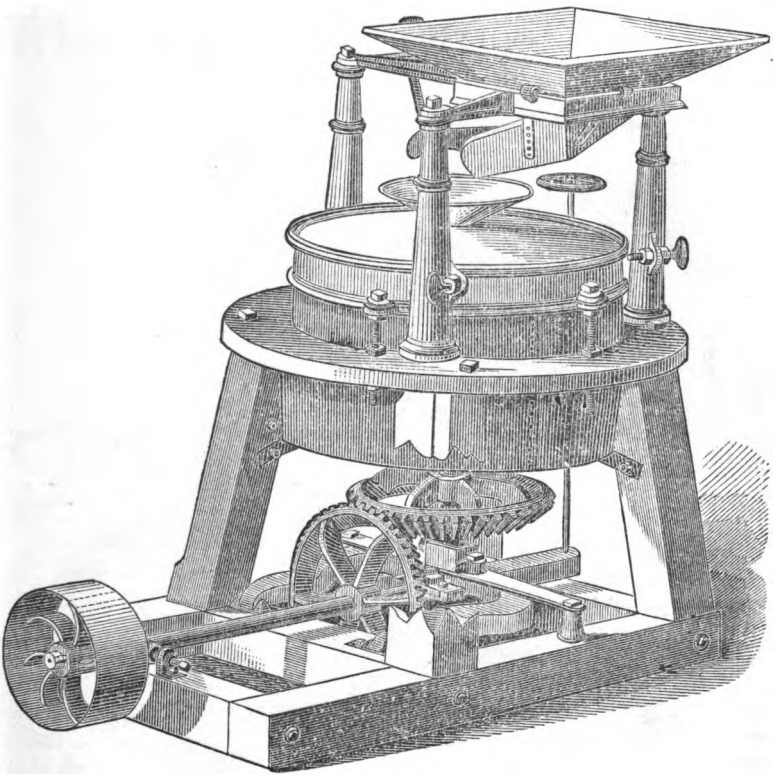
NOYES' IMPROVED CUT WOOD

This Cut represents one of Noyes' Improved Wood Planing Machines, at prices, delivered at New Orleans, as follows:

Iron Frame Machine, to plane one side, 26 inches wide and tongue and groove 26 inches, or any desired width below that, $850

Same Machine, to plane both sides and tongue and groove, $1000

Portable Grist Mills.



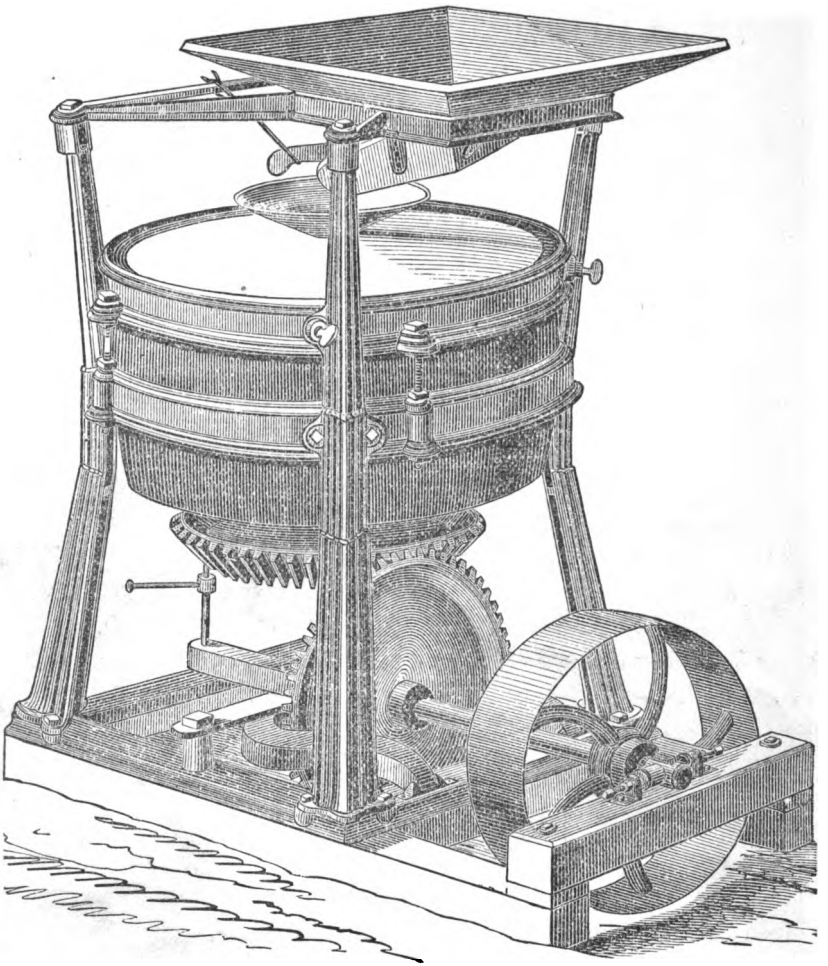
Iron Frame Straub Mills with French Burr Stone.

PRICES, DELIVERED IN NEW ORLEANS.

18 inch diam., Single Gear, $120. Double Gear,
22 " " 140. " $160

Any other make supplied at manufacturers prices.

PORTABLE GRIST MILLS.



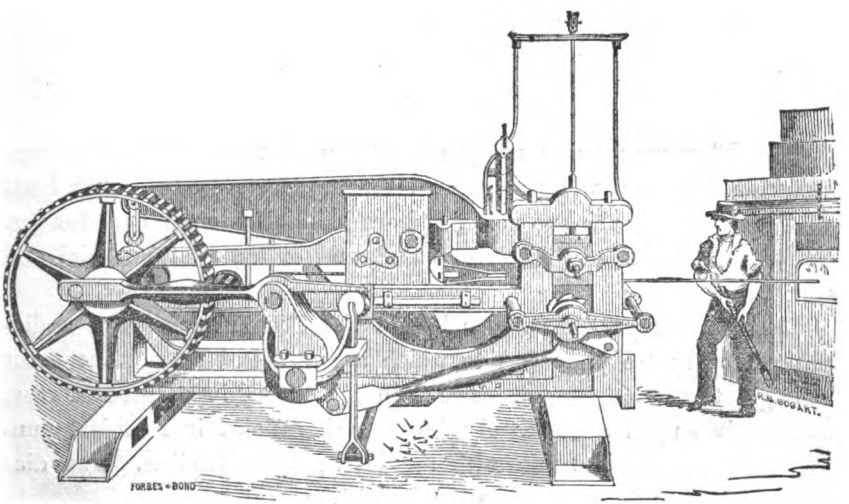
Heavy Class Iron Frame Straub Mills, with French Burr Stones, complete.

PRICE, DELIVERED IN NEW ORLEANS.

26 inches,	Single Gear,	$160.	Double Gear,	$185
30 "	"	200.	"	225

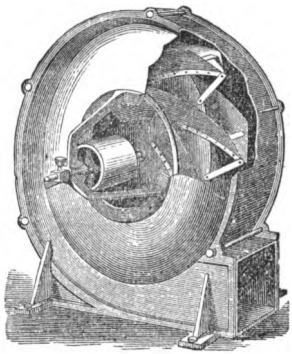
TREDEGAR IRON WORKS

RAIL ROAD SPIKE MACHINE.



We have three of these celebrated Machines in successful operation, that turn out daily from 20 to 25 tons of Rail Road and Ship Spikes, or each Machine will make from sixty to seventy spikes per minute.

M. ALDEN'S PATENT FAN BLOWER.



This Blower possesses many advantages over those of other construction, viz. they will produce a stronger blast, produce that blast with less power, make less noise, and are less liable to get out of order. They are constructed entirely of metal, and of the best material and workmanship.

The peculiarity of the Alden Patent Fan Blower consists of a diaphragm or centre plate (B,) to which are attached curved vanes set at angle to the diaphragm. The Fan is enclosed in a cast-iron case, and revolves upon a cast-steel spindle or shaft fitted into conical gun-metal boxes, so as to run with the least possible friction. The diaphragm and vanes are all of wrought iron.

NEWELL COTTON SCREWS.

6 inches for	Horse Power,	$175.	Steam Power,	$375
9 "	"	225.	"	450

WEIGHT, CALIBRE AND PRICES

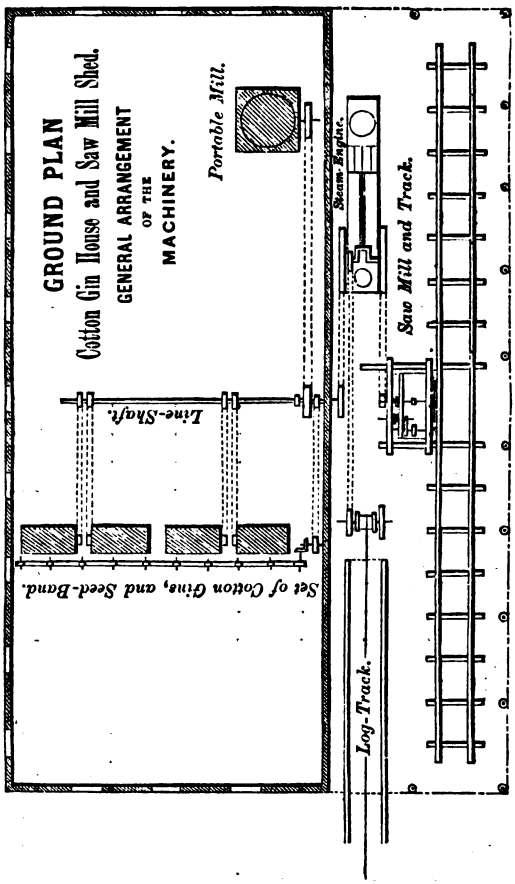
OF

CANNON, SHOT AND SHELL.

