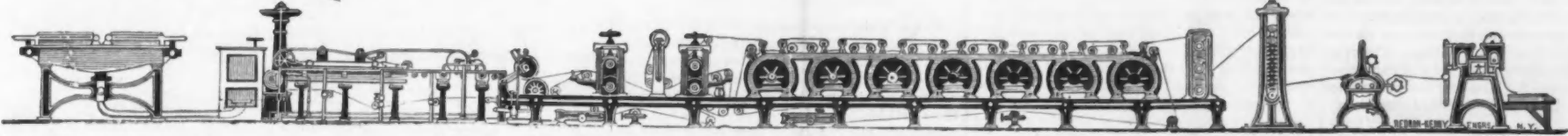


THE PAPER TRADE JOURNAL.



"The Consumption of Paper is the Measure of a People's Culture."

VOLUME VI.--NO. 52.

NEW YORK, DECEMBER 29, 1877.

WHOLE NUMBER 191.

Trade Topics.

Improvement in Pulp-Engines.

The illustrations on this page show an improvement in paper-pulp engines lately patented by Simeon L. Gould, of Gardiner, Maine. The drawings represent in Figure 1, a vertical and longitudinal section, and in Fig. 2, a cross-section, of a paper-pulp engine embodying the improvements.

A, represents the curb or case of the engine in the form of a horizontal cylinder with closed ends and a flattened top, such top having a chute or hopper, A', by means of which rags or other material are introduced into the interior of the case.

The portion of the engine for disintegrating and reducing the "stock" which is to be converted into pulp consists of a vertical, stationary, annular grinding-bed, and a rotary grinding wheel or disk operating in connection therewith, the contiguous faces of the two being armed with suitable radial blades or knives, between which the stock is reduced.

The stationary annular bed is shown at B as a substantial ring of cast-iron, secured at opposite sides to the interior of the case A, as shown at C C, and arranged vertically and at right angles to the axis of the said case, one side of the said annular bed B being armed with a series of radial knives or blades, a, a, &c.

The ring B is cast hollow, as shown in the drawings, and connected with its interior are a feed and discharge pipe, b' c', by means of which a current of cold water may be permitted to flow through it.

The purpose of thus reducing the temperature of the bed B, and consequently of the "stock" within the case A, is to avoid injury to the "sizing" employed in sizing the pulp, as a high temperature interferes with a proper action of such sizing.

The rotary grinding-wheel is shown at D as a solid disk of cast-iron, disposed alongside of the bed B, and of about equal diameter therewith, and secured to a long horizontal shaft, E, which extends through the bore of the bed B, and finds a bearing, b, at each end of the case A, the face of the disk D next adjacent to the ring-bed B being armed with a series of radial blades, c c, &c., which operate in connection with the blades, a, to reduce rags or other material subjected to their action, power being applied to the said shaft in the ordinary manner.

As the grinding head or disk D must be forced with considerable power up and against the bed B, and held there while the grinding takes place, very great friction necessarily exists at the end of the shaft where the resistance occurs.

To obviate or reduce the friction at such end of the shaft (shown at d in the accompanying drawings), it is surrounded with a box, F, which is filled with water, a conical step or pivot, e, being secured to the inside of such box, and entering a corresponding socket in the end of the shaft.

As the water in the box F surrounds the end of the shaft and the step, the heat which would otherwise result from the friction of the parts is obviated, and the use of lubricants avoided, as the water constitutes an effective lubricant.

The water box F is supported within a bracket G, extending from the end of the case A, and a feed-screw H, operated by suitable means, is screwed through the outer end or head f of such bracket, by means of which the rotary disk D is fed up to the annular bed B with any desired degree of power.

The stock to be ground or reduced in this engine is introduced, with the proper amount of water, into the case A through the opening or hopper A'. The revolutions of the disk D generate a centrifugal force, which induces a current and circulation of the stock through the centre of the annular bed B, and outward between such bed and the disk, and is discharged at the circumference of the two, the blades a and c serving to disintegrate and reduce such stock as it passes between them. This continuous circulation and grinding of the stock is allowed to continue until it is reduced to pulp of the desired consistency or fineness, when the contents of the engine are discharged through a trap in the bottom, in the ordinary manner.

The water-box, as explained, obviates any danger of undue heating of the end of the shaft and its step, and does away with the labor and expense of lubricating it.

The annular or open, as well as hollow, form of the grinding-bed B enables it and its knives to remain in a comparatively cool condition, which is a very desirable result.

Owing to the absence of arms in the grinding-bed B and disk D, and other obstructions in the case A, little resistance is offered to the flow or circulation of stock, for which reason the reducing process takes place rapidly, and less power

is required to drive the engine, while, still further, no "dead stock," as it is termed, is allowed to stand in the case.

Owing to the contiguous faces of the bed B and disk D, and their armature being flat, any pieces of iron or other hard foreign substances which may find their way to the interior of the case in the stock do not become entangled in and break the knives, but are readily precipitated to the bottom of the case, from whence they may be removed through a suitable trap.

For the same reason—that is, the straight edges of the knives—a large working-surface is secured, which, acting in a direct manner upon the stock, pulls and separates, rather than chops up, the fibres of the material.

The inventor claims: 1. In paper-pulp engines, the annular stationary grinding-bed B and rotary disk, in combination with the case or curb A, when the contiguous faces of the two are flat, and the whole so arranged that the stuff in circulation takes a course through the centre of the bed B, passes between the latter and the disk D, and is discharged at the circumference of the two, the said bed being secured to the walls of the case, as stated, and the disk supported upon a shaft which passes through the bed.

2. In paper-pulp engines, the combination, with the curb or case, and the shaft extending through said curb, of the water-box outside the said curb, containing a quantity of water, which surrounds the end of the shaft and its step, and maintains a low temperature of the same, as well as constituting a lubricant thereto.

3. The general arrangement of a paper-pulp engine, consisting of the case A, annular flat-faced grinding-bed B, rotary flat-faced disk D, and water-box F.

4. The hollow annular grinding-bed provided with water inlet and outlet ports.

Improvement in Apparatus for Preparing Paper Pulp.

Hiram Allen and Lyman S. Mason, of Sandy Hill, N. Y., have received a patent for an improvement in apparatus for preparing paper pulp from printed and written paper and other suitable stock.

They employ a boiler of the ordinary or any suitable kind used for treating paper stock with alkalis or chemicals, and steam from any suitable generator, as usual in paper mills. A fixed vat of greater capacity than the boiler is arranged so that by opening the man-hole in the boiler, and revolving the latter, the treated paper stock will be discharged from the boiler through the man-hole into the vat.

For economy of room and efficiency and directness of operation the boiler is rotary, and directly over the vat; but as regards this invention, the boiler may be located higher than and at one side of the vat, and with the man-hole over any suitably inclined conductor leading into the vat, so that the contents of the boiler shall, by their own gravity, be automatically discharged through the man-hole and conductor into the vat upon slowly turning the boiler when the man-hole is open.

The vat has a partial partition, so that the interior of the vat is in the form of a circuit or continuous passage for the water, which is to be supplied to the vat, as shall be required, by a hydrant, pump or any suitable means.

A paddle-wheel is arranged in the vat and across the circuit-passage, so that the rotation of the wheel shall cause a continuous flow of the water throughout the circuit of the vat.

A rotary strainer is placed separate from the wheel, and arranged in and across the upper part of the circuit-passage in the vat, so as to draw off the soiled water from the vat without permitting the paper stock to escape. One, two, three, or more of the rotary strainers may be used in the vat, as shall be preferred. Each of the strainers is essentially the same as that commonly used and called the "washer" in the ordinary beating-engine, by which paper stock is generally washed and reduced to pulp suitable for paper. Each of the rotary strainers has a surrounding fine-wire screen, which will not let the paper stock pass through, but will allow the soiled water to run into the interior, where the water is raised into a central discharge-passage, by buckets secured to and revolving with the screen. The soiled water thus discharged is to be conducted away by any suitable passage or passages.

An ordinary pulping engine, with a circuit vat-roll and bed, armed with blades under the cover, and a rotary strainer or washer is also employed.

A pump, of any suitable construction, communicates with the lower part of the vat by a

pipe or passage, furnished with a stop valve or plug, and which pump also communicates, by a pipe, with the circuit vat, so that it can transfer the washed paper stock suspended in water from the washing-vat into the circuit vat of the pulping engine.

On the paddles of the wheel are projecting fingers, hooks, or pins, arranged so that as the wheel revolves the thread, strings and strips of cloth, which often occur in stock from old paper, will be caught and separated from the paper stock by the pins, hooks, or fingers, and from the latter the accumulations of threads, strings, and strips of cloth can be occasionally removed by hand as the wheel revolves.

The patentees make the wheel with its paddles inclined to its radii and to its direction of motion, and to have the outer edges of its paddles turn close to or near the bottom of the vat, in order that the paddles shall not lift out the paper stock in rising out of the water, while they at the

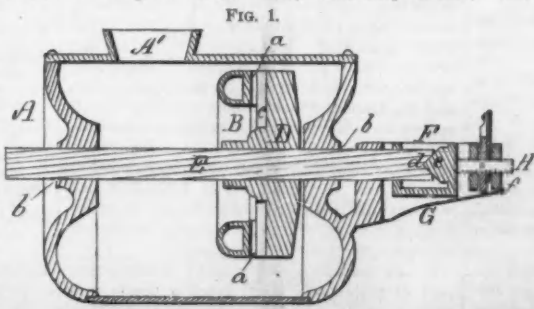


FIG. 1.

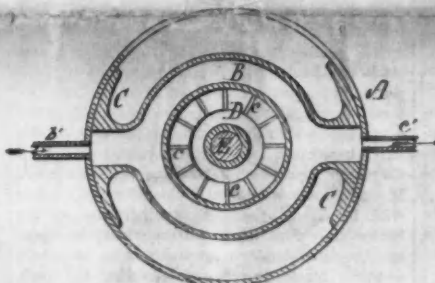


FIG. 2.

IMPROVEMENT IN PULP-ENGINES.

same time effectually stir up and mix the paper stock with the water, and insure the proper circulation of the same past the rotary strainer or strainers.

In ordinarily using the apparatus the printed paper or other stock is submitted to the action of an alkaline or suitable chemical solution and steam in the boiler, in the manner heretofore commonly practiced in making paper pulp from like materials.

At the completion of the treatment of the paper stock in the boiler the vat is partly filled with water, and the man-hole of the boiler is opened, so that the treated paper stock will be discharged from the boiler into the water in the vat.

The wheel is at the same time revolved, and thereby produces a current in the water, and causes the mixture and suspension of the paper stock therein, and drives the same past the rotary strainer or strainers, by which the soiled water is drawn off from the vat, while clean water is supplied thereto by a hydrant, pump, or other suitable means.

This action of the wheel and strainer or strainers is continued until the paper stock is sufficiently washed. Then the supply of water to the vat is stopped, and the rotation of the wheel and strainer or strainers is continued until the contents of the vat are of suitable consistency to be bleached, or to be transferred to the pulping-engine. Then, if the washed paper stock is to be bleached or partly bleached before being reduced to pulp, a suitable quantity of the bleaching liquid is to be mixed with the paper stock in the water in the vat, and the whole left in the vat until the pulping-engine shall be ready to be supplied, whereupon a sufficient portion of the washed and partly bleached or unbleached paper stock held in suspension by the water in the vat by the rotation of the wheel is transferred by the pump into the engine, by which latter the paper stock is reduced into pulp suitable for paper.

In case the engine shall be empty when the paper stock is being received into the vat from the boiler, or when the paper stock has been only partially washed in the vat, and it shall then be desired to have the engine in operation, the pump is then put in motion, with the passage open, and thus made to transfer a suitable portion of the slightly or partly washed paper stock, suspended in water, from the vat into the engine, which latter will then be used, in the manner commonly practiced in paper mills, to

first wash the paper stock and afterward reduce the same into pulp suitable for paper.

While the treated paper stock is being discharged from the boiler into the vat, and mixed with and suspended in the water in the vat by the wheel, rotary strainer or strainers, pump and engine are then all in motion, with the passage open, and the paper stock will then be discharged from the boiler into the vat, and mixed with and suspended in the water in the vat by the wheel, and thereby made to circulate past the strainer or strainers, while a portion of the paper stock thus suspended in the water will be transferred by the pump and passage, into the pulping engine, all by the automatic operation of the apparatus.

The transfer of the suspended paper stock from the vat into the engine can be stopped by stopping the motion of the pump, or by closing the pipe by a valve or plug.

This combination of the boiler, with its discharge passage, circuit vat, supplied with water, rotary strainer or strainers, and current-producing wheel in the vat, and mechanism by which the boiler, current-producing wheel, and strainer or strainers are revolved, is claimed to be of great importance, since thereby the boiler delivers the treated paper stock automatically into the water in the circuit vat, and saves much time and labor otherwise necessary in the transfer, and simultaneously prevents the escape into the atmosphere in the mill of much steam and deleterious vapors from the hot-treated paper stock; and at the same time the wheel produces throughout the water in the vat a strong

current, which produces a strong flow in the vat of the paper stock as it is gradually received from the boiler, and causes the immediate mixture and suspension of the paper stock in the water, and the simultaneous circulation of the same against and past the rotary strainer or strainers, by which the soiled water is at the same time drawn off.

By the combination of the main circuit-vat wheel, strainer or strainers, pumping-engine, pump and passage, and mechanism by which the current-producing wheel, strainer or strainers, pump and pulping engine are actuated, the wheel will not only mix the paper stock with and cause its suspension in the water in the vat, and the circulation of the same past the strainer or strainers, whereby the paper stock will be washed and the soiled water removed, but the wheel will also keep the paper stock mixed with and suspended in the water while the pump transfers the same through the passage into the engine, by which the paper stock is reduced into pulp suitable for paper; whereby it is claimed inky or soiled paper stock can be washed and reduced to pulp for paper at a cheaper rate than by the ordinary means heretofore used.

By having the vat made with its bottom level, and without any raised back-fall near the wheel, or other raised obstruction on the bed, and the wheel constructed with paddles, either radial or inclined, and extended from above or near the level of the top of the water in the vat to near the bottom of the latter, the wheel is said to produce a suitable current in the mixed paper-stock and water, past the strainer or strainers, and throughout the circuit of the vat, without materially obstructing the flow of the upper portion of such current; and, at the same time, the level unobstructed bottom of the vat will permit such current to pass over it freely, while pieces of coal, stones, nails, pins, steel pens, and other injurious solid foreign matters that are common in old paper stock will settle, and be left on the level or nearly level bottom of the vat, away from the wheel, where they cannot do harm, and can easily be removed on emptying the vat.

By having the paddles of the wheel inclined to the radii and direction of rotation of the wheel in connection with the vat, supplied with water, and having a substantially level unobstructed bottom, and the rotary strainer or strainers, the paper stock is expected to be thoroughly mixed with and suspended in the water in the vat, and in that condition moved past the rotary strainers or strainer with a more even flow throughout the circuit and from top to bottom of the current, and with less lifting of the paper stock out of the water, than can be effected in a circuit vat having a part of its bottom raised high above the remainder, or with a paddle-wheel of like diameter, but with paddles arranged radially.

The projecting pins, hooks, or fingers on the paddles are of much importance in collecting and separating the threads, strings, and strips of cloth from the stock made from old books and other papers, in the operation of washing such stock by the strainers in the vat,

Correspondence.

British Notes.

[FROM OUR REGULAR CORRESPONDENT.]

13 PATERNOSTER ROW, LONDON, E. C., }
December 18, 1877. }

Xmas will be here now in a few days, and there is naturally a distinct lull in trade immediately before the close of the year, when accounts are all made up and books closed. People are now chiefly occupied with the topic of holiday making, and where and how Xmas is to be spent. The year cannot be called a prosperous one, yet there seems to be as much anticipation of the coming festive season and all its gayeties and concurrent expenses and lavish outlay as usual. Bad trade does not appear to check the indulgences peculiar to holiday times. It is as well, for business has been but a melancholy topic for some time past. The mills will probably close down for a week at the end of next week, to clean up, repair, &c.; and it is to be hoped will start again upon the coming year with better luck and happier times. I hope that the late reverses of the Turkish forces will have the effect of improving the prospects of peace. There are two distinct parties, however, in Turkey—the peace and the war parties; but it is to be hoped that the counsel of this and other countries will be solicited and prove efficacious in restoring peace and reformation to Turkey. The war has doubtless had a very disastrous effect on European trade, and especially on England, since we are supposed to be and may be particularly interested in any movements near our Indian territory. The suspension of hostilities will, no doubt, be a great relief to the world, and may reasonably hope for a very advantageous change in commerce.

The late crisis in France has been a very serious matter, and at one time affairs over there looked very ominous indeed. I observe that a valued correspondent notices the "French situation" in its commercial bearing with the trade of this country. Happily this is ended, and if Turkey can only arrange her little difficulties we shall start our cruise upon the great ocean of time in 1878 with every hope of a fine and prosperous voyage.

There is simply nothing to say about our trade. It is very quiet, and, as before mentioned, very little can be expected just at this time of the year. Prices are just the same—very low. Our markets do not appear to get any better, and, if anything, have been duller this week than last. The fibre market is very quiet and trade slack. Fine white linen rags moved in small lots for home consumption, for immediate use. Strong middle-classed linens in good demand. Fine white cottons neglected, but middle and low grades better and prices firmer. In waste papers no change. Very little business was done, although some rumors were about concerning a large shipping order to America. Holders keep to their former quotations.

A full report of prices, &c., will be found below. The coal market is in *status quo*, and chemicals are decidedly weaker, very few orders being on hand.

I note that the Roumanian Government is ready to secure to any person who shall establish a paper mill in Roumania the contract for all the paper used by the provincial authorities. The mill is to produce at least a daily average of 4,000 kilograms. Now, ye paper-makers! "don't all speak at once!"

The *Printing Times*, a capital authority, speaking of newspapers, papers, &c., says: "There is no doubt many newspaper proprietors are feeling the pressure of the times in the shape of diminished and still diminishing sales, and what is more serious, a slack supply of advertisements. Some set-off there is in the present cheapness of paper, and let us hope that a speedy termination of the war in the East may bring about a general revival of business."

Many of our leading periodicals are as usual producing their "Xmas numbers." Our illustrated weeklies are conspicuous. Tremendous sales attend the production of these specialties, and "every little helps" the paper-makers now. Let us hope there will be a good harvest in these Xmas numbers this year.

By the way, while mentioning the illustrated papers, I would just like to repeat an opinion of the "special war correspondence," which appeared the other day, and which is amusing. Someone objects to the introduction of the "personal element" into the letters and drawings from the seat of war. It appears that gentlemen have written home elaborate descriptions of themselves and their doings, and many of the drawings illustrate absolutely nothing save the vanity of the artists in imagining that anybody out of their own particular circle cares to see portraits of the *Times* and *Illustrated London News*

"specials" in their night-caps, or endless representations of "our own correspondent's quarters" at Gorny-Studen or Plevna. This is rather "rough" on the poor "specials," who, it seems, have sometimes performed their duties at the cost of their lives.

Two new trade journals are coming out here, the *Perruquier*, for hair-dressers, perfumers, &c., and the *Pottery and Glass Trades' Journal*.

There is a great push in London after fibres now, and next year I think will see some great enterprise in this direction. It is sincerely to be hoped that no more limited liability companies will spoil any efforts to obtain good fibres. The worst of such companies is that they are always directed by men who know nothing whatever about the technical business of the company, and who meet together for wine and biscuits and to sign cheques. There is an undoubted grand opening for a regular supply in quantity of good serviceable fibre. We don't want wood in any shape. There is a perfect overflow of wood pulps in our market, and, whether rightly or wrongly, our paper-makers do not fancy this article. In a lecture given at the Society of Arts on paper making, wood pulp was spoken of as "only fit for loading." Of course, I am alluding to mechanical wood.

I see in your editorial remarks you disagree with my views as to caustic soda. Caustic soda, if really the article as sold here, 60 to 62 per cent., does not require causticizing. Its very name implies this fact. It is prepared by boiling down to concentration causticized liquor prepared from soda ash or sodium carbonate. Whether the sea voyage destroys its causticity, I will not dispute. I used several tons in the West Indies and never found the least difficulty with it. One of the great tests of caustic soda is its thorough causticity and freedom from carbonate, so that, to me, the necessity for re-causticizing in America appears a thorough fallacy. I am certain that if you buy good cream caustic f. o. b. Liverpool, it will be delivered in America in sound, good condition, and certainly free from anything beyond perhaps three per cent. carbonate, under the most unfavorable circumstances.