DESCRIPTION.	WEIGHT.	PRICE PER POUND.
IRON GUNS.		
9 inch,	9.000	Cents.
Columbiad, 8 inch, about	8.500	"
Columbiad, 10 inch,	16.000	"
42 pounders,	8.000	"
32 "	4.000	"
24 "	5.600	"
18 "	4.750	"
12 "	3.500	"
Flank defence Howitzers,	1.480	"
IRON HOWITZERS.		
Sea Coast, 10 inch,	9.500	"
Sea Coast, 8 inch,	5.800	"
Siege, 8 inch,	2.650	"
BRASS GUNS.		
Mountain Howitzer, 12 pounder,	.220	"
Army pattern, 6 pounder,	.880	"
Army pattern, 12 pounder,	1.800	"
Boat Service, 12 pounder, light,	.430	"
Boat Service, 12 pounder, medium,	.760	"
Boat Service, 24 pounder,	1.310	"
Shells and shot according to weight.		

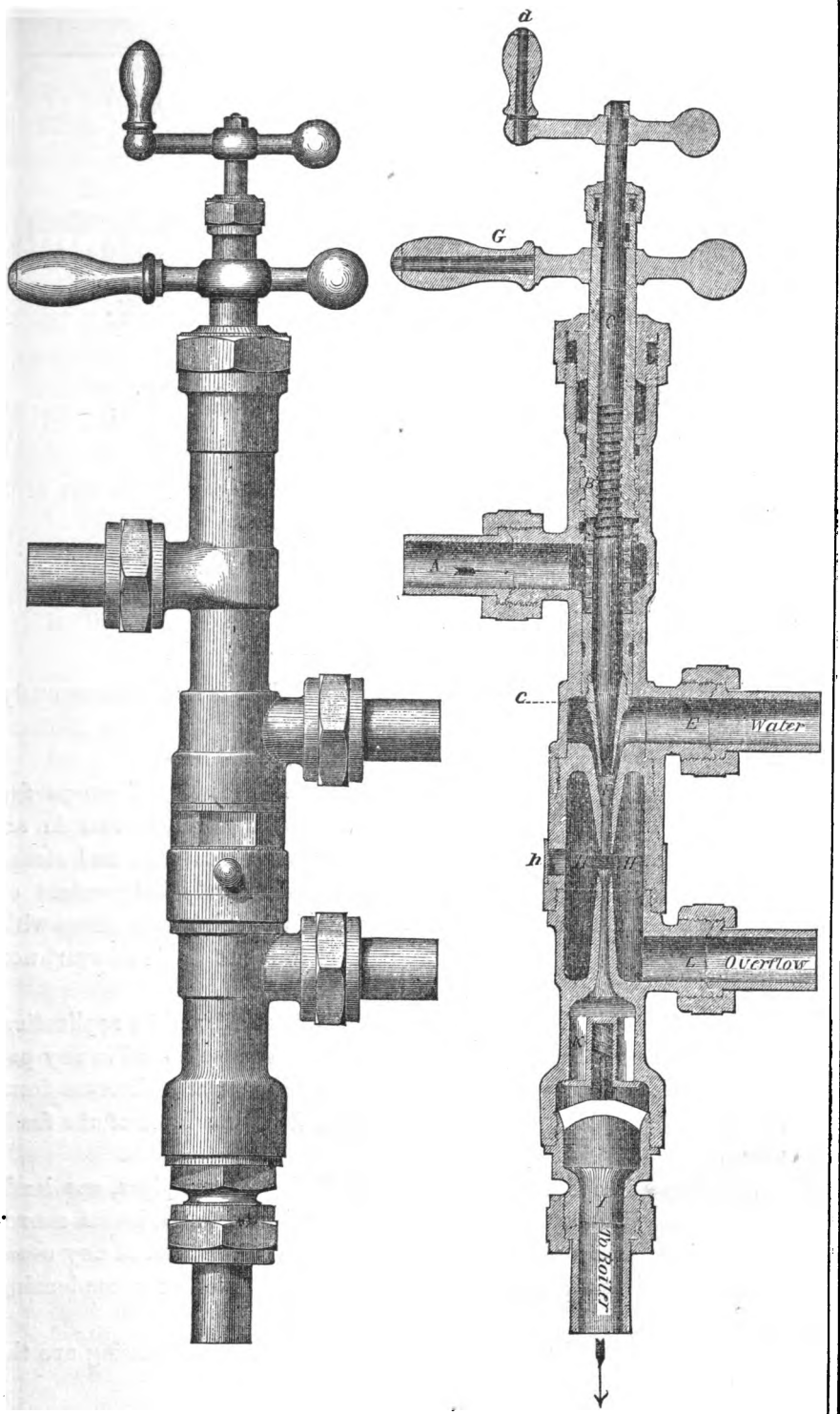
GUN CARRIAGES.

We have the pleasure to inform our Southern friends that we have made extensive preparations for manufacturing GUN CARRIAGES, with all the various appurtenances, as laid down by the United States' Ordnance Department. We can therefore either supply Guns separately, or mounted on the most approved Carriage, with limber, ammunition boxes, and everything required to fit them for immediate service.



Ground Plan of Gin House, &c.

The above Cut represents the GROUND PLAN of Building for Cotton Gin House, Gin Stands, Shafting, Grist Mill, Log Way, Engine and Saw Mill, Cotton Carrier, &c. This view is intended to give the Planter a general idea of the arrangement of our Portable Engine and Saw Mill, in connection with the common plan of Gin Houses, which is very simple and durable, and can be put up by any ordinary workman and managed by the plantation hands.



GIFFARD'S
PATENT SELF-ACTING WATER INJECTOR.
FOR FEEDING BOILERS.

MADE BY

WILLIAM SELLERS & CO.,

SOLE MANUFACTURERS AND LICENCEES.

Pennsylvania Avenue and Sixteenth St., Philadelphia.

JOSEPH R. ANDERSON & Co., Agents, Richmond, Va.
EDMUND M. IVENS, Agent, New Orleans.

The Injector is an apparatus which may replace most advantageously all the means hitherto used for supplying water to Steam Boilers, whether Stationary, Locomotive, Agricultural, or Marine.

Its application does away entirely with the necessity of pumps for feeding boilers, and the various movements for working them in all classes of Engines, and, in fact wherever a boiler is used and steam produced; it is an adjunct to the boiler, and entirely independent of the Engine, and is put in operation by simply opening connexions with the Boiler; and having no parts in motion, it is not liable to wear, nor otherwise to get out of order:

The size of this Apparatus is comparatively small, and its application is rendered especially easy by the fact that it can be placed in any position, vertical, horizontal, or otherwise, near to, or at a distance from the Boiler, and at any reasonable height above the level of the feed-water.

The Apparatus is connected with the Boiler by two pipes, one leading from the steam space, and the other conducted to the lowest convenient point of the water space; it will operate with steam at any usual pressure, and it will supply itself from the hot well of a condensing Engine.

Referring to the illustration on preceding page, the following are the parts to be described:—

A. Steam pipe leading from Boiler.

B. A perforated Tube or Cylinder, through which the steam passes into the space *b*.

C. Screwed Rod for regulating the passage of Steam through the annular conical space *c*. and worked by the handle *d*.

E. Suction Pipe, leading from the tank or Hot-well to the small chamber *m*.

F. Annular Conical opening, the size of which is regulated by the movement of the tube or cylinder B.

G. Handle for actuating the cylinder B.

H. Intervening opening, in connexion with the atmosphere, through which the Water is forced, and where the stream can be seen through the holes *h*, *h*, when the slide is raised.

I. Tube through which the Water passes to the Boiler.

K. Valve for preventing the return of the Water from the Boiler when the Injector is not working.

L. Waste or overflow of water Pipe.

The advantages to be derived from the use of this apparatus, are:

1st.—The saving of the first cost of all Pumps, and the parts to connect them with the Engine and Boiler.

2nd.—The saving of the wear and tear of these pumps, which, in Locomotives and other high pressure Engines is very considerable.

3rd.—The saving of the power required to work pumps of whatever construction.

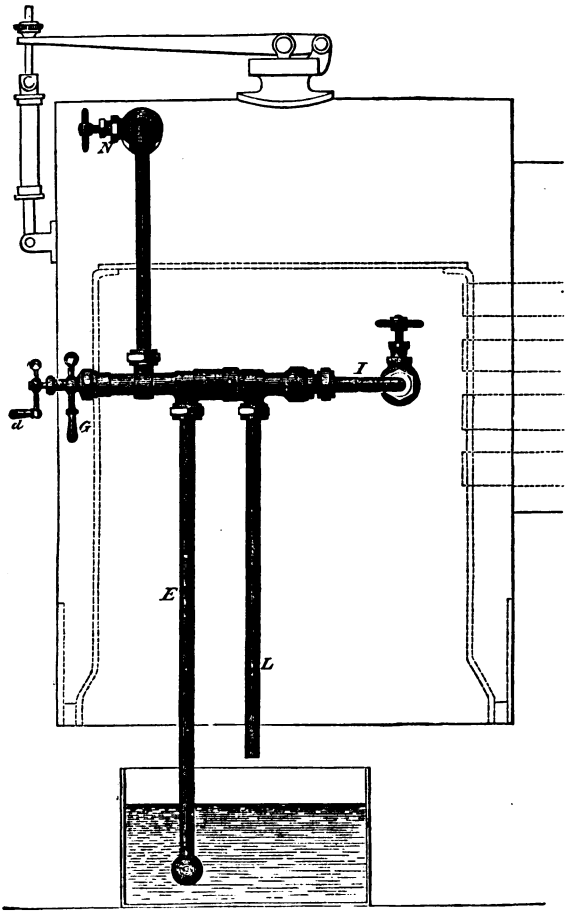
4th—The elevation of the temperature of the water admitted into the Boiler by the steam used, thus preventing any appreciable loss of heat.

5th.—The advantage of being able to supply water to Boilers without setting the Steam Engine in motion; thus, in all cases, obviating the expense and wear and tear of Donkey Pumping Engines, and affording all the advantages usually sought in their application.

6th.—Being more certain in its operation than a pump, is better adapted to negro labor.

☞ *In asking price it is necessary to state the steam pressure and nominal horse power of Boiler, or the steam pressure and the quantity of water required per hour.*

GIFFORD'S PATENT INJECTOR.



APPLICATION TO AGRICULTURAL ENGINES.

METHOD OF WORKING.

1st.—Turn the handle G to the position suited to the pressure of the steam in the Boiler: this permits the water to flow to the instrument, and regulates its admission.

2nd.—Open the steam cock N connecting the Apparatus with the Boiler.