Perhaps a few remarks are due from me concerning the "British Notes," and absorbing room which your correspondent wishes to occupy. I own to my failings readily. It is a very difficult matter to please everybody. I try and scrape together such news as will interest your readers. I am unfortunately compelled to be my own judge in selecting these items, and have to forego the advantage of consulting any of your readers personally. Many foreigners have expressed to me their generous appreciation of my humble efforts, and have informed me that it is from your columns they discover what goes on in Great Britain. Gathering trade news reminds me of gathering figs from thistles—it is about as easy when everybody is "close" and trade is bad.

Hone Markets.—Coals. No Hartleys for sale. Wallaseid—Hetton, 18s. 6d.; Sôdan 18s. 6d.; 3d.; East Hartlepool, 18s. 3d.; Lambton, 18s.; Tees, 18s. 3d.; Hartshorn, 16s. 3d.; Hetton Lyons, 16s. 3d.; South Hartlepool, 16s. 6d.; Fanes, 16s. 3d. Ships at market, 26; sold, 16; contracts, gas, &c., 3-19; unsold, 7; ships at sea, 25.

Fibres.—Rags—New cuttings, 30s.; superfines, 2s.; fine, 22s.; outshots, 16s.; London ditto, 10s.; thirds, 8s. Prints, 12s.; blues, 12s.; blacks, 5s. to 6s. First quality canvas, 22s.; second ditto, 15s. 6d.; thirds ditto, 11s. Clean gunny, 8s. to 10s.; bagging, 6s. to 8s.; coir rope, 11s. to 13s.; white rope, 9s. to 11s. In woolen rags, new unions, 6s. to 10s.; old cut, mixed, 15s. to 20s.; ditto, dark, 7s. to 9s.; softs, drabs, 10s. to 12s.; hard stuffs, 14s. to 16s.; wove carpets, 7s. to 9s.; common ditto, 3s. to 5s.; shalies, 3s. 6d. to 4. 6d.

Jute.—Fine, 18s. 6d. to 20s.; medium and fair, 15s. to 17s.; rejections, 14s.; cuttings, 11s. to 12s. **Eparto.—**Fine and best Spanish, 29 to 310; fair to good, 28 to 28 10s.; best Algerian, 26 10s.; fair ditto, 26; Sassa, 27 10s.; Sfax and Gabes, 25 to 26; Tripoli, 24 5s.; Mogador, 25. **Dias and palm-leaves,** purely nominal, 24 to 25.

Waste-papers.—Fine cream, 18s. to 20s.; mixed shavings, cream and blue, 16s. 6d.; blues, 15s. 6d.; seconds, 14s.; mixed ditto, 5s.; strong browns, 5s. to 6s.; mixed ditto, 3s. to 4s.; lighter waste, 14s.; letter waste, 10s. to 12s.; back news, 5s.; railway tickets, 5s.; straw board cuttings and rubbish, 2s.

Chemicals.—Cooper Bros. & Co., Newcastle-on-Tyne, say: The demand for bleaching powder and soda crystals has somewhat abated this week, and our market is quiet with few new orders. The French situation has impeded commercial affairs with that country and business in general continues almost lifeless.

Refined alkali, 50 to 52 per cent., at 1 3/4d. net; soda ash, for immediate delivery, 48 to 52 per cent., 1 1/4d. per cent., less 6 per cent. discount; soda crystals, gross, 23 5s., less 5 per cent. discount; bicarbonate of soda, 28 10s.; bleaching powder, 35 to 36 per cent., for prompt delivery, 25 5s. net.; English antichlor, 210 5s.; foreign ditto, 29 to 310; Jarrow caustic soda, 70 to 74 per cent., 4 1/2 10s., less 4 per cent., all f. o. b. Tyne, usual terms. For 1878: Soda ash, 48 to 52 per cent., 1 3/4d. per cent., 26, less 5 per cent., f. o. b. Tyne.

In Liverpool prices are: White caustic soda, 70 to 72 per cent., 4 1/2 7s. 6d.; do., 60 to 62 per cent., 4 1/2 7s. 6d.; cream caustic soda, 60 to 62 per cent., 4 1/2 17s. 6d.; caustic soda bottoms, 28; bleaching powder, in hard wood casks, 35 to 36 per cent., 25 7s. 6d.; do., in soft wood casks, 25 2s. 6d.; soda ash, 48 to 52 per cent., 1 3/4d. per cent.

Miscellaneous: Aluminous cakes, 24; bichrome, 4d.; sugar of lead, 37s. 6d.; grey, 26s. 6d.; olive oil, best, for machinery, 253 10s.; common, 237. W. F. C.

The surest way not to fail is to determine to succeed.

Fortune does not change men; it only unmarks them.

A Mechanical Dictionary.

We take great pleasure in announcing to our readers the completion of "Knight's American Mechanical Dictionary," which has lately been published by the well-known "Riverside Press." Its advent should be hailed with satisfaction by every practical man in the land, for it relieves a want that has long been felt among all classes engaged in industrial pursuits.

This work is the result of twenty-five years' application, much of the time having been passed by the author in the United States Patent Office, where he was engaged in editing the Patent Office Report, and classifying patents; and subsequently editing the "Official Gazette," and systematizing for examination the 20,000 applications for patents which yearly are presented to the office. Sitting at the very centre and focus of the mechanical thought of the country he saw the necessity for a compendious description of the tools, machines, processes, and appliances of the arts and sciences; in short a "Dictionary of Mechanical Terms."

THE SYSTEM OF INDEXING.

The value of a work of reference depends largely upon its index. When one has a question to ask of an ordinary cyclopaedia it is frequently very difficult to determine under which title or heading to look.

The author has invented a system of what he terms "Specific Indexes," by the use of which the inquirer is guided straight to the information he is in quest of, even though he be entirely ignorant of the name of a thing, and have but the most vague and general notion of its use. This is accomplished by grouping under the general title of each science, art, trade, or profession, a list, or "specific index," of every article in the book bearing any relation to the subject in question. The titles of these indexes are in turn grouped on page v., vol. 1, so that by a glance one may determine which clew to follow.

Beside the use above mentioned, these "specific indexes" afford the reader an excellent opportunity for investigating thoroughly all that pertains directly or indirectly to any special subject, by using the Index under the title of that subject as a sort of head-centre and following out its various branches through all their ramifications.

Fifteen thousand words are thus assembled in what may be called these professional and trade vocabularies.

Another unique and valuable feature of the work is

A HISTORY OF INVENTIONS.

In these days of "modern improvements," one is very apt to placidly accept the result of long ages of patient ingenuity, without stopping to inquire into the history of the thousand and one appliances for comfort by which we are surrounded. Yet nothing can be more instructive or entertaining than to follow the gradual development of mechanical ideas, from the crude forms of early times to the perfect fruition of to-day.

The author has given in connection with a description of each machine, tool, instrument, or mechanical appliance, a more or less circumstantial account of its history. A sort of mechanical biography, in which the varying fortunes of each article is narrated in chronological sequence.

The work also contains another extremely valuable and entirely original feature which the author has been pleased to term

A TECHNOLOGICAL VOCABULARY.

Rather a formidable looking title, but simple enough in its signification.

There are many terms in use among various trades and professions which are not to be found in any lexicon, because they are not "King's English." By constant use they have become semi-legitimate, and once in a while a few of them have established their claim to respectability and been admitted to the citizenship of "Webster's Dictionary." But thousands of others, less fortunate, have no abiding-place, and, though indispensable, have not yet been recognized in etymological society. Here, then, is a rallying-place for these words of "doubtful fame," and under the title of the thing to which each term pertains we find them comfortably provided for.

Thus under "Mold," may be found a list of 127 "Molder's Terms," which are current amongst foundry workmen. Miners have their peculiar terms and phrases, which are defined under the head of "Mining Appliances," &c.

The value of this Vocabulary must be apparent. It is a sort of supplement to "Webster's Dictionary." Various technical operations are incapable of being explained without the use of these words, and the only wonder is that a special "Technical Dictionary" has never been published before.

The idea of classifying them, so that all terms pertaining to any special trade or profession may be found appended to the article treating upon the same, is truly admirable. By this means one may thoroughly inform himself concerning any particular business, and venture among the knowing ones with unruffled composure.

Philologists may gather here abundant material for investigation, and pause to marvel at this prolific source of word making.

The work treats of 20,000 subjects, and is illustrated with 7,500 carefully prepared engravings. It would indeed be correct to say that the illustrations are fully 15,000 in number, inasmuch as a variety of distinct forms of a machine or tool (sometimes as many as forty) are frequently associated in a single cut, and might, had the ob-

* Knight's American Mechanical Dictionary: A Description of Tools, Instruments, Machines, Processes, and Engineering; History of Inventions; General Technological Vocabulary and Digest of Mechanical Appliances in Science and the Arts. By Edward H. Knight, Civil and Mechanical Engineer, &c. Illustrated with 7,500 engravings. New York: Hurd & Houghton. Cambridge: The Riverside Press.

ject been to spread them out and make a show, have been enumerated as separate figures.

The book also contains seventy-five full-page plates, and for general typographical excellence, quality of paper and binding the work is unsurpassed. It may be had, by subscription only, in three bound volumes, containing in all 2,831 pages, at from \$24 to \$30 per set, according to style of binding. Address the publishers, Hurd & Houghton, 13 Astor place, New York, for further particulars.

American Competition.

The only shipping markets which continue to exhibit any vitality are Australia and New Zealand, and a large and increasing proportion of their orders is going to the United States. The competition is not confined, as formerly, to those articles for the production of which the Americans enjoy natural advantages, such as woodwork, but extend to leather goods, tinware, machinery, every description of implement and edge-tool, carriage axles, force-pumps, spades, shovels, axes, forks, files, locks, scales, tacks, rivets, pulleys, sewing machines, stove grates, guns, pistols and other products too numerous to mention. In all these branches of manufacture the Americans are rapidly increasing their Australian business, while the English makers are losing ground. Australian commerce, as a whole, is certainly expanding, yet the returns of many well-known Birmingham firms who supply the markets of Sydney and Melbourne are not now one-tenth of what they were a few years ago. If we ask for an explanation of this extraordinary falling off, we are told that it is due to the successful competition of the Americans, who beat our manufacturers sometimes in price, always in quality and not infrequently in both.

English manufacturers are slow to adopt new patterns, or to accommodate themselves to the wants of their customers, but their American competitors spare themselves no pains or expense in this way. They are constantly on the lookout for novelty and improvement, and by good trade organization and close intercommunication they are always kept well posted up in what is being done by their rivals in other parts of the world. Their illustrated pattern-books, which are distributed with a lavish hand among their customers, are marvels of engraving and typography, and no amount of canvassing or advertising is spared to bring the merits of their productions before the world. Above all, the Americans take care that their goods shall correspond to sample, and be turned out in a finished and workmanlike manner, unlike those of many English makers, who never trouble themselves to inspect the work they send away.

If our manufacturers wish to preserve any part of their foreign and colonial trade it is high time they bestirred themselves. They must organize means for keeping themselves posted up in the doings of their trade competitors in Germany, Belgium and France, as well as the United States. They must obtain and study the pattern books and price lists of these pushing opponents, and adopt measures for mastering their manufacturing processes. One great advantage which the Americans possess over the English manufacturers is the extent to which they have superseded hand labor by machinery. If our edge-tool makers, locksmiths and cutlers wish to keep pace with their rivals in the States they must lay down machinery of equal excellence, and adopt precautions as thorough as theirs for testing and overhauling the work turned out.—*Birmingham Daily Post.*

Newspaper Intelligence.

The following is a list of new newspapers, furnished from the advance sheets of the *American Newspaper Reporter and Printers' Gazette*:

Table with columns: NEW NEWSPAPERS, DAILY, Size, WEEKLY, Size. Lists various newspapers like Little Rock (Ark.) Trade Review and News, Alameda (Cal.) Argus, Santa Ana (Cal.) Santa Ana Valley News, etc.

Table with columns: MONTHLY, Size. Lists Washington (D. C.) National Monthly, Chicago (Ill.) Homeopathic Record, Keokuk (Iowa) Central School Journal, etc.

CHANGES. The Svenska Posten, Chicago, Ill., has merged into the Svenska Amerikanaren. The Times, Elgin, Ill., has changed to eight pages. The Beacon, Osceola, Iowa, has merged into the State Register, Lincoln, Neb. The Burt Co. Democrat, Tekamah, Neb., has changed to the Nebraska Advocate. The Observer, Mattoon, N. Y., has merged into the Fishkill Journal. The Sunday News, Syracuse, N. Y., has merged into the Sunday Sun. The Abend-Post, Cincinnati, Ohio, has changed to the Morgen-Post. The News and Times, Orangeburg, S. C., has changed to the Times. The Free Press, La Crosse, Wis., has changed to the North Western Tactician and Free Press. SUSPENSIONS NOT PREVIOUSLY ANNOUNCED. The Herald, Prairie City, Ill.; Enterprise, Walton, Ind.; Register, Liberty, N. Y.; Atlantic Weekly, New York, N. Y.

The Springfield Republican says "that the local paper dealers are doing considerable export trade to South America just now, but under disadvantages. The new styles are not called for there until they are gone by. One dealer recently got an order for 1,000 boxes of a style which had gone out of the market here two or more months ago."

Paper Making and Its Accessories.

BOOKS OF REFERENCE.

The following is a list of Books of Reference on subjects connected with Paper Making, Chemicals, Colors, Machinery, Hydraulics, &c.:

Table listing various books of reference with authors and prices. Includes titles like AUERBACH—Anthracite: Its Constitution, Properties, Manufacture and Derivatives, \$5.00; BAIRD—Standard Wages Computing Tables, 5.00; BENSON—Principles of the Science of Color, 7.50; etc.

SEND ORDERS TO HOWARD LOCKWOOD, Box 5514 P. O., New York. SUPERIOR QUALITY Wood Pulp. For price and samples address, J. HENRY BLANCHARD, Boston, Mass.

ARE YOUR MILLS Fully Insured In SOUND Companies?

A prominent paper-maker writes: "As stated before, we want to get out of the hands of our local agents, who omit no opportunity to make us feel that we are paper manufacturers, and that paper mills are burning up at the rate of one a minute." We can refer to some of the leading Paper Mills, for whom we are SOLE AGENTS.

We can Save you Money.

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Turbine Water Wheel, GEARING & SHAFTING, Rag Engines, Wood or Iron Tubs, RAG-CUTTERS, DUSTERS, Pumps, &c.

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This cut conveys a correct idea of the manner of adjusting these Hooks. It will be observed that the substantial DOUBLE BEARING of each Hook precludes the possibility of its "tearing out."

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Cards under this heading will be charged for at rate of \$10 per annum for each card.

NEW YORK HOUSES.

BLOOMINGTON PAPER AND BAG CO., Corner Greenwich & Chambers sts., N. Y. CLARK, N. E., Mfg. Flour Sacks, &c., 172 Fulton st., N. Y. GORDON & GILBERT, Mfrs.—Paper and Printers, 7 College place, N. Y.

Paper and Paper-Makers' Supplies.

ANDERSON, J. F., Jr., & Co., 34 Beekman st. BARRETT, THOMAS, 113 Fulton st. BEEBE, IRA L., 60 Duane st., cor. Elm. BENEDICT & HIGHER, 118 William st. COBB, A. H., 16 Reade st. GOODWIN, JAS., & CO., 44 Duane st. HAND & ELLSWORTH, 51 Beekman and 81 Ann sts. HARD, MELVIN & SON, 25 Beekman st. HEWITT, C. B., & BRO., 48 Beekman st. HULBERT, H. C., & CO., 13 Beekman st. MASON, JOHN W., & CO., 43 Broadway. MYERS, H. & O., 16 Beekman st. MURPHY, JOHN J., 47 John and 5 Dutch sts. PERKINS & GOODWIN, 84 Duane st. WATSON, GEORGE, JR., 63 Beekman st.

Rags and Paper Stock.

ATTERBURY BROS., 253 & 255 Front st. BRIGGS & TAYLOR, 60 Duane st. GROSS, FR. A., 5 Beekman st. (Room 19). GILDEA, PATRICK, 445 and 447 West 13th st. LYON, J. W., & CO., 35 Park st. HERRMAN, MORRIS S., Woolen Rags, 157 Duane st. MAHARIN, M. A., 35 Spring st. O'MEARA, M., 27 Centre st. SMITH, THOMAS, 30 Hester st. TAYLOR, M. A., 50 Duane st. WARD, OWEN, 448 & 450 West 39th st.

Oils.

BINNS & LEA, 35 Fulton st.

Paper-Makers' Chemicals and Colors.

GANTZ, JONES & CO., 176 Duane st. RIKER, J. L. & D. S., 45 Cedar st. HELLER & MERZ, 55 Maiden lane, N. Y.

Paper-Makers.

ORRIS & CO., Printing and Hanging Mills at Troy, Office, 39 Park Row, New York.

Jute Butt Brokers.

CABOT, BOWLES & CO., 85 Beaver st.

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BUTTERFIELD, H. A., 548 Pearl st., near Broadway. HAYES, JAMES E. & CO., 75 Duane st.

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Leather Belting.

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Paper Boxes.

COZINE & CO., 293 and 295 Broadway, Albany, N. Y.

Paper Makers' Chemicals and Colors.

BLANCHARD, J. HENRY, Chemicals and Wood Pulp, 42 Batterymarch st., Boston, Mass. MITCHELL, WM. H., Paper-Makers' Chemicals, 43 North Front st., Philadelphia, Pa. NEVINS, SAMUEL, Paper-Makers' Chemicals and Colors, 110 South Front st., Philadelphia, Pa.

Paper-Making Machinery.

ALLEN IRON WORKS, Improved Filter, South Adams, Mass. DANIELS MACHINE CO., Rag Cutters, Woodstock, Vt. GAVIT PAPER MACHINE WORKS, 224 to 230 North Broad st., Philadelphia, Pa. HOLYOKE MACHINE CO., Holyoke, Mass. SMITH, WINCHESTER & CO., South Wingham, Ct. CAPRON, E. P. H., Improved Turbine, Hudson, N. Y.

Rags, Paper and Paper Stock.

BAKEWELL, ALLAN C. & CO., Printers' Supplies and Paper Warehouse, 75 Wood st., Pittsburg, Pa. BARBER, J. & J. S., Paper Stock and Binders' Boards, 621 and 623 Commerce st., Philadelphia, Pa. BLOCK & POLLAK, Paper Stock, 206 to 226 West Third st., and 39 to 57 McFarland st., Cincinnati, O. BOYNTON & PERKINS, Paper and Twine, Mfrs. of Cotton Twines and Cordage, Providence, R. I. BUTLER, THOMAS, Dealer in Paper Stock, Woolen Rags, &c., 249 Causeway st., Boston, Mass. ELLIOT, A. G., Paper & Paper Stock, 26 S. Seventh st., Philadelphia, Pa. GARVAN, P., successor to E. J. Carroll & Co., Wholesale and Retail Dealer, Hartford, Ct. GILBERT, WM., & CO., Paper and Woolen Mfrs' Materials, 11 & 13 Market st., Chicago, Ill. GRAHAM & BRO., H. B., Paper Warehouse and Stock Dealers, St. Louis, Mo. GRAVES & BROWN, Wholesale Dealers in Rags, Corner Church and Arch sts., Albany, N. Y. HARRISON, JAMES, Dealer in Paper and Rags, 102 Second av., Pittsburg, Pa. KNIGHT, REEVE L., Jr., Book and News Paper and Paper Stock, 523 Commerce st., Philadelphia, Pa. MCARDLE & HART, Cotton and Woolen Rags and Paper Stock, Newburg, N. Y. MARKLE, C. P. & SONS, Mfrs. of Printing and Glazed Hardware, 126 Second av., Pittsburg, Pa. MASSACHUSETTS PAPER COMPANY, Paper and Paper Stock Dealers, 239 Main st., Springfield, Mass. MAYER, A. B., Rags and Paper Stock Dealer, 1014, 1020 & 1022 N. Twelfth st., St. Louis, Mo. SNIDERS, LOUIS' SONS, Manufacturers and Wholesale Paper Dealers, 121 Walnut st., Cincinnati, O. WHITE, ALONZO, Commission Merch't & Wholesale Dealer in Paper & Stock, 114 State st., Hartford, Ct. MARKER, JOHN D., & SONS, Wholesale Dealers, 515 & 517 Commerce St., Philadelphia, Pa.

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ROGERS, H. W., Straw Wrapping Mill at Philmont, Columbia Co., N. Y.

Straw Boards and Straw Wrapping.

TUCKER'S, E. SONS, Straw Boards, Paper and Paper-Box Mach'y, 100 Trumbull st., Hartford, Ct.

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IMPORTATIONS OF PAPER STOCK, PAPER, BOOKS, CHEMICALS, &c.

IMPORTS of Paper and Paper Materials, Books, &c., at the Port of New York, for the week ended Dec. 21, 1877. Quantity given in packages when not otherwise specified.