3rd.—Turn slightly the handle *d*, which will admit a small quantity of steam to the Apparatus. A partial vacuum is thus produced, causing the water to enter through the pipe E.

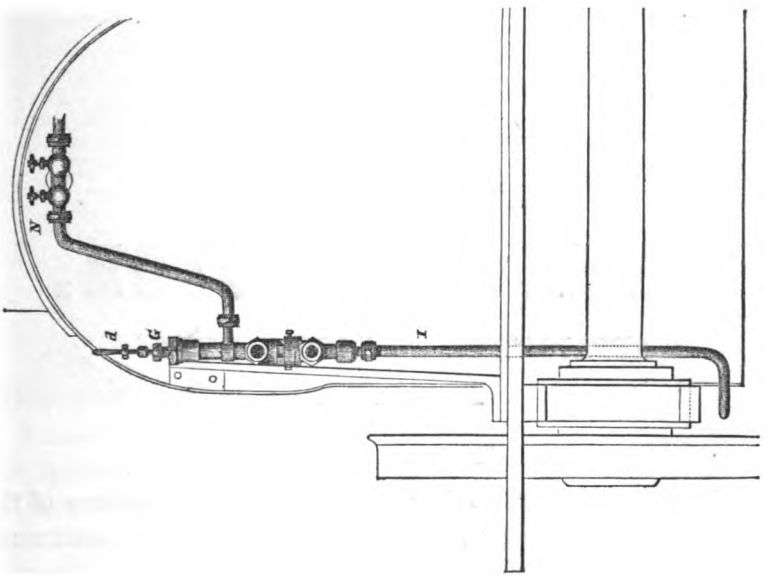
4th. As soon as this happens, which can be observed at the overflow pipe L, elevate gradually the handle *d*, until the overflow ceases, and thus give full liberty to the steam to act upon the water, and drive it into the Boiler through the pipe I.

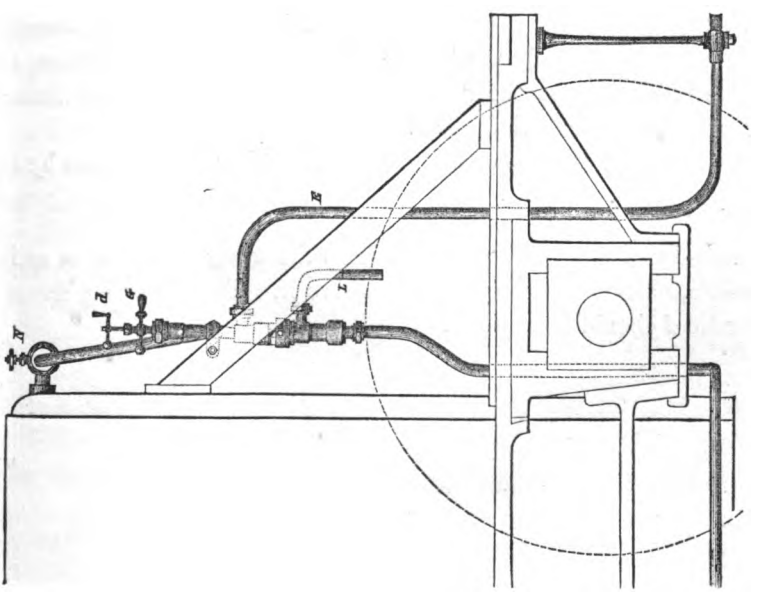
The working of the Apparatus can be learnt in a few minutes by any ordinary fireman.

N. B.—In setting the instrument keep the water chamber *m* as low as possible, unless the supply tank is above it. The jamming down of the handle *d* should be avoided.

GIFFORD'S PATENT INJECTOR.

APPLICATION TO LOCOMOTIVES.





GIFFORD'S

PATENT INJECTOR.

APPLICATION TO LOCOMOTIVES.

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TESTIMONIALS.

ST. HELENS CANAL AND RAILWAY.

St. Helens, August 15th, 1860.

GENTLEMEN:

I have read the letter signed "ECONOMYY" in the August number of the Artisan, and in reply to your inquiry, I may state that after several months experience of GIFFARD'S PATENT FEED, I am so satisfied, both as to its economy and practical working, that I am applying it to all the Locomotives under my charge. I admit that when the feed water is heated above 100° the Injector draws more water from the Tender than it can throw into the boiler, and so causes a *small* waste of water. This single defect is of little importance compared with its great advantages in other respects, and I doubt not that even this will ere long be remedied.*

These Injectors save the whole of the Steam required for working the pumps, as well as the wear and tear of pumps, while their first cost is small compared with the costs of ordinary pumps. The disadvantage of not being able to use the ordinary pumps when the Engine is standing is very great, and many accidents have occurred from this cause, and this had led us to decide on attaching Donkey Engines to most of our Locomotives, notwithstanding the additional cost, but this invention gives all the advantage of filling the boiler while the Engine is standing, and yet reduces, instead of increasing, the cost of construction. As to its freedom from derangement and obstruction, we have it applied to six Locomotives and to one Stationary Boiler, and these have been worked by the Engine men and firemen, as well as by the cleaners, without the slightest difficulty or failure, except on two occasions on first starting the Injectors, when some obstruction occurred in the

* This we have quite overcome since we supplied MR. CROSS with his Injectors.
S., S. & Co.

valves, but when the driver merely screwed down the valve to its seating, released it again, and turned on the Injector, all went right; such an obstruction is common with ordinary pumps, but it is not so easily overcome. I would also specially name that during the severe frost of last winter there was not one of our Engines with pumps that escaped being more or less frozen up; but those fitted with the Injector, never gave the slightest trouble, and this will be a strong recommendation for their use in cold climates. As to its durability, our experience has not been great, but as there is no friction of working parts, it must necessarily be much greater than that of ordinary pumps.

I am, gentlemen, your obedient servant,

JAMES CROSS.

MESSRS. SHARP, STEWART & Co.,
Atlas Works, Manchester.

SOHO IRON WORKS.

Bolton, August 9th, 1860.

GENTLEMEN:

In reply to your letter respecting the GIFFARD'S INJECTOR which you supplied for our own Boilers, we beg to say that its performance is, and has been from the first, most satisfactory. Its first cost is less than that of an ordinary Feed Engine, it is less liable to get out of repair, and is undeniably more economical in working, and although we do not take the water into the Injector usually at a higher temperature than 100°, it passes into the boiler nearly at the boiling point; whatever amount of steam may be consumed in raising the water to this temperature, we have the full benefit of it, as no heat can be lost except by the slight effect of radiation from the discharge pipes, this may be reduced to a minimum by covering the pipe with felt or other non-conducting material.

We are, gentlemen, yours, very respectfully,

BENJ'N HICK & SONS.

MESSRS. SHARP, STEWART & Co.,
Atlas Works, Manchester.

BRIDGE HALL MILLS.

Bury, Lancashire, 9th August, 1860.

MESSRS. SHARP, STEWART & Co.

Gentlemen—In answer to your inquiries as to the opinion we have formed after the experience we have had of the Injectors with which you some months ago supplied us, we have to say that we do not remember to have ever introduced a new invention into our Works, intended as an improvement, that gave us so little trouble, and was so completely satisfactory to ourselves and those in our employ, as the Injectors. They have given us that which is above all price, a feeling of security, which we never possessed before, by the perfect and certain command which we now have over the supply of water to the Boilers. They obviate all risk from the temporary stoppage of the Steam Engine and the failure of the pumps, a contingency to which we were always liable, and which, in many instances, has placed our workmen in great danger. These are advantages which enable us to speak of the Injector with unqualified praise; we have experienced no difficulty whatever in instructing those who are in charge of them as to the mode of starting them, and adjusting them to the duty to be performed. As to whether they effect any saving in the cost of fuel, we only say that we have not thought it necessary to test this fact, their superiority in other respects being so great over the old system of pumps, and we are abundantly satisfied. We are, gentlemen, yours, truly,

JAMES WRIGLEY & SON.

Paper Manufacturers.

DINTING VALE PRINT WORKS.

August 13th, 1860.

GENTLEMEN:

In reply to your favor of the 8th instant, we beg to say that we find your Injector a very efficient method of feeding Boilers, and its freedom from derangement, and the simplicity of its working, render it a decided improvement on any former plan.

We are yours, most respectfully,

EDMUND POTTER & CO.

MESSRS. SHARP, STEWART & Co., *Manchester.*

Preston, June 14th, 1860.

MESSRS. SHARP, STEWART & Co.

In reply to your inquiry respecting the working of the Injector you supplied us with, I beg leave to inform you that it answers in every possible way admirably, either in a sea way or in smooth water it was always equally effective, but the best part is the saving of fire, which we proved by applying the pump separately, when the steam could scarcely be kept up, but when the Injector was at work we could scarcely tell the difference than when the water was off altogether. Several Engineers from the Scotch Boats have seen it and like it extremely well. Yours, respectfully,

WILLIAM PALEY.

Stanley St. Mills.

P. S.—The Injector is applied to the Yacht "SPRAY," 40 tons burden. She is now lying at Oban, in Scotland.

LANCASTER AND YORKSHIRE RAILWAY.

LOCOMOTIVE DEPARTMENT. MILES PLATTING.

Manchester, August 9th, 1860.

GENTLEMEN:

In answer to your inquiry, I have great pleasure in stating that I have five of GIFFARD'S INJECTORS now at work on Locomotive Engines; some of these Engines are working at 140 lbs. pressure per square inch, they are giving entire satisfaction, never once failing, some of them have been at work for about six months, and I am of opinion that great saving is effected in fuel, and safety to the boiler, when standing at Stations where pumps cannot be made use of, and steam blowing off to waste; many other advantages in repairs of feed pipes I have found out, but I only mention these few out of many. I have come to the conclusion to use them in all our future Engines building, and in furthur proof of their great value I enclose you an order for eight Injectors, of No. 8 size, and you may soon expect an order for eight more.

I am, gentlemen, yours, truly,

WILLIAM JENKINS, *Superintendent.*

MESSRS. SHARP, STEWART & Co.,
Atlas Works, Manchester.

NORTH LONDON RAILWAY.

LOCOMOTIVE DEPOT.

Bow, August 4th, 1860.