Table with columns for item name, quantity, and price. Includes items like Aniline Colors, Alum, Aluminous Cake, Bleaching Powders, Soda Ash, Soda, Bicarb., Soda, Caustic, Soda, Sal., Ultramarine, Books, Newspapers, Engravings, Ink, Lead Pencils, Paper, Steel Pens, Stationery, Clay, Jute Butts, Jute Rejects, Paper Hangings, Paper Stock, Waste, and Total.

TOTAL IMPORTS.

General Merchandise, for the week ending Dec. 21, \$4,003,028. Paper, Paper Stock, &c., for the year ending May 23, 1877, 15,074,825. Paper, Paper Stock, &c., for the year ending May 22, 1874, 12,150,855. Paper, Paper Stock, &c., for the year ending May 21, 1875, 13,292,891. Paper, Paper Stock, &c., for the year ending May 20, 1876, 11,293,406. Paper, Paper Stock, &c., for the year ending May 19, 1877, 9,627,694. Paper, Paper Stock, &c., for the quarter ending Aug. 24, 1877, 2,582,505. Paper, Paper Stock, &c., for the quarter ending Nov. 23, 1877, 2,748,071. Paper, Paper Stock, &c., for the week ending Nov. 30, 1877, 301,146. Paper, Paper Stock, &c., for the week ending Dec. 7, 1877, 254,373. Paper, Paper Stock, &c., for the week ending Dec. 14, 1877, 88,619.

IMPORTS of Rags and Paper Stock at the Port of New York, since Jan. 1, 1877, from the following Ports, showing quantities from each Port.

Table with columns for Port, Rags, Paper Stock, and Total. Lists ports like Alexandria, Antwerp, Beyrout, Bremen, Bristol, Calcutta, Catania, Constantinople, Curacao, Gibraltar, Glasgow, Genoa, Hamburg, Havre, Havana, Hayti, Hong Kong, Hull, Jamaica, Königsberg, Leghorn, Liverpool, London, Malta, Messina, Naples, Nassau, Nuevitas, Newcastle, Palermo, Patras, Pillau, Port Cabello, Rio Janeiro, Rotterdam, San Francisco, St. John's, Trieste, and others.

EXPORTS of Paper, Books, &c., from the Port of New York to Foreign Ports, for the week ended Dec. 25, 1877, with Aggregates and Values.

Table with columns for destination, quantity, and value. Lists destinations like Bremen, London, British North American Colonies, British West Indies, Argentine Republic, Cuba, Venezuela, China, and others.

TOTAL EXPORTS.

General Merchandise, for the week ending December 25, \$6,467,186. Paper, &c., for the year ending May 27, 1873, 2,899,482. Paper, &c., for the year ending May 26, 1874, 1,783,877. Paper, &c., for the year ending May 25, 1875, 2,327,682. Paper, &c., for the year ending May 24, 1876, 1,654,384. Paper, &c., for the year ending May 23, 1877, 1,790,669. Paper, &c., for the quarter ending Aug. 28, 77, 444,451. Paper, &c., for the quarter ending Nov. 27, 77, 362,684. Paper, &c., for the week ending Dec. 4, 1877, 25,170. Paper, &c., for the week ending Dec. 11, 1877, 21,477. Paper, &c., for the week ending Dec. 18, 1877, 15,135.

NEW YORK IMPORTS.

FROM DECEMBER 22 TO DECEMBER 28, INCLUSIVE.

Rags, &c.

John W. Mason & Co., Egypt, Liverpool, 62 bs. old rope. W. H. Parsons & Co., Italy, Liverpool, 86 bs. rags. Campbell, Hall & Co., Helios Königsberg, 1,243 bs. rags. Fett & Sengstack, Canada, Havre, 67 bs. F. A. Gross, by same, 50 bs. rags; 10 bs. old rope. Briggs & Taylor, Huguenot, Glasgow, 50 bs. manilla. Briggs & Taylor, Italy, London, 4 bs. old papers; 270 bs. manilla. Briggs & Taylor, State of Georgia, Glasgow, 50 bs. paper stock; 42 bs. rags. Warren, Barnes & Co., by same, 120 bs. rags; 12 bs. old papers. Fabbri & Chauncey, Pietro Accame, Genoa, 167 bs. rags. W. O. Davey & Son, New World, London, 55 bs. paper waste. Lee & Sturges, by same, 95 bs. rags; 22 bs. manilla. Geo. Campbell, Jr., by same, 69 bs. paper waste. Campbell, Hall & Co., by same, 22 bs. rags. W. H. Parsons & Co., Victoria, Glasgow, 65 bs. paper waste. Recknagel & Co., Weser, Bremen, 73 bs. paper stock. John W. Mason & Co., Cornwall, Bristol, 85 bs. old rope. Lee & Sturges, E. W. Stetson, London, 110 bs. rags.

Paper.

L. de Jonge & Co., Canada, Havre, 2 cs. Steglich & Smyth, by same, 1 cs. Gane Bros., Frisia, Hamburg, 8 cs. L. de Jonge & Co., by same, 4 cs. Kaufmann & Co., by same, 1 cs. R. Gledhill, Italy, London, 1 cs. hangings. A. D. Jalliard & Co., Bothnia, Liverpool, 4 cs. L. Marcotte, City of Chester, Liverpool, 3 cs. hangings. Chas. Lichtenberg, Weser, Bremen, 3 cs. J. A. Norman, by same, 2 cs. G. J. Kraft, by same, 1 cs. B. Hildebrand, by same, 1 cs. Banatt Bros., by same, 2 cs. colored. C. Kaufmann, by same, 1 cs. colored. E. & H. T. Anthony & Co., Lessing, Hamburg, 7 cs. J. C. Bloomfield & Co., Baltic, Liverpool, 3 cs.

PHILADELPHIA IMPORTS.

Books.

P. Wright & Sons, Sarmatian, Liverpool, 2 cs. Paper Stock. Jessup & Moore, Wyoming, Savannah, 11 bs. Bernd Bros., by same, 1 bs. rags.

Bleaching Powder.

Ferguson Bros., Sarmatian, Liverpool, 50 cks. Brown Bros. & Co., by same, 19 cks. Cooper, Smith & Co., by same, 50 tcs. Order, by same, 21 tcs. Order, Etta Whittemore, Liverpool, 157 tcs.

Soda Ash.

Brown Bros. & Co., Sarmatian, Liverpool, 37 tcs. G. W. & J. W. Reeves, by same, 50 drums. Order, by same, 33 cks.

Caustic Soda.

Order, Sarmatian, Liverpool, 2 drums.

Rosin.

Order, Wyoming, Savannah, 196 bbls.

BALTIMORE IMPORTS.

Books.

A. Schumacher & Co., Scandinavian, Liverpool, 1 cs.

Soda Ash.

C. F. Pitt & Son, Scandinavian, Liverpool, 59 cks.

BOSTON IMPORTS.

IMPORTATIONS of Paper Stock, Chemicals, &c., at Port of Boston, from December 21, 1877, to December 27, 1877, inclusive.

Books.

Boston Athenaeum, Marathon, Liverpool, 2 cs. A. Williams & Co., by same, 1 cs. Estes & Lauriat, by same, 1 cs. John Allyn, by same, 1 cs. Little, Brown & Co., by same, 3 cs. Stone & Downer, by same, 6 cs. A. H. Roffe & Co., by same, 2 cs. J. Wilder, by same, 1 cs. Ginn & Heath, Siberia, Liverpool, 1 cs. Ginn & Heath, Java, Liverpool, 2 cs.

Paper.

Codmaro & Shurtleff, Marathon, Liverpool, 1 cs. Kidder, Peabody & Co., by same, 1 cs. C. Ried, by same, 1 cs. Meyer & Blakster, by same, 1 cs. Dennison & Co., by same, 7 cs. E. A. Howland, by same, 1 cs. J. L. Sullivan, by same, 1 cs. stationery. A. P. Schmidt, 2 cs. music.

Paper Stock.

Haskins & Montague, Acadia, Charlottetown, 13 bs. paper stock. Haskins & Montague, Carroll, Charlottetown, 16 bs. paper stock. Fett & Sengstack, Lepanto, Hull, 76 bs. rags. Jasigi & Co., H. A. Holmes, Smyrna, 342 bs. rags. Haskins & Montague, J. M. Custy, Buenos Ayres, 70 bs. rags. Train, Hosford & Co., Illyrian, Liverpool, 50 bs. rags. M. A. Ring & Sons, Marathon, Liverpool, 28 bs. rope. Knowles & Appleton, Siberia, Liverpool, 114 bs. paper stock.

Caustic Soda.

E. Hill, Marathon, Liverpool, 50 drums.

Hypso sulphite of Soda.

E. & F. King & Co., Marathon, Liverpool, 10 cks.

Venetian Red.

E. Hill, Egbert, Newcastle, 400 bbls.

China Clay.

J. Schumacher & Co., from Rotterdam, 104 cks. J. Henry Blanchard, Seminole, Savannah, 25 cks.

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FOR Making Tubes for Flour Sacks and Grocers' Bags. The very best and simplest made.

ONE MACHINE TUBES ALL SIZES.

A girl can run and make all the changes.

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No Putty, no Leaks. Perfect Ventilation and Light. Cannot be equalled.

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Persons at a distance wishing to make contracts for advertising in any town, city, county, State or Territory of the United States, or any portion of the Dominion of Canada, may send a concise statement of what they want, together with a copy of the ADVERTISEMENT they desire inserted, and will receive information by return mail which will enable them to decide whether to increase or reduce the order.

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RUFUS SIBLEY, Agent.

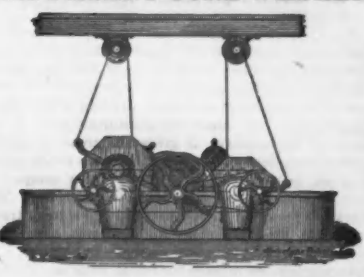
References by permission: HUDSON & CHENEY PAPER CO., North Manchester, Conn.; WILKINSON, BROS. & CO., Birmingham, Conn.; and many others.

JAMES HAMILTON, PAPER MERCHANT & AGENT, 165 St. Vincent Street, GLASGOW.