MESSRS. SHARP, STEWART & Co.

Dear Sirs—I am in receipt of yours of yesterday's date. The Injectors are doing extremely well, and the driver of one Engine that has one on, states that it is as good as 3 cwt. of coal per day to him, as he can regulate his fire very much better than when he used pumps. I am going to put two Injectors on one of the Engines, and take the pumps away altogether, putting the Engine in competition with another of the class with pumps. I have been too much engaged lately to attend to the working of the Injectors beyond noting the consumption of fuel, but I intend to make some experiments shortly which you shall have the result of. Yours, respectfully,

W. ADAMS.

P. S.—It may be satisfactory to you to know that the Engine with the Injector (No. 13) averages at present 21.6 lbs. per mile as against 22.2 lbs. consumed by No. 12, which worked with feed pumps. The same drivers are working No. 13 as were on No 12, and the loads are the same. I consider the greater part of this economy due to the Injector. W. A.

MARYPORT AND CARLISLE RAILWAY.

Maryport, August 8th, 1860.

GENTLEMEN:

In answer to your letter of yesterday, I have the pleasure of informing you that one of our large Locomotive Engines has run about 13,000 miles with goods and heavy passenger trains with no other means of feeding the boiler than one of GIFFARD'S No. 8 INJECTORS. The Engine has been in the hands of several drivers, and all have been able to start and work the Injector without the slightest difficulty, although the water pipe of the Injector is about two feet above the bottom of the Tender. So certain is its action that I consider one Injector sufficient for a Locomotive Engine. The Engine referred to performs the same amount of duty with considerable less fuel than any Engine we have, which we cannot account for in any other way than by

feeding the boiler with an Injector instead of pumps. I have just received another from you for an Engine we are re-building, and intend to replace the whole of our steam and other pumps with them as it becomes necessary. Yours, truly,

G. TOSH.

MESSRS. SHARP, STEWART & Co., *Manchester.*

BIRKENHEAD RAILWAY.

ENGINEER'S OFFICE.

Birkenhead, August 8th, 1860.

GENTLEMEN:

"GIFFARD'S INJECTOR."

I have much pleasure in stating that the two No. 8 Injectors you supplied us with, have now been at work some time on two of our Locomotive Engines, and have given us most entire satisfaction in every respect. I consider it a most valuable appendage to the Locomotive, from its freedom of liability to derangement as compared with pumps, also, as regards its first cost, and subsequent repairs, irrespective of many other advantages that it possesses, compared with any other system of feeding boilers. Our men had no difficulty whatever in learning to work it, and the best proof I can give of its value is that it is my intention to have it applied to all our Engines as they come in for repairs, and I shall be glad if you will hasten the delivery of the six ordered in July. I am, gentlemen, yours, truly,

GEORGE DOUGLAS.

MESSRS. SHARP, STEWART & Co.,
Atlas Works, Manchester.

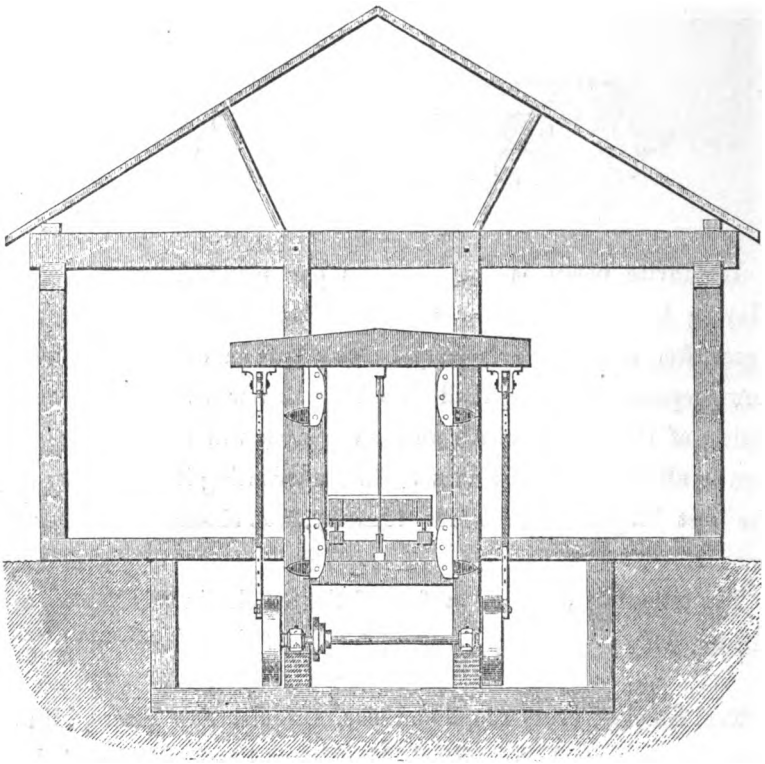
STEEL.

We invite particular attention to our manufacture of Cast Steel. Having lately added new and powerful machinery, built new furnaces, &c., devoted exclusively to this branch of our business, we are now prepared to furnish all who may favour us with their orders an article of Cast Steel, which we are confident will afford entire satisfaction to all consumers of that article, warranting it to be fully equal to the best English brands for tenacity, soundness and uniformity of temper.

The following comprise a few of the articles in this line we are furnishing daily:

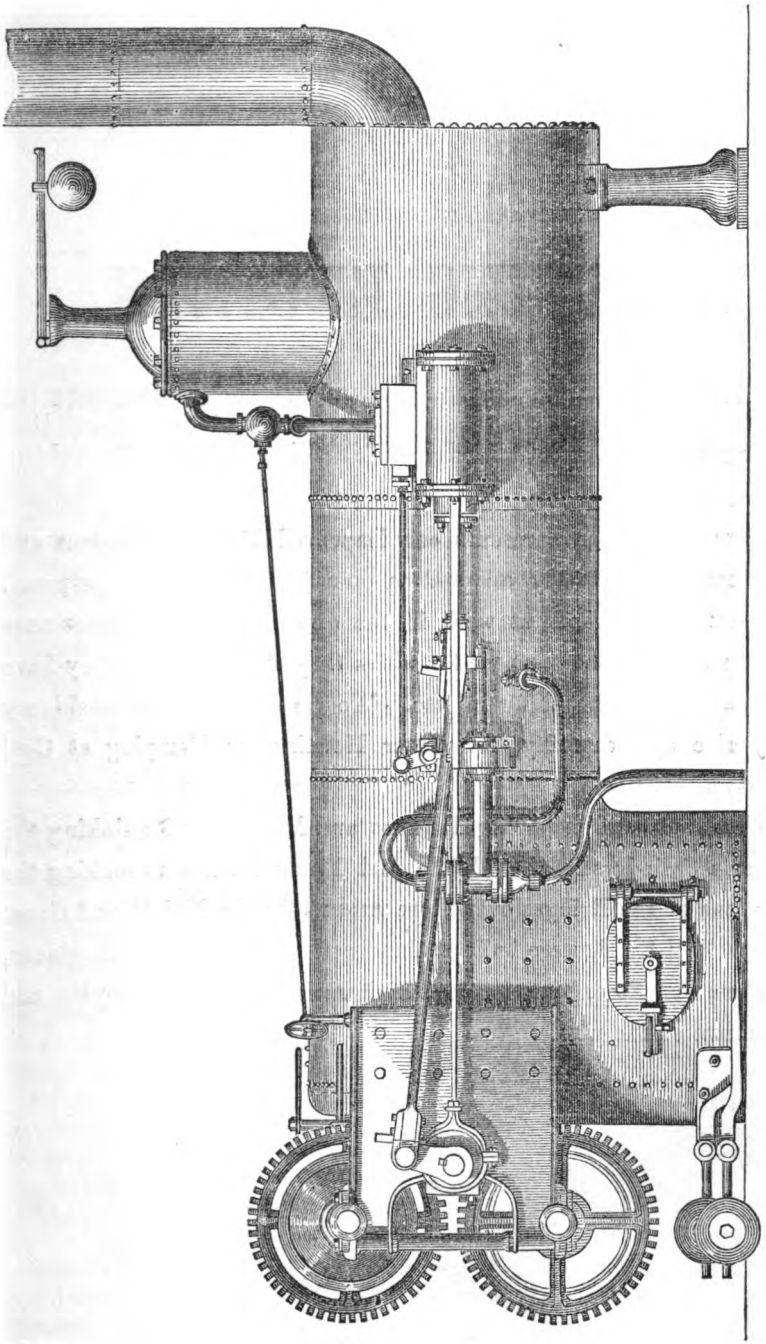
Tool Steel of every shape and size, Circular Saw Plates, Mill Mulay and other saw steel, File Steel, Machinery Steel, Shafts, Axles, &c., Mill Spindles, Switch Bars, Frog Steel and Points fitted to order, Carriage Axles, Guns, &c., &c.

Improved Sash Saw Mill.



The above cut represents our latest improved Sash Saw Mill, placed directly upon the ground similar to a Circular Saw Mill, thus avoiding hoisting the logs and also the heavy, massive building, so necessary with the old style sash mill. With this style mill we cannot saw as much lumber as we can with a Circular Mill in a given time, yet in many instances it is found to be more easily managed by negroes.

PRICE, delivered at New Orleans, . . . $



HOISTING ENGINE.

HOISTING ENGINES,

FOR STONE QUARRIES, COAL MINES, HOISTING FREIGHT OR OTHER PURPOSES.

The preceding cut represents our Improved Hoisting Engines and gearing more particularly adapted to quarries and such like purposes. We have these Engines at work in the extensive stone quarries near this city; and for the purpose for which they were designed they have proved superior to anything in use. We also build heavy machinery of any size and capacity, for either Hoisting or Pumping at Coal pits.

The Hoisting and Pumping Engines and Machinery for sinking the Pneumatic Cylinders in the Mobile and Tennessee Rivers making the foundations of the Bridges over those streams for the Mobile and Great Northern Rail Road, were built at these works, and the Chief Engineer, G. Jordan, Jr., Esq., has expressed high satisfaction with the plan and construction of the whole.

NOTICES AND EXTRACTS OF THE PRESS.

NEW YORK TIMES! ATTENTION!

We are authorized to announce the fact that the Commissioners appointed to contract for the establishment of a Virginia State Armory, having recommended for the consideration of the Governor a contract with the firm of Joseph R. Anderson & Co., of this city, Governor Letcher, after full consideration of the matter, has signified his approval of the proposed contract.

None of our Richmond contractors had urged a proposal before the Board of Commissioners previous to the report that there was a probability of the contract being given to a Northern house; and with the lights then before them, the requirement of their office would probably have induced the Commissioners to give the contract to the firm of Ames & Co., of Massachusetts.

But so soon as attention was called to this state of affairs through the columns of the "Enquirer," a lively interest was manifested by the leading iron men of Richmond.

Having full confidence in the integrity and patriotism of each of the distinguished gentlemen composing the Board of Commissioners, we determined to press the matter until proposals fully as advantageous as those of Mr. Ames should be urged by Virginians for the contract. We expected that so soon as this could be effected, our prime object would be accomplished.

In the nick of time, we received most valuable assistance from a quarter where we least expected it. Taking one of our articles as its text, a Northern Abolitionist Journal took up the subject of the Virginia State Armory, and devoted a leading article to most elaborate sneers at the supposed helplessness of the State of Virginia and the alleged inferiority of her master mechanics.

Our re-publication of the article from the "Times" promptly brought matters to a crisis. Mr. Joseph R. Anderson at onco threw all his energies into the work of perfecting plans and proposals, even more advantageous to the State than those tendered by Mr. Ames.

We are sincerely grateful for the efficient aid extended to us (however unintentionally) by the New York "Times." Yet, we cannot fail to be equally gratified by the opportunity of demonstrating to Northern mechanics, by means of a practical example, the manner in which their interests are served by the sectional malice of Northern Abolitionist Journals.

Mr. Ames, of Massachusetts, has lost a contract which might have secured him large profits and much additional celebrity. For this, in a great measure, he owes a debt of gratitude to the anti-slavery zeal so insolently manifested by the abolitionist editor of the New York "Times."—*Richmond Enquirer, August 27th,* 1860.

NOTE.—The above contract is for Tools and general machinery for the manufacture of 5000 Rifle Muskets per annum, and to be equal to the best fire arms made in the world, consequently will require the most perfect and complete machinery in their construction. It is for the Virginia State Armory, at Richmond, Virginia, and is to cost 156,590 dollars.

Read the following article, taken from the "Richmond Enquirer" of 4th September, 1860:

SOUTHERN MANUFACTURES.

At the present day, when our whole country is in a state of political excitement, and disunion has almost become a by-word, it would seem to be the dictate of prudence, as well as patriotism, to direct the public mind to the encouragement of our own industrial pursuits, and disabuse it of the erroneous and fatal assumption, that the South is helpless, and, of necessity must depend upon the North for most of its requirements in the mechanic arts.

So far as our iron manufactures are concerned, we are proud to say, that we occupy a ground which renders us independent of all foreign or hostile competition; and it will be a source of gratification to every one who feels an interest in the prosperity of our city, and the rapid development of our industrial resources, to know that here, in our midst, we can boast of an establishment of which not only Virginia, but the whole South, should be justly proud—we mean the

TREDEGAR IRON WORKS,

Conducted by Messrs, J. R. Anderson & Co.; and we propose, in this article, to give a running sketch of what a visit to these extensive works exhibits.

A pleasant walk on the canal bank, to the Armory grounds, brings us to the first

ROLLING MILL.

Here we find furnaces for melting and converting pig iron, and ponderous machinery for rolling it into the various forms of merchant and railroad bars, railroad axles, bridge bolts and railroad chairs; enormous machines that punch an inch hole through an inch bar; lathes for turning axles; screw-cutters, for cutting nuts and bridge bolts, and machines for making every kind of railroad chair.

Our attention was particularly directed to the ingenious machinery, recently invented by one of their operatives, a most skilful workman, for rolling and straightening the continuous lip-chair and the new rail-

splice, forming a continuous rail, and sucessfully introduced in the Island of Cuba. The principle on which the splice is made is entirely new as the depth required in the groove, to receive the web of the rail, could not be attained by any mode of rolling hitherto adopted.

A few yards farther on we come to the second ROLLING MILL, where all the various denominations of large and small iron are made. Here the rods for making *spikes* are rolled; and attached to this mill is the new and extensive

SPIKE FACTORY,

Eighty-one feet long, by fifty wide, and four stories high, where the rods are fashioned into spikes of every form and size. A visit to this department would alone repay the curious for his trouble. You see here three gigantic machines turning out railroad spikes at the rate of one per second each, and from twenty to twenty-five tons per day; these falling into the basement story are carefully inspected, packed up in kegs, neatly marked and stored away ready for shipment.

In another part of this building is the

COOPER SHOP,

Worked entirely by negro boys, under the supervision of an experienced foreman, and on another floor are various machines for cutting *Nuts*, and *Bridge Bolts*.

Passing through the South gate of the Rolling Mill, you come to the

FOUNDRY BUILDINGS.

The capacity of this department has been much increased within the last year. The first building is for very heavy work, and they are at this time casting heavy *Navy Guns*, and *Water Pipes*, two feet in diameter, for the city.

The next building is for general castings, such as railroad, bridge and engine work, and the third is exclusively for railroad

CAR WHEELS,

Of which they manufacture both single and double plate. Near the Iron Foundry is the

BRASS FOUNDRY,

Where all the castings for Locomotives and other engines are made.

Leaving the Foundry we come next to the

FIRST MACHINE SHOP.

Here we find a new and powerful Hydraulic Press, for forcing the car wheel on the axle, with an indicator to show the exact power required to effect it. Near it turns a horizontal, self-adjusting boring mill, for boring out the eye of the wheel. On the other side lathes, for turning axles, and one 50 feet long for turning long and heavy shafting and wheels. Lower down in this shop you come to the

GUN MILL,

for boring cannon, and the powerful lathes and planers for turning and finishing them off. The reputation of the guns made here is unrivalled

by that of any made in this country or Europe, as the records and certificates in the Tredegar Office will show.

LOCOMOTIVE SHOP.

This building is three stories high, 150 feet long and 45 feet wide, and has attached to it a setting up shop, 140 by 60 feet, and a carpenters' shop for the wood work of cars, saw mills, &c.

In this shop all the nicer and more delicate work for locomotive, marine, stationary, portable and hoisting engines, saw-mills, sugar-mills, &c., is executed. Several highly finished locomotives are now being constructed, and will shortly be running on our Southern roads; a splendid engine and saw-mill, with two saws, one working above the other, is now being boxed up ready for shipment to Cuba—with which Island, we understand, the proprietors have already inaugurated an extensive and profitable trade. In this department many new and improved tools have been recently introduced, and many more of entirely different character will in a short time be erected, for executing the large and important contract made with the State for putting

THE ARMORY

in condition, to turn out 5,000 rifled muskets per annum.

In front, and on the line of the river, stands the

BOILER SHOP,

one hundred and sixty feet long. A lively scene awaits the visiter here; but unless his ears are proof against the most stunning and distracting sounds, he had better keep clear of it.

In this shop the enormous boilers of the United States frigates Roanoke and Colorado were built.

Adjoining the Boiler Shop, and on the same line we find the

BLACKSMITH SHOP.

This building is 180 feet long, and is furnished with twenty-five fires, a large *Nesmith steam hammer*, besides smaller tilt-hammers. The greater part of this shop has been appropriated for a year or more past to the forging car and truck work for Southern roads—for which articles the proprietors have received the most liberal encouragement. Adjoining this building, there is now in the process of erection a

CAST STEEL FOUNDRY,

with trip-hammers and machinery for manufacturing the various kinds of steel, under the superintendence of a Southerner who has been many years engaged in the business. It opens a new and interesting field to Southern enterprise.

We have thus, in as concise a way as our limits and information would allow, given a hurried and imperfect description of these truly magnificent works. There are thousands in our own vicinity who have no idea that such an establishment as the Tredegar Works exists, and who would be amazed at viewing the multifarious and varied operations carried on there; for we believe there is no establishment within the

broad limits of the United States where such a variety of work is executed. To the enterprising and energetic proprietors the State and the whole South owe a debt of gratitude, which we cannot doubt they will amply repay by a liberal patronage, and thus keep at home the money which they have heretofore so freely lavished upon Northern establishments hostile to our institutions, and whose unceasing efforts have for years past been directed to break down every attempt to introduce the mechanic arts in the South. That the work turned out from the Tredegar shops will compare favorably with that from the best Northern establishments, there is abundant evidence to show. Why should it be otherwise, when the best skill in the country is at their command to insure its quality, and their machinery is operated by the cheapest of all powers, water, from our never failing canal?

For the general character of our Manufactures, we beg leave to refer to the following Testimonials.

PRESIDENT'S OFFICE,
Virginia and Tennessee Railroad Company,
Lynchburg, Va., 10th May, 1859.

COL. W. GOODMAN, *President, Holly Springs, Miss.*

DEAR SIR:—I am requested by J. R. Anderson & Co., of the Tredegar Works, to say to you what had been their experience with their axles.

We have none other on our passenger and freight cars. They have given *entire satisfaction.* If a single one has broken, I am not aware of it. We have them on several of our locomotives and tenders, and regret we have not them on all. We have been bothered a good deal by other axles on our tenders.

Our experience justifies me in recommending their use with every confidence.

Your friend,

JOHN ROBIN McDANIEL.

KNOXVILLE, TENN., *May 26th*, 1858.

Messrs. J. R. Anderson & Co., Richmond. Va.

DEAR SIRS:—We have been and now are, extensively engaged in building bridges on the "Howe plan," and having used a large amount of bridge bolts of your manufacture, we take pleasure in stating that the quality of your iron is of the best known to us, for such purposes. In the construction of bridges on our plan, the uniform good quality of the iron used is of great importance, and great care should be taken in selecting it, (not only on the part of the manufacturer, but by the builder also); and having tested your iron thoroughly, it affords us pleasure to recommend its use to other bridge builders. Truly yours,

MAXWELL, SAULPAW & CO.

OFFICE OF MASTER OF ROAD,
BALTIMORE AND OHIO RAILROAD COMPANY,
Baltimore, Nov. 7, 1856.