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So far exceeds anything in its line that has ever been made, that if you are interested in the washing of paper stock, you cannot afford to pass it by without giving it your attention. The improvements consist in the shape of the bucket and a stationary cone through which the water is discharged, in a solid, unbroken stream, into a cast-iron spout cast in one piece, made in connection with the boxes for pinion shaft and drip for pinion gear, all of which are bolted to the side of the Engine, making a very neat and compact arrangement. The washer is easily raised from the Engine, as shown in the cut, being carried towards the centre and out of the way in emptying. For washing rags, but one or two Engines is required as it will discharge three times the amount of the "Phelps," so long in use, and twice the quantity on papers, doing the work much better, as the ink is not ground into the stock. The fast washing of stock, when first furnished, is very important in obtaining a good result as well as in saving time, which is now as fully demonstrated as it was the day we graduated from the old curb to the cylinder washers. Thirty years of more experience has at last taught us that we have not discharged the water, that went so easily through the wires. The washer is made in the most substantial manner, and warranted to do all that is claimed for it or no sale.

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Single Copies, 10 Cents

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Advertisements cannot be received for insertion in the current week later than 9 A. M. on Friday. The charge for advertising is 25 cents a line, each insertion. Special terms for standing and displayed advertisements to be had on application. Card in Directory Column and one copy of paper, \$10 a year.

THE PAPER TRADE JOURNAL is the recognized organ of the various Paper-Makers' Associations of the United States.

THE JOURNAL contains the latest and fullest information relative to the paper trade in all parts of the world, including descriptions of new appliances and processes for making paper, experiments with new fibres and other materials, a record of the water supply, with the latest manufacturing news in all parts of the country. It gives the cream of all the foreign technical journals which relate to the paper interest, besides communications from competent persons in the trade, both at home and abroad. The market review and quotations show the state of trade in all the principal cities, and no pains have been spared to make these accurate and complete.

Subscription and postage for Great Britain, per annum, £1
Subscription and postage for France, per annum, 35 francs
Subscription and postage for Germany, per annum, 8 thalers
Foreign subscribers may address our New York office.

Communications on matters of interest to the trade are earnestly solicited from all quarters, and if used will be liberally paid for. Items of news, and facts of all kinds in relation to the state of the mills, &c. will be gladly received.

All communications must be addressed to

HOWARD LOCKWOOD,

Publisher and Proprietor.

No. 74 Duane street, N. Y.

Philadelphia Office: No. 505 Chestnut st.

TO CORRESPONDENTS.

As THE PAPER TRADE JOURNAL is the recognized vehicle of communication in matters of trade interest, we will be glad to receive correspondence from all parts of the country. Information and suggestion upon paper-making topics are especially valuable, and manufacturing news and personal items are equally acceptable.

THE year goes out and another comes in. May it be a happy one to our friends and all humanity as well.

PAPER-MAKERS will find a valuable list of books relating to paper manufacture and incidental subjects in another column.

THE process for making thick paper described in last week's JOURNAL is commented on by several correspondents. It would seem that the idea is not new. It remains for the inventor to substantiate his claim to originality.

OUR illustration to-day is of a new form of the Gould engine. The main feature is substantially the same as that first patented by Mr. Gould. It differs in the details somewhat, but especially in the application of power to drive it. In the first engine the power was applied to a perpendicular shaft, while in this improvement it is directed upon a horizontal shaft, which seems to us to be a great advantage.

OUR crowded space forbids the publication of another letter from Professor Underwood upon the Safety Paper question. It appears that Mr. Camp, of the Clearing House, was erroneously said to have recommended an award to the National Safety Paper. We are now informed that he has never had any occasion to change his views, but that he has believed from the first that the National Safety Paper was not a perfect security, and had refused to indorse it as such.

It is suggested that we can employ our space better than by devoting it to descriptions of processes not new. The point is not a good one. How would the trade otherwise discover whether the recent patents, really important in their bearing upon paper-making interests, are adverse to their rights? If the new processes are merely infringements upon well known or discarded methods it is valuable to know, and if new they are certainly important and worth considering. These things are given for the information of the trade, and that they reach home is plainly shown in three letters which we print to-day—among them that of our correspondent who good-naturedly excepts to, and then justifies our action.

THE anxiety in Europe has got into a second stage. No sooner is the French trouble over than new and more dangerous complications arise. They are the natural consequences, however, of the political condition, and any empirical treatment of it, as England desires, would only drive the disease further in, and it would be sure to break out later, especially as long as that festering sore, Turkey, is not radically got rid of. The anxiety in England is only a counterpart of what prevails elsewhere. There is not a country in Europe which has not its own causes for apprehension. England has its strikes, the increasing discontent among the working classes and its political and commercial position threatened at every moment by progress in the arts of war or peace. Germany is bowed down by a huge standing army and a commercial depression which is not relieved by any prospects of export trade or home industry, and anxious as to the position she may stand in when the next war requires her legions. The smaller powers are not only anxious but frightened and uncertain as to who even their enemies may be. Belgium is between the hammer and the anvil, and is looking round to find a friend or disarm a foe—by peaceable means. Her iron works are standing still and her dreams of commercial greatness are vainly awaiting a commercial marine and that universal trading position which nations are in search of. Holland is so full of gentlemen living on their money, besides "Dutchmen, dikes, and drakes" that her attention is only somnolently drawn to the possibility of being invaded by something else than the element she has been so long fighting against, and to the fact that her coffee auctions and her *Maatschappij* do not somehow exert their old-time market-swaying influence. Austria is trying to arrange a commercial treaty that will please the Magyars and not offend the Germans. The whole Continent is a cauldron, and the result of the brew is very uncertain. The paper trade in common with all other interests is suffering heavily, for the increased circulation of a few journals is a very poor counterbalance to the decreased consumption of all kinds of paper resulting from the commercial stagnation.

A RECENT patent for an apparatus for preparing pulp from written and printed papers is described on our first page. We omit the illustration as unnecessary to an understanding of the process. The method substantially consists of boiling the imperfections or papers in a rotary boiler with alkali, under pressure. After the stock is sufficiently boiled it is emptied into an oblong vat partly filled with water, and containing a paddle-wheel, two washing cylinders and a midfellow, making it substantially a large washing engine. After being washed in this vat the pulp is transferred to a rag engine by means of a pump, where it is rewashed, reduced to pulp, and bleached. This system, we think, is faulty. From practical experience in this country it has been found that the following mode of treating paper stock has produced the best results: Put the papers into an open tub with a false bottom; thoroughly saturate them with alkali, and boil them under a low pressure for several hours; then raise them out of the tub by means of the false bottom; pile them up in bins for three to five days to drain before using. By this system the papers come out of the tub in whole pieces, and the printed matter is scarcely changed, that is, the letters retain their form and the ink is not distributed through the stock. After standing for a few days, as above stated, the alkali contained in the stock saponifies the ink, and sets the coloring matter free, which is easily washed out in the engine. Allen & Mason's system is in almost direct opposition to this. First.—They boil in a rotary boiler under pressure, which partially pulps the stock, and mixes the ink with all the fibres of the stock. Second.—They dump the stock into cold water, which has a tendency to set the coloring matter and renders the stock harder to bleach. By treating this class of stock on the open tub system and letting it lie before washing, the alkali has time to accomplish its work

without mixing the coloring matter with the fibres. By the other plan, the treatment is so severe that the coloring matter and fibres are thoroughly mixed, rendering them seemingly almost impossible to be separated.

THE PARIS EXPOSITION.

The Commissioner-General appointed under the joint resolution of Congress to represent the United States at the Paris Exposition is ready to receive applications for space from American exhibitors. Our paper and machinery manufacturers ought to be represented, and should take early action in that behalf.

The joint resolution also authorizes the Commissioner of Agriculture to use such amount as he may require to prepare suitable specimens of the agricultural products of the several States and Territories for exhibition. This amount is to be taken out of the appropriation, which, after deducting salaries and clerk hire, is only \$106,000.

The amount to be expended by the Commissioner of Agriculture should have been specified. As it is now the Commissioner-General and the Commissioner of Agriculture may not agree as to their respective portions. This may operate to divide the responsibility and, in a measure, defeat the success of the Commission.

The joint resolution further provides that not more than one of the twenty assistant commissioners can be appointed from any one State. This we think is a mistake. The assistant commissioners are not intended to represent an individual State, but the United States. It could not be otherwise, as there are thirty-eight States and only twenty commissioners. Being representatives of all the States and Territories the President should have been allowed to select men best fitted for the respective duties to be performed, regardless of State lines.

The one hundred honorary commissioners who are to report upon special subjects without pay, will have a labor of love to perform. We hope that whoever may be assigned to this honorary position will accept the position with the intention of faithfully performing the duty assigned to him. Otherwise it will be more to his credit to decline it.

Correspondence.

[Communications are solicited from everyone who has anything of value or interest to impart. Items of news, trade gossip, and personal information will be gladly received. Correspondents are requested to write only on one side of the paper. No responsibility for the opinions of correspondents attaches to this paper. Communications must be sent to reach this office by Wednesday night or Thursday morning, of each week, to insure insertion.]

A Seeker after Information.

To the Editor of The Journal:

Will George Hill, now or late of Middletown, Ohio, tell us what he knows regarding the improvement in Fourdrinier paper machines, patented by David Scrymgeour, Boston, Mass.

Yours, QUIL.

A Disputed Invention.

EAST WALPOLE, MASS., December 24, 1877.

To the Editor of The Journal:

The last JOURNAL gives a description of an "Improvement in Machines for the Manufacture of Thick Paper," said to be patented by David Scrymgeour. Over thirty years ago I applied precisely the same invention to my Fourdrinier machine and used it successfully some fifteen or twenty years, when I substituted cylinders for Fourdrinier machines. The only difference between this and mine consists in this: That in this the apron or upper wire-cloth (as I judge from the drawing) passes around its last roll (a) before it reaches the couch-roll, whereas in mine the apron or upper wire-cloth passed around the upper couch-roll, standing, I think, vertically over the lower couch-roll, with boxes in the same stand. I think my plan is the better one. The difference between the two is one merely of detail; the principle of both is precisely the same. Indeed I see no new principle about it—hardly a new application of an old one. It is only an enlarged dandy-roll—simply one of those contrivances which every paper-maker with brains is constantly applying to his processes. Yours truly, F. W. BIRD.

Practical Suggestions for Cylinders.