JOSEPH R. ANDERSON & Co.
Tredegar Iron Works, Richmond.

I take pleasure in referring to the spikes, iron, bridge bolts, &c., you have furnished us with for the last three or four years. Your spikes, I unhesitatingly pronounce, are superior to any I have ever seen or used; and your bridge iron, a large portion of which we have used in the construction of bridges, has, in regard to strength and finish, given entire satisfaction. Very respectfully,

J. H. TEGMEYER,
First Assistant Master of Road.

VIRGINIA CENTRAL RAIL ROAD COMPANY,
General Superintendent's Office, Richmond, April 2d, 1859.

MESSRS. J. R. ANDERSON & Co.,

GENTLEMEN:—In reply to your note of to-day, I would state that during the last 12 months we have placed under the passenger and freight cars, tenders and engine trucks, about 150 wheels made at the Tredegar Works, and have found them to be a very superior article. Our Master Machinist agree with me in the opinion, that they are the best wheels we have used during that period. We have been using at the same time wheels from all the most celebrated makers in the United States. I do not hesitate to say, that as far as our experience with them goes, the wheels being made at your works are of a very superior character; and I have no doubt if you continue to use the same care in their manufacture, that you will secure an extensive sale of them in the South.

In regard to your axles, I can only say, that after using those made by all the celebrated manufacturers both in this country and England, I am now using yours exclusively.

Yours truly.

THOMAS DODAMEAD, *General Superintendent.*

RICHMOND AND DANVILLE RAILROAD,
General Superintendent's Office.

I concur in what Mr. Dodamead states, with regard to the wheels and axles made at the Tredegar Iron Works.

C. CAMPBELL, *Supt.*

SOUTH CAROLINA RAILROAD,
GENERAL SUPERINTENDENT'S OFFICE,
Charleston, Dec. 15, 1857.

Messrs. J. R. Anderson & Co., Richmond, Va.

GENTLEMEN:—We have been using your iron for the past two years. We find it much the best we have used for bridge bolts and general shop work. We have also used your spikes with the spikes of other factories, and do not hesitate to say that they are the best spikes we have ever used; the great advantage is, they can be drawn and used a second time as well, and will stand driving better than any spikes we have used.

Very respectfully,

HENRY T. PEAKE, *General Superintendent.*

ENGINEER'S OFFICE, VIRGINIA CENTRAL RAILROAD,
Staunton, Va., July 23, 1857,

MESSRS. J. R. ANDERSON & Co., *Tredegar Iron Works.*

We are using your spikes exclusively on our road, and find them superior to any other we have tried. The shape of the spikes about the head gives them great strength, while the quality of the iron is excellent. Our ties are of white oak, many of them seasoned; but notwithstanding this, very few of your spikes have broken or given way. Our workmen prefer them to any other, from their freedom from flaws, &c. Very resp'y,

H. D. WHITCOMB, *Chief Engineer Va. Central Railroad.*

OFFICE ORANGE AND ALEXANDRIA RAILROAD.
ALEXANDRIA, October 29, 1856.

Messrs. J. R. Anderson & Co., Richmond, Va.

GENTLEMEN:—The reference you ask of me in your letter of the 22d instant, in relation to the quality of the iron shipped by you for the use of our company, is certainly granted, and I am pleased to speak of it as being iron of great dependance in places where good iron is required.

Yours respectfully,

H. W. VANDEGRIFT, *General Superintendent.*

SUPERINTENDENT'S OFFICE, MEMPHIS AND CHARLESTON RAILROAD,
Memphis, Tennessee, January 8, 1857.

Messrs. J. R. Anderson & Co, Richmond, Va.

GENTLEMEN:—We take pleasure in stating, that the chairs and spikes furnished from your establishment for the Memphis and Charleston Railroad, for over one hundred and fifty miles of road, have proven entirely satisfactory. The spikes, particularly, are superior to any we have ever used or seen, and we unhesitatingly recommend them to railroad companies everywhere, with full confidence that they will give entire satisfaction.

Yours truly,

SAM. TATE, *President.*

OFFICE MEMPHIS AND OHIO RAILROAD COMPANY,
MEMPHIS, January 8, 1857.

The Memphis and Ohio railroad Company have procured chairs and spikes from Messrs. J. R. Anderson & Co., and are entirely satisfied with the character of the work furnished us by them.

ROBERTSON TOPP, *President.*

I have examined the certificates on the foregoing page, and cheerfully endorse them. This company have had a fair opportunity of testing them, and I cheerfully recommend Messrs. J. R. Anderson & Co.'s material and workmanship to those who need such material.

W. D. PICKETT, *Chief Engineer Memphis and Ohio Railroad.*

OFFICE MISS. AND TENNESSEE RAILROAD COMPANY,
MEMPHIS, January 8, 1857.

We have used chairs and spikes for thirty miles of our road from the works of Messrs. J. R. Anderson & Co.. of Richmond, Va., and I take pleasure in testifying to their superiority both in quality of material and finish; and it also affords me pleasure to speak of the punctuality and promptitude of the proprietors of those works in the performance of their engagements.

MINOR MERIWETHER, *Chief Engineer.*

SOUTHWARK FOUNDRY, MERRICK & SONS,
PHILADELPHIA, November 29th, 1856.

Joseph R. Anderson & Co.

Gentlemen—All the iron received from you by us has been used for screw bolts. We have found it a superior article, very strong, uniform in quality, and easily worked, being the best we have ever had for that purpose. Respectfully yours,

MERRICK & SONS. By B. H. BARTOL.

SOUTH-WESTERN CAR FACTORY, MEMPHIS, January 6th, 1857.

Messrs. J R. Anderson & Co., Richmond, Virginia.

Gentlemen—We have been using your iron for some twelve to eighteen months, and in our opinion it is a superior iron to any we have used, and quite as good as the best Tennessee iron. We find it uniform, strong and elastic. We recommend it to all persens engaged in manufacturing. Yours respectfully,

A. STREET & Co.

OFFICE RICHMOND AND PETERSBURG RAILROAD COMPANY,
RICHMOND, VIRGINIA, November 11th, 1856.

Messrs. Joseph R. Anderson & Co.

Gentlemen—In reply to your enquiry yesterday, I take pleasure in stating that the railroad spikes now manufactured by you, and which we are now using, are of superior quality, both as regards the strength of the iron and the form of the head and point. They have the most strength at the proper place, viz: immediately under the head, and there is no superabundance of metal in the head, as in most others now made. By this they are rendered more economical, numbering more spikes to the one hundred pounds than those we have used from other manufactories. I cheerfully testify to the very excellent quality of the bar iron made at your mill. I invariably use it for all purposes for which I desire to have iron of great strength and perfectly reliable.

Yours, very respectfully, THOMAS DODAMEAD,
Superintendent Richmond and Petersburg Railroad Company.

MEMPHIS AND CHARLESTON RAILROAD,
Engineer's and Superintendent's Office,
MEMPHIS, TENNESSEE.
HUNTSVILLE, ALABAMA, December 16th, 1856.

Messrs. Joseph R. Anderson & Co., Tredegar Works, Richmond, Virginia.

Gentlemen—I take pleasure in stating that the wrought iron chairs and spikes which you have furnished for nearly the entire line of the Memphis and Charleston railroad have given entire satisfaction, the spikes particularly, excel those from any other manufactory, both in the quality of the material and the accuracy and perfection of the workmanship. Very respectfully, your obedient servant,

F. C. ARMS, *Chief Engineer and General Superintendent.*

KNOXVILLE OFFICE, EAST TENNESSEE AND GEORGIA RAIL ROAD COMPANY, February 25th, 1857.

Messrs. J. R. Anderson & Co., Tredegar Iron Works, Richmond, Va.

You will please forward to the East Tennessee and Georgia Railroad Company, Knoxville, Tennessee, the following bill of iron. * * * * * * * * * * * * This affords me an opportunity of informing you of the entire satisfaction your former bills of iron have rendered us. I am fully satisfied it is *the best iron* manufactured in the country. Its uniformity in quality, and correctness in size, make it most admirably adapted to railroad uses. Heretofore, I have been in the habit of using the worn out tires for stay bolts in fire boxes of locomotives, but have used your iron for this purpose, after giving it such tests as heating it to a white heat, then cooling it immediately, then bending it together cold. which tests every bar we used bore without cracking. The large square bars are handsomely rolled, the corners being full. These large bars are of the same good quality as the smaller ones, which with me is a new feature in heavy bars. The spikes also which you have furnished for our road are a superior article, and it affords me sincere pleasure to recommend a good article, and shall do so on all suitable occasions. Yours, respectfully,

F. I. PALMER, *M. M., East Tennessee and Georgia Railroad.*

VIRGINIA AND TENNESSEE RAILROAD COMPANY, *President's Office,* LYNCHBURG, VIRGINIA, March 4, 1857.

Messrs. J. R. Anderson & Co., Tredegar Works, Richmond, Virginia.

Gentlemen:—This company has purchased for several years bar iron' axles, &c., made at your establishment, the use of which has proved very satisfactory indeed, particularly the axles.

It affords me very great pleasure to recommend your work to all railroad companies and other parties. Your friend.

JNO. ROBIN McDANIEL, *President.*

SPRINGFIELD, MASSACHUSETTS, March 14, 1855.

Messrs. J. R. Anderson & Co., Tredegar Iron Works, Richmond, Virginia.

It is now about ten years since we commenced using your iron in the construction of railroad bridges, and we have never been without some stock of it on hand, and during most of the time we have given large orders. We have always found your iron reliable, and hope to continue to be large customers. Yours, Truly,

D. L. HARRIS, *Late Stone & Harris.*

OFFICE MASTER OF ROAD, BALTIMORE AND OHIO RAILROAD COMPANY, BALTIMORE, March 9, 1855.

Messrs. J. R. Anderson & Co., Tredegar Iron Works, Richmond, Virginia.

Gentlemen:—I take great pleasure in recommending the bar iron manufactured at your establishment to all who are in want of a superior article. I have used it in the construction of iron bridges, and also for chairs and fastenings for track, and feel free to say, that for *strength* and *finish*, it compares favorably with the best manufactured American iron.

W. BOLLMAN, *Master of Road.*

NAVY YARD, WASHINGTON, March 13, 1855.

Messrs. J. R. Anderson & Co., Tredegar Iron Works, Richmond, Virginia.

Gentlemen:—In cheerful compliance with your request, I hasten to give you my opinion of the quality of the Tredegar iron. Having used a large quantity of it during the last thirteen years for chain cable and other purposes, I can safely say, that I know of no other iron to which I would give preference for general use; and in fitness for the manufacture of chain cables, I feel sure that many officers of the navy will bear me out in saying that no iron excels the Tredegar. Many of our government vessels, (the "St. Mary's," "Jamestown," "Portsmouth," "Plymouth," and others of various classes.) are fitted out with chains made of this iron, and these chains have nobly stood the test of severe service. Very respectfully, your obedient servant,

JAMES TUCKER, *Master Blacksmith.*

U. S. NAVY YARD, GOSPORT, August 3, 1857.

Sir,—In obedience to your order of the 17th ult., the tests of the Engines, Boilers and their appurtenances, &c., of the Steam Frigate "Colorado" were made at the wharf at this yard during the past week, as directed by the Hon. Secretary of the Navy. Steam was raised on Monday morning, July 27th, and the trial continued until Saturday afternoon, August 1st. The Engines were operated at speed varying from 25 to 42 revolutions per minute, with steam pressures varying from 4 to 25 lbs. per square inch.

The Hoisting Engines and Worthington Pumps were also worked. The design, arrangements, material, workmanship and finish of the Engines, &c., are all apparently of the highest order of excellence, and the performance of the whole, under all speeds and pressures, was very satisfactory, in fact could not have been more so, there being little or no jar, no hot journals, and not a key or gland touched during the trial. The Boilers are tight, steam easily and economically made, without priming, and are admirably arranged for cleaning and repairing. The outfits, tools, extra pieces of machinery, instruments, &c., are generously furnished, as to the quantity and quality to the full requirements of the contract and specifications. I deem it my duty in justice to the contractor of the machinery, to state here that the letter and spirit of the contract have been complied with in a manner most creditable to himself, and rarely to be met with in similar agreements with the government. Very respectfully,

(Signed.) WM. P. WILLIAMSON, *Chief Engineer U. S. Navy.*

Capt. THOS. A. DORNIN, Commandant.

Extract from a letter of W. W. W. Wood, Chief Engineer, U. S. N., dated,

U. S. FRIGATE ROANOKE, ASPINWALL, NEW GRANADA, June 29, 1857.

"I have visited the British screw ships of war Tartar and Orion—the latter a line of Battle ship of 91 Guns, has a pair of Penn's Trunk Engines. The Tartar is a Covette, is fitted with direct acting Engines on the Amphion plan built by Mandsly, I think, of London. I was much disappointed with the machinery on board these ships, which is not comparable in point of proportion and design of workmanship to the Engines, &c., of the Roanoke and Colorado. The Engineer of the Tartar examined our machinery for four hours, and said he never saw a pair of Engines that would compare with them in excellence of design and workmanship."

NORFOLK, VIRGINIA, April 5, 1858.

Messrs. J. R. Anderson & Co., Richmond, Virginia.

Gentlemen:—You have now quite nigh completed your contract for the supply of the requisite "rail spikes" and iron "joint fastenings" for the Norfolk and Petersburg Railroad and on your account, as well as for the better interest of our Railway Companies, who wish to encourage home manufacture, and to obtain an honest equivalent for their money, I wish to express my opinion of the superior material and make of the articles which you have furnished this Company. Forty-two miles of the road have been for some time laid, and heavy trains have been regularly passing over it. The "joint fastenings" which you have furnished, consisting of Ship Spikes 9-16 X 9 inches, wrought iron washers, wrought iron fish bars and screw bolts, are all well made in every particular, and of most excellent iron. Your "hook headed" or "rail spikes," and I may justly include the "ship spikes," are, in my opinion infinitely superior in quality and shape to any other spike of the kind made elsewhere in the country. I have upon this *line* taken the pains to compare the *toughness* of your rail spikes with those of other makers. Your spikes are beautifully tapered, and have a well shaped head, strongest where the most strength is required, and when driven plumb, they rest closely and evenly upon the base of rail. In driving, I have never seen in all my observations, one head to "*fly or splinter*;" besides, your spikes may be drawn without the risk of injury to body or head. This latter and most desirable point in their superior quality, is one of great merit, and does not belong to any other spike of my knowledge. My wonder is, that other spikes should be used by those who have the opportunity of procuring yours. Such is the pre-eminently superior quality of your iron, that it was by me selected for the construction of my i on bridges, from the fact that it was the only iron that could be found of the tensile strength prescribed by the terms of my contract for the manufacture of the work. In all my bridges, every piece of wrought iron was submitted to a tensile strength of 18,000 pounds, and no piece used which did not resume its original length upon removal of the strain imposed—various pieces of every lot were subjected to a tensile weight of 55,000 pounds, which was fixed as the true test of the quality of

the material employed. It is but proper that I should add, that I did not determine in your favour the contract embracing the articles which I have mentioned, till I had received proposals from many other responsible parties engaged in the manufacture of such articles. In your behalf it was decided, not only because I, then, had reason to believe that your articles were better, and because it is my *taste* to encourage home industry, where other things are equal, but besides all this, your prices were more reasonable and your terms more accommodating

You should have the patronage of every road in Virginia and the South for the supply of whatever iron work they may want, which you manufacture. No one else has *metal* comparable to yours in point of quality. No one else is more identified in interest with the Internal Improvements of Virginia and the South, than the Gentlemen who compose your co-partnership. Respectfully, &c.

WILLIAM MAHONE, *Chief Engineer Norfolk and Petersburg R. R! Co.*

ROGERSVILLE JUNCTION, August 7, 1860.

Messrs. J. R. Anderson & Co.

DEAR SIRS,—The Locomotive John Netherland, performs admirably so far as we have been able to give her a trial, and we trust and believe that she will give your house a high character for building Engines. Sincerely, yours,

R. G. FAIN.

From Col. B. B. Simmes, Simmesport, Louisiana, December 27, 1854.

"I am most happy to inform you that my steam saw mill exceeds my most sanguine anticipations. It is the admiration of all. I feel very confident it will extend your business here."

From Dr. Harrison to G. W. Collier, March 23, 1855. (*Brunswick County.*)

"The engine which I purchased of the Tredegar Iron Works, is a very small one, built upon wheels, so as to be transported to any part of a farm, to thrash wheat, corn, &c. It weighs 4000 pounds, and has a tabular locomotive boiler, with seven inch cylinder. It was built for exhibition at our last fair, to compete for a premium offered for the best agricultural engine, which it took. The workmanship is very superior, and its performance is far beyond what the makers said it would accomplish."

J. R. Anderson & Co., Tredegar Foundry, Richmond, Virginia.

Gentlemen,—The Portable Engine and Saw Mill which my brother and myself purchased of you, has been in operation about eighteen monhts, and has performed entirely to our satisfaction. We confidently recommend your plan of Engine and Mill to all in want of such machinery. W. E. ANDERSON.

January 20, 1855.

From E. H. Lasley, dated Pittsylvania, July 24, 1854.

"I have been managing steam saw mills for eight years, and must say that your mill is not only one of the best, but will cut more timber than any other mill I ever saw of the same power."

From L. H. Brown, Liberty, September 7, 1854.

"From the commencement to the present, a period of fifteen months, we have never lost a minute from any cause connected with the engine, nor expended one cent upon its repairs (except perhaps a broken bolt.) And it is now working with an entire freedom from all noise and jostling. So entire is my satisfaction with it that I would not this moment give it for a new one of the same nominal power in any workshop in Richmond."

From S. B. Morgan & Co., Bristol, Tennessee, December 20, 1854.

"The performance of our engine gives perfect satisfaction. We have made an average of between 3,000 and 4,000 feet per day since we got under way, through the hardest timber that any mill ever cut. We are satisfied the engine will continue to work well—at least we are not willing to exchange it for any we ever saw."

From H. D. Bird, under date January 4, 1854.

"The engine we purchased of you in 1852, performs as well and is as well and strongly built as any other engine we have on our road. Our other engines were made by Baldwin, Norris, Wells, and the New Castle Manufacturing Company.

Extract from a Report of Andrew Talcott, Chief Engineer and Superintendent Richmond and Danville Railroad, upon a trial trip made with the engine "Chesterfield," dated November 3, 1854.

"The trial was perfectly satisfactory and the engine was accepted, under the firm belief that she was capable of drawing eighteen eight-wheeled house cars, loaded each with nine tons, from Richmond to Brown's Summit at a speed of ten miles the hour. The engine has been rendering constant service ever since she was received by the company, and is the most *economical* machine we have. Her mileage for the four full months she has been running regularly on the freight train, is 6,453 miles, and her consumption of fuel has been 279 cords of wood, or about one cord to 23 miles run. Her train hauled it is believed averaged about 30 per cent. more than any other engine on the road."

OFFICE OF THE SOUTH SIDE RAIL ROAD COMPANY,
PETERSBURG, November 22, 1854.

Messrs. J. R. Anderson & Co.

GENTS.—Your engine "Virginia" placed upon the South Side Railroad on the 14th inst. gives entire satisfaction. She hauled from Petersburg up a grade of 35 feet to the mile, 30 loaded freight cars, containing 240 tons freight, exclusive of the weight of the cars. With the above train, she made her regular schedule time to the Junction. I am gratified that I can state she is one of the best freight engines I ever saw.

Yours, very respectfully,
E. G. WALL, *Superintendent South Side Railroad.*

From A. M. Paxton, President Vicksburg and Jackson Railroad, Nov. 1852.

"The 'Pelahachee' is well proportioned; makes steam very freely, and has fully as much steam as her weight will render available; is very easily handled; and in fact is as good and as powerful an engine as can be built of her class. Among the engine drivers, whose opinions are too little consulted, she is an especial favorite. On Saturday last, one of them told me 'it was a pleasure to run her.' Another, who generally runs her, says 'she is the best engine he ever saw;' and our chief machinist, always chary of his praise, says 'she is as good an engine of her size as can be built.'"

From J. D. Petsch, in relation to three Engines which we furnished the South Carolina Railroad in 1853.