To the Editor of The Journal:

I am inclined to think the cause of water running back upon the mould of your correspondent "Cylinder," can be obviated by making a new "slice" that will allow of the oscillating motion of the cylinder as it rotates. I am aware and have been troubled myself with the irregular motion of an old cylinder. When the "coucher" is upon the highest outside surface of the mould

the slice raises also, and, of course, the water will run down the mould, making a bad water mark in the paper, which can only be avoided by using a slice that will keep the felt at the proper distance from the mould and not vary with the motion of the coucher. A good arrangement is to make a joint in the slice, nicely and securely hinged with a number of brass hinges, about one foot apart, the whole length of the slice. Now fasten to the ends of this hinged leaf a stiff bar, bent so as to be out of the way of the felt, and so as to rest upon the turned packing edge of the cylinder. Upon the end of this bar fasten a small wheel to run upon the edge of the mould. With this arrangement, by adjusting the end rods of the slice leaf in its place, the edge of the slice will vary as the mould does. If "Cylinder's" vat is so constructed as to make the bar connection inconvenient to arrange, a stiff, open spiral spring with set screws to regulate the distance of the edge of the leaf to the mould might be substituted, but I think the first plan the best as it gives no trouble when once adjusted.

For wrapping paper, the depth of setting the cylinders to give the best results is four inches from the bottom for square vats, and five to six inches for false concave bottoms. I have found that a little variation in the depth of setting does not affect the formation of stock as much as varying the position of the forming board, and having the draft arrangement properly fixed and adjusted.

As for the coucher's position I obtain the best result by setting the centre or coucher shaft three inches back of a vertical line from the centre of the mould. Setting the coucher back of the axis line of the cylinder tends to increase air blisters and water marks, especially if the coucher winding is hard, and the wet felt is allowed to narrow in width by letting the worn rolls get covered with stock, &c. If "Cylinder" observes the foregoing strictly, his difficulties will be greatly diminished, I think. I hope other paper-makers will give their views upon this matter. Yours, &c., H. L. K.

Some New Patents.

To the Editor of The Journal:

It is very commendable in THE JOURNAL to publish in such an elaborate manner the various patents issued for improvements in paper machinery, but it appears to the writer that oftentimes the space devoted to this purpose might be better employed, and that some of these patents are neither new or useful, all practical readers of THE JOURNAL must admit. In the issue of December 8 you publish what is called an "Improvement in Apparatus for Making Paper Pulp" from wood and granted to one Fletcher, of Concord, N. H. I would like to ask what is new or patentable about any part of this so-called invention? The patentee has adopted the Jordan engine, pure and simple, and he certainly cannot claim that there is anything new about the corrugated or stone bed plate, as used in the ordinary beating engine. As to his methods of reducing the wood from the log or the use of caustic alkali, it is simply absurd to claim anything original about it, and I am surprised the Patent Office should have allowed such a patent. Some of the devices are protected by specific patents, and all are well known and in common use, and in their combined application do not form the basis for a patent. In this view of the matter I am confident that every well informed paper-maker will agree with me. In this connection permit me to call attention to another patent (for such I suppose it must be called) described and illustrated in THE JOURNAL of December 22, entitled an "Improvement in Machines for making Thick Paper," granted to one Scrymgeour. The purpose claimed for this invention "is to produce a homogeneous sheet of pulp which shall be very much thicker than has heretofore been produced in paper-making machines." This, I think, will open the eyes of some of our old paper makers. But let us look a little further into this wonderful improvement that is going to revolutionize the present system of making paper. The inventor says in his specification, "this invention consists in an endless reticulated or foraminous apron, disposed over the ordinary wire cloth of a Fourdrinier machine (I would here call attention to the illustration in THE JOURNAL), and traveling in the same direction, &c., and being of such depth that as the web of pulp passes between such aprons, the water in the pulp is expressed by the pressure, and escapes between the interstices of the two aprons." The plain English of this is the application of a second wire cloth on top of the sheet to press out the water, similar to a dandy roll. Now, if the water escapes through the upper wire cloth and between the two, and not down through the Fourdrinier wire, where does it go to? A dandy roll, by its weight, presses the water through the wire, and it runs off under the machine; or if a suction box is used, the water is drawn through the sheet and discharged through the box; but by this contrivance it is claimed both dandy and suction box may be done away with. The inventor further says (and I think this will also be new to most paper makers), that "a limit to the functions or powers of suction boxes consists in the fact that the pulp in the lower part of the web, which passes over them, clogs or obstructs the escape of water from the upper part, and the suction is not of sufficient power to overcome it;" and further, "by the employment of two reticulated aprons, between which the web passes, and thus affording an escape for the water upon both sides, as well as exerting great pressure upon such web, it is claimed that all the water is extracted," &c. Again let me ask, where does the water that is taken up through the top wire cloth, as is claimed, escape? I cannot understand how any man at all conversant with the working of a Fourdrinier machine can claim that such a device can in any manner take the place of a properly constructed suction box, or that it possesses any utility whatever. This second Daniel also

further says: "Heretofore in the manufacture of such articles it has been found impossible, with any machines in use, to produce a single sheet of pulp of the desired thickness" (this man's experience as a paper-maker must be very limited); "but it has been necessary to unite several sheets." This is reversing the generally understood principle in making strong thick papers or boards. The great point to be attained is strength, and this can only be done by uniting several thicknesses, as paper thus made is much tougher and stronger than it is possible to produce in a single sheet of similar thickness, and for leather board and materials of this class this is of the greatest consideration. However, it is not necessary for me to criticise further this and other like "improvements," as all the practical readers of THE JOURNAL will form an opinion on their merits, but it can do no harm to ventilate some of these wonders, and perhaps call more direct attention to their absurdity. The only possible advantage I can conceive such inventions to be to the trade is the consumption of paper required in procuring and issuing the patents.

With a happy New Year to the publisher and his assistants and to the many readers of THE JOURNAL, and kindly wishes for their future welfare, I remain yours truly, COLOR.

Changes, Removals, and New Firms.

H. Pander, news dealer, Petaluma, Cal., has sold out.

W. H. Phillips, of The Sun, Pittsfield, Mass., has sold out.

Johnson Armstrong, stationer, New Orleans, La., has sold out.

J. S. Sargent, stationer, &c., Fitchburg, Mass., has sold out.

E. J. Cornwell, bookbinder, Northampton, Mass., has sold out.

R. O. Robbins, printer, Dexter, Me., has sold out to Robbins & Herring.

Samuel S. Chessman, printer, Boston, Mass., has sold out to C. E. Wetherell.

Ansel T. Hitch, news dealer, New Bedford, Mass., is closing up his business.

Simmons & Vigo, stationers, Shreveport, La., have sold out to L. R. Simmons.

F. P. Merrill & Co., printers, Auburn, Me., have sold out to McKenny & Day.

The Valley Independent Printing Company, Meyendale, Pa., has sold out to Mr. Hawes.

The Pennsylvania Salt Manufacturing Company will, on January 1, 1878, remove its New York office from No. 59 Maiden lane to No. 18 Vesey street, where the business will thereafter be in charge of E. L. Embree.

E. Embree & Son, agents for the American Wood Paper Company, will dissolve partnership on January 1, 1878, E. L. Embree taking the agency of the Pennsylvania Salt Manufacturing Company for the States of New York, Connecticut and Northern New Jersey.

The firm of F. Gray, O'Ferrall & Co., Piqua woolen mills, Piqua, Ohio, has been dissolved by mutual consent. The business of manufacturing paper makers' wet and press felts and jacketing will be continued by F. Gray and W. C. Gray of Piqua, and G. H. Adams of Cleveland, Ohio, under the style of F. Gray & Co., who alone will collect all claims due to the late firm, and will settle all debts against the same.

Failures.

Ford & Dalziel, paper manufacturers, Fort Neuf, Quebec, Dominion of Canada, are reported to have made an assignment.

The property of J. B. Ford & Co. on last Monday was sold by auction by order of the assignee. It yielded \$6,564. The right, title and interest of the firm in the copyright and contract with the author for "The Life of Jesus the Christ," by Henry Ward Beecher, electrotype plates, &c., of two volumes, and the remainder of the edition brought \$1,000.

A warrant in bankruptcy has been issued out of the District Court of the United States for the District of California against the estate of John G. Hodge, of San Francisco, who has been adjudged bankrupt upon his own petition, as noted in THE JOURNAL of December 15.

The committee appointed at the creditors' meeting, held in this city, has had no detailed statement of Mr. Hodge's liabilities and assets, but has received a telegram to the effect that such a statement cannot be made until after January 1. The committee has therefore done nothing looking to a settlement of Mr. Hodge's affairs, but individual creditors have been proving their claims through the Board of Trade. The list of creditors, as filed in the United States District Court, is appended in full.

It is understood that, owing to the fact that there has been a division of accounts between New York and San Francisco, and also that there were quantities of consigned goods sold and other goods bought and in transit, the status of which is not definitely known, it is difficult to eliminate the accounts accurately. Some of the Eastern creditors, therefore, think that the schedule so far given is not absolutely correct. A meeting of the creditors is called at San Francisco for January 19, at which place and time the Eastern creditors will be represented. Following is the list of creditors:

Personal Property Tax, San Francisco, Cal.	\$461 04
S. B. Welsh, San Francisco, Cal.	25 00
Joseph Lyons, "	50 00
Jacob Apple, "	45 00
Jaas. Sutcliffe, "	45 50
Jaas. Coulter, "	10 00
Thos. Doyle, "	15 00
George Faulkner, "	5 00
E. P. Blossens, "	15 00
Geo. W. Perkins, "	30 00
D. E. Libby, "	40 00
James Stephens, Rome, N. Y.	53,000 00
B. Ilfelder & Co., New York	202 21
Carew Manufacturing Company, South Had-	
ley Falls, Mass.	\$1,887 25
E. Kimpton, New York	1,012 99

Table listing various companies and their addresses, including D. Appleton & Co., New York, and others.

Table listing companies and their addresses, including H. Levy & Co., New York, and others.

CHATTEL MORTGAGES.

Table listing chattel mortgages, including names like Joseph Fink and Henry Luding.

BROOKLYN.

Table listing mortgages in Brooklyn, including Wm. H. Rees and Rowland & Cornwell.

NEW YORK STATE.

Table listing mortgages in New York State, including Arthur B. Elliott and Mary J. Schecht.

EASTERN STATES.

Table listing mortgages in Eastern States, including W. F. Brown and Robert M. Jones.

WESTERN STATES.

Table listing mortgages in Western States, including Lewis A. Kent and John Alexander.

SOUTHERN STATES.

Table listing mortgages in Southern States, including W. H. Ruby and W. H. Bendler.

NOTICE.

Notice regarding a chattel mortgage purporting to be given by Stephen A. Potter.

FIRES.

Reports on fires, including one at F. A. Ward's printer and another at J. K. Coolidge's stationer.

IN TOWN.

News items from town, including a fire at J. H. Appleton's and a fire at J. H. Kohnstamm's.

GENERAL NOTES.

General notes on the paper trade, including furnace operations and market conditions.

SPECIAL NOTICES.