"It gives me pleasure to state that these engines have now been running steadily and regularly for about eleven months, with as much success and at as small a cost for keeping them up, as any of the same class which we have on our road. We have engines of the same class from Messrs. Norris, Baldwin, New Jersey Manufacturing Company, and from Rogers & Co., and can assure you that your engines in their performance will compare favorably with any of them."

From L. O. B. Branch, President Raleigh and Gaston Railroad Company, March 20, 1854.

"The 'Graham' and 'Halifax' have been running regularly with the mail train since they were placed on the road. Their performances thus far have given me entire satisfaction. They make good time, and are the steadiest engines we own; consequently, the pleasantest passenger engines, and least injurious to the road. In addition, I may say that the superintendent of machinery pronounces the workmanship of the engines to be of superior quality. And on the whole, I can speak in unqualified commendation of them."

REFERENCES.

VIRGINIA.

RICHMOND.

Governor John Letcher.
Wm. H. Macfarland, President Farmers Bank.
E. Fontaine, President Virginia Central Railroad Company.
Lewis E. Harvie, President Richmond and Danville Railroad Co.
Alex. Dudley, President Richmond and York R. Railroad Co.
Charles Ellis, President Richmond and Petersburg Railroad Co.
P. V. Daniel, President Richmond F. & P. Railroad Company.
Thos. Dodamead, General Supt. Virginia Central Railroad.
Samuel Ruth, B Bragg, } Supts. R., F. & P. Railroad.
Charles G. Talcott, Supt. Richmond & Danville Railroad.
Thomas H. Wynne, Supt. Richmond & Petersburg Railroad.
R. H. Temple, Supt. Richmond & York River Railroad.
Charles B. Fisk, Chief Engineer Covington & Ohio Railroad.
William A. Kuper, Resident Engineer, Cov. & Ohio Railroad.
Thomas H. Ellis, President James River & Kanawha Company.
Edward Lorraine, Chief Engineer James River & Kanawha Canal.
E. L. Chinn, Supt. James River & Kanawha Canal.
Charles T. Wortham & Co.
Dunlop, Moncure & co.
Haxall, Crenshaw & Co.

PORTSMOUTH.

S. M. Wilson, President S. & R. Railroad.
John M. Robinson, Supt. S. & R. Railroad.
George W. Grice.
John B. Pendleton, M. M. S. & R. Railroad.
Ethan Allen, Master Smith, Gosport Navy Yard.

PETERSBURG.

H. D. Bird, Supt. South Side Railroad.
Tappey & Lumsden.
Wm. T. Joynes, President Petersburg Railroad Co.
Thomas H. Campbell, President South Side Railroad Company.

NORFOLK.

Wm. Mahone, President Norfolk & Petersburg Railroad Co.
George Reid, Esq.
E. P. Tabb & Co.
A. Jeffery, Esq.

ALEXANDRIA.

Lewis McKenzie, President A. L. & H. Railroad Company.
Richard Randolph, Chief Engineer A. L. & H Railroad.
J. McD. Goldsborough, Ch. Eng. Manassas Gap Railroad.
Sidney G. Miller.
John S. Barbour, President Orange & Alexandria Railroad Co.
H. W. Vandegrift, Chief Engineer & Supt. O. & A. Railroad.

LYNCHBURG.

John Robin McDaniel, Esq.
E. H. Gill, Supt. Virginia & Tennessee Railroad.
F. B. Deane, Jr., & Son.
McCorkle & Co.
S. C. Hurt, Esq.

STAUNTON.

Francis T. Stribling, M. D.
Hon. A. H. H. Stuart.
Col. J. D. Imboden.
Col. J. H. McCue.

ABINGDON.

C. Crozet, Chief Engineer V. & K. Railroad.
Wyndham Robertson.

WYTHEVILLE.

Col. T. J. Boyd.
Rev. F. D. Goodwin.

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Capt. M. C. Meigs, U. S. A.
James Tucker, Esq, Master Smith, Navy Yard.
Messrs. Campbell & Coyle,
Captain William Maynadier, U. S. A.

MARYLAND.

Messrs. W. Bollman & Co., Baltimore.
Messrs. Stickney & Co., Baltimore.
Thatcher Perkins, Esq., M. M. B. & O. Railroad Company.
Messrs. Poole & Hunt, Baltimore.
M. P. Placide, Baltimore.
Messrs. Thompson & Oudesluys, Baltimore.

NORTH CAROLINA.

SALISBURY.

C. F. Fisher, President North Carolina Railroad Company.
E. Wilkes, Supt. North Carolina Railroad.
James C. Turner, Chief Engineer W. N. C. Railroad.
R. C. Pearson,, President W. N. C. Railroad.
R. F. Simonton, Treasurer, W. N. C. Railroad.

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John C. McRae, Chief Engineer W. C. & R. Railroad.

GREENSBOROUGH.

Governor J. M. Moorehead.

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Isaac Scott, President M. & W. Railroad Company.
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Judge Thomas A. Walker, President Ala. & T. R. Railroad Co.
A. M. Goodwin, Treasurer Ala. & T. R. Railroad Company.

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Alfred Penn, President Southern Bank.
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Richard Lynch, Esq.
Benjamin Hudson, Esq.
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BAYOU GOULA.

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PARISH OF ORLEANS.

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C. G. Forshey, Esq., Rutersville.

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Jas. B. Rather, Esq., Seven Leagues.
A. H. Ramsour, Tyler.

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A. J. Smith, Esq.

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Hon. D. L. Yulee.
Dr. W. H. Johnson.

JACKSONVILLE.

Col. J. P. Sanderson.

TALLAHASSEE.

Col. Edward Houstoun.
Jas. L. Randolph, Chief Engineer P. & G. Railroad.

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Major W. H. Chase.
O. M. Avery. Esq., Supt. Ala. & Fla. Railroad Company.
Judah & Le Baron.

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Samuel Holmes, Esq.

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P. C. Goosey, Esq.

REDLAND.

Oliver Williams, Esq.

GEORGETOWN.

Messrs. J. N. Catching & Co.

DOVER.

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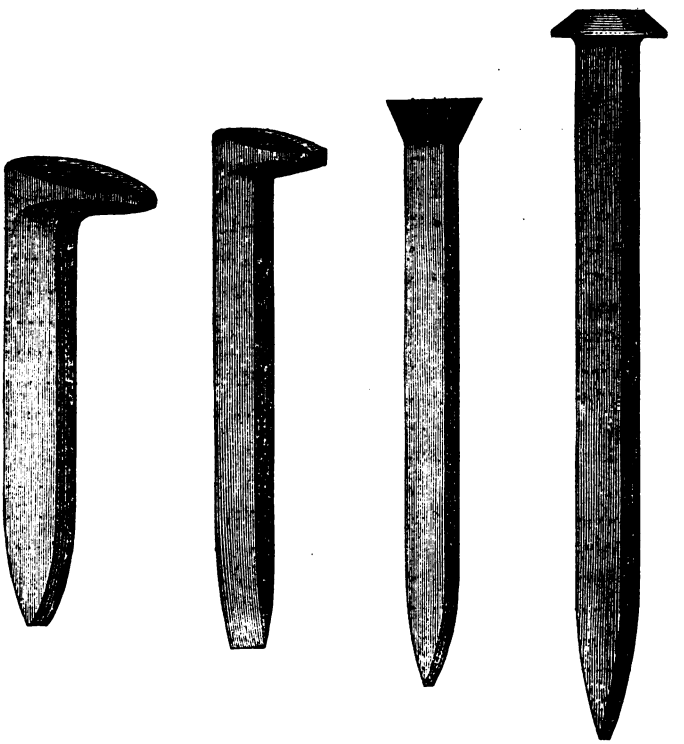

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INDEX.

Axles for Cars, hammered or rolled, 21
Alden's Patent Fan Blower, ... 64
Bolts and Nuts, ... 26
Belting, ... 38
Calendar, ... 3
Chairs, all kinds, ... 18
Castings, ... 26
Car Boxes, ... 27
Circular, Cross-cut and other Saws, .. 37
Cotton Seed Carrier, ... 38
Cylinder Deep Well Pump, ... 41
Cornish Pumping Engines, ... 59
Cannon, Shot and Shell, ... 29-30-65
Davidson's Patent Continuous Rail Connection, ... 19
Double Acting Cold Water Pump, .. 42
Draining Machines, ... 44
Directions for keeping Saw in order, 55
Engines:
Portable, ... 35-36
Strictly Portable, ... 45-46
Portable—Side Connected, ... 50-51
Stationary, ... 48-49
Hoisting, ... 81-82
Marine, ... 28
Pumping, ... 59
Fish Bar Rail Connection, ... 20
Forgings, ... 26
General Advertisement, ... 12-13
Gin Shafting, ... 47
Gun Carriages, ... 65
Ground Plan of Gin House, ... 66
Giffard's Patent Self-Acting Water Injector, ... 68-78
Horse Power, ... 4
Locomotives and Freight Cars, ... 24
Manufactories of all kinds in Richmond, ... 14
Newell Cotton Screws, ... 64
Notices and Extracts of the Press, .. 83-87
Ordnance, ... 29-30-65
Planing Machines:
Woodworth's, ... 58-59
Noyes', ... 60
Portable Grist Mills, ... 61-62
References and Testimonials, ... 87-102
Southern Manufactures, ... 15
Spikes—Railroad, Ship and Stringer, ... 16-17-103
Steam Gauges, ... 32
Spark Arresters, ... 33-34
Sugar Mills, ... 49
Spike Machine, ... 63
Steel, ... 79
Saw Mills:
Single Circular, ... 39-40
Double, ... 52-53
Sash, ... 80
Saw Mill Establishment, ... 54-55
Sizes and Prices, Engines and Mills, 56-57
Table—Showing the number of days from any day in one month to the same day in another month, ... 11
Table of Board and Timber measure, ... 5
Table of Weights of Iron, ... 6-8
Table of Rates of Postage, ... 9
Table of Interest, ... 10
Table of Tensile Strength of Fifteen Samples Iron, ... 31
Tools for Engineer, ... 40
Trucks, Wrought Iron, ... 25
Wheels for Cars, Single and Double Plate, ... 22
Wheels for Cars, Fitted on Axles, .. 23