Special notices regarding advertisements and their costs.

Advertisement for the Paris Universal Exposition, featuring the name 'PARIS UNIVERSAL EXPOSITION' and contact information for Edward Conley.

TO PAPER MANUFACTURERS.

Text regarding the agency for the manufacture of Wood Pulp (Mechanically) and the preparation to negotiate for the issuing of licenses.

PATENTS.

Text regarding patent arrangements with inventors or owners of patents relating to Paper-Making Machinery.

EDWARD CONLEY, 74 Duane Street.

Market Review.

Text regarding the money market and the active demand for money at 7 per cent.

Text regarding government bonds and the fact that they were fairly active and firm.

Text regarding gold and the fact that it has fluctuated only little during the past week.

Table showing gold market data with columns for Opening, Highest, Lowest, and Closing prices.

Text regarding the posted rates for bankers' sterling and the fact that they are to-day \$4.82 1/2.

Text regarding the paper trade and the period of time known as 'holiday week'.

Text regarding foreign rags and paper stocks and the fact that there is nothing new to say regarding this market.

Text regarding jute butts and the fact that the only arrival we have to record is the Nairnshire.

Text regarding domestic rags and the fact that the market during the past week has been in a very fair state.

Text regarding baggings and the fact that there have only been few transactions during the week.

Text regarding woolen rags and the fact that the market for these is also in a very fair state.

Text regarding the quantity of business done this week over the previous two weeks.

Text regarding the market for shavings and old paper and the fact that prices are not as high as they were.

Text regarding the market for chemicals and the fact that there is little change in this market.

Text regarding the market for rags and the fact that there is nothing new to say regarding this market.

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Table listing various types of paper and their prices, including White Shirt Cuttings, Mill Assorted Whites, and others.

Table listing various types of paper and their prices, including White Collar Cuttings, White Envelope Cuttings, and others.

Table listing various types of paper and their prices, including White Shavings, Soft White Shavings, and others.

Table listing various types of paper and their prices, including English Rags, Essex Fines, and others.

Table listing various types of paper and their prices, including Hamburg Rags, Linen Cuttings, and others.

Table listing various types of paper and their prices, including Old Book Paper, Old Printed Paper, and others.

Table listing various types of paper and their prices, including Lignhorn and Genoa Rags, S. S. No. 2 Linens, and others.

Table listing various types of paper and their prices, including Memel Rags, S. P. F. F., and others.

Table listing various types of paper and their prices, including Konigsberg Rags, S. P. F. F., and others.

Table listing various types of paper and their prices, including Whites, Blues, and others.

Table listing various commodities such as Sugar Lead, Sulphuric Acid, Ultramarine, and Venetian Red with their respective prices.

BOSTON MARKET.

Table titled 'Paper Stock' listing various types of paper and their prices.

Table titled 'Leyhorn Rags' listing different grades of rags and their prices.

Table titled 'Alexandria Rags' listing various types of rags and their prices.

Table titled 'Constantinople Rags' listing different grades of rags and their prices.

Table titled 'New Papers' listing various types of paper and their prices.

Table titled 'Boston Chemicals' listing various chemical products and their prices.

Table titled 'Philadelphia Market' listing various commodities and their prices.

Table titled 'Paper Stock' listing various types of paper and their prices.

Table titled 'Paper Stock' listing various types of paper and their prices.

Table titled 'Leyhorn Rags' listing different grades of rags and their prices.

Table titled 'Russian Rags' listing different grades of rags and their prices.

Table titled 'Chemicals' listing various chemical products and their prices.

Table titled 'Cincinnati Market' listing various commodities and their prices.

Table titled 'Rags and Paper Stock' listing various types of rags and paper.

Table titled 'Chicago Market' listing various commodities and their prices.

Table titled 'Foreign Markets' listing various international market reports.

Table titled 'The French Market' listing various commodities and their prices.

Table titled 'Paper Stock' listing various types of paper and their prices.

Table titled 'Paper Stock' listing various types of paper and their prices.

CONLEY'S Mill and Machinery Agency.

FOR THE PURCHASE, SALE, OR EXCHANGE OF PAPER, COTTON, WOOL-EN, GRIST and OTHER MILLS ALSO, MACHINERY, MILL SITES and PRIVILEGES.

Estimates given for New Machinery at very much lower prices than can be obtained elsewhere.

Parties having any kind of Machinery or Mill Property which they desire to sell, will please send a list and description of the same to the undersigned, who offers for sale a large line of Paper-Making Machinery and Mills, including the following:

One 72-inch Rice, Barton & Fales Fourdrinier machine, carries 3 1/2 foot wire, and consists of 8 iron drivers, 5x9, sizing machine and lay-boy. Top size roll and both top press rolls are gum metal; bottom press rolls are covered with rubber. The whole machine is in complete order throughout and now running on writing papers. Price, \$1,000, set up in mill.

One 75-in., one 72-in., one 62-in., one 42-in. and one 30-in. Fourdrinier Machine. One 36-in., one 42-in., one 48-in., one 52-in., one 54-in., two 62-in., and one 73-in. Cylinder Machines. One hundred and twenty-seven Skeleton Dryers, 36 in. by 80 in., with pulleys, gears, &c., all complete and nearly new, used in drying animal-sized writing papers.

One Hydraulic Press, made by the Holyoke Machine Co., and as good as new; platform, 53 x 50 in., opening, 7 ft. 3 in., diameter of piston, 8 in., diameter of corn rods, 3 in. One stack of Chilled Calendar Rolls, consisting of two 12-in., and five 6-in., all 62 in. long on face, with Strands and Driving Gear, all complete.

Three Couch Rolls, one rubber and two copper, 12 in. by 68 in. wide. One Breast Roll, 12 in. by 68 in. One stack of six Super Calenders, 31-in. face. Four stacks of Straw Board Calenders, from 30-in. to 40-in. face. Two Rag Cutters, one Rope Cutter, one Cane Cutter, one Wood Chopping Machine. Eight Iron Dryers, 14 in. by 36 in., in good order. Price \$150, cash.

Twenty Steam Engines, from 10 to 300 H. P., including one 90 H. P. Corliss Engine, and one 80 H. P. Putnam Machine Co. make. Four Double Flue Steam Boilers and one large Locomotive Boiler. One large Steam Pump (G. H. Dean & Co.) Two Rag Dusters, one Rag Thrasher, two Devil Dusters. Two 48-in., one 54-in., one 62-in., and one 84-in. Paper Cutters, one 62-in. Hatch Cutter. One Gould Patent Engine. One Kingsland Patent Engine. One Standing Press, with gun-metal screw, plate 34 in. by 48 in.

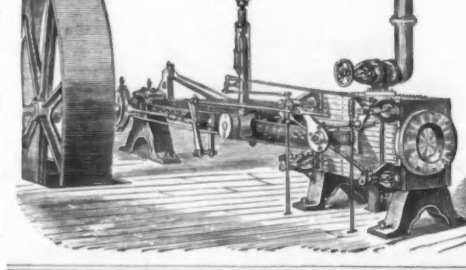
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One Rotary Boiler, 6 1/2 feet by 24 feet. Three Wood or Straw Heaters. One set of Artesian Well Tools. One No. 8 Armstrong Heater. One "Lift" or Elevator Wheel for Cylinder Machine, 48 in. diameter, 17 in. wide; new and complete. About 7,000 Spruce and Pine Loft Poles, 700 of them 10 feet long, the remainder 12 feet 4 in. long. One W. O. Hickok's Pennsylvania Ruling Machine. Three sets of Press Board Polishers.

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EXTRACT OF AWARD ON CHILLED ROLLS.

The undersigned having examined the product herein described respectfully recommends the same to the United States Centennial Commission for award, for the following reasons, viz:

This exhibit contains a stack of calendar- ing rolls intended to be part of a complete paper machine. These rolls are of cast-iron, chilled at the surface in casting, and thereby made hard, like tempered steel. They are separately ground according to a highly im- proved plan, and are so true that, when placed together, they bear upon each other through out their entire length. This exhibit has the exceptional merit that the rolls are not only GROUND true but CAST by the exhibitor.

(Signed) JAMES M. WILCOX, Signature of the Judge.

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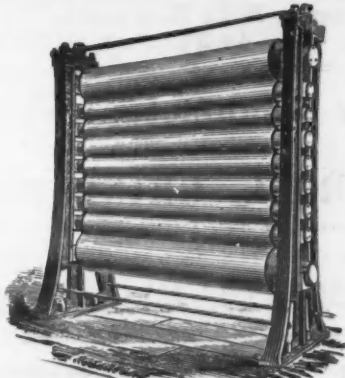
We warrant every Felt to work well, and if it does not, it can be returned.

SATISFACTION GUARANTEED.
In ordering Felts, give kind of Stock used, and quality of Paper made.

[From The Paper Trade Journal of March 4, 1876.]
MIDDLETOWN, O., February 23, 1876.

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Much has been said in former numbers of THE JOURNAL about the running and durability of cylinder long felts. GRAY, O'FERRALL & Co. are supplying the best cylinder long felt I have ever had any experience with for wide machines. I think they decidedly excel. They keep their width under a reasonable strain, and when kept clean never trouble with wind marks, never get slack in the middle or edges; in fact they make paper with ordinary care, until they are entirely worn out, and it would be well for any one who is troubled with an unsatisfactory working felt of any other make, to try one, and by all means to do so if there is a necessity for fast running.

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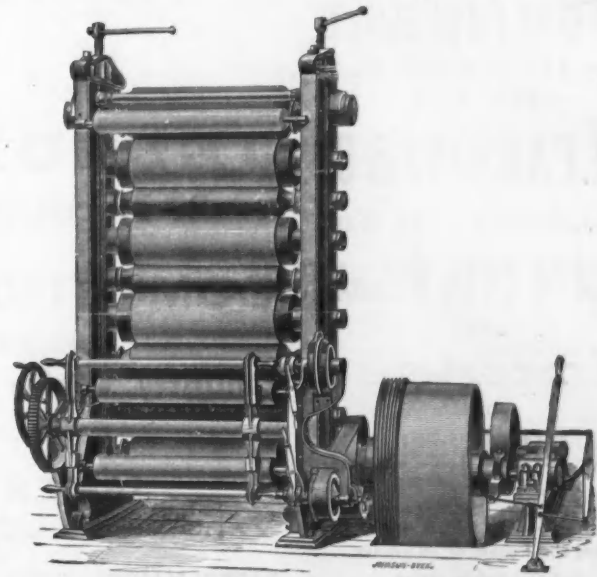
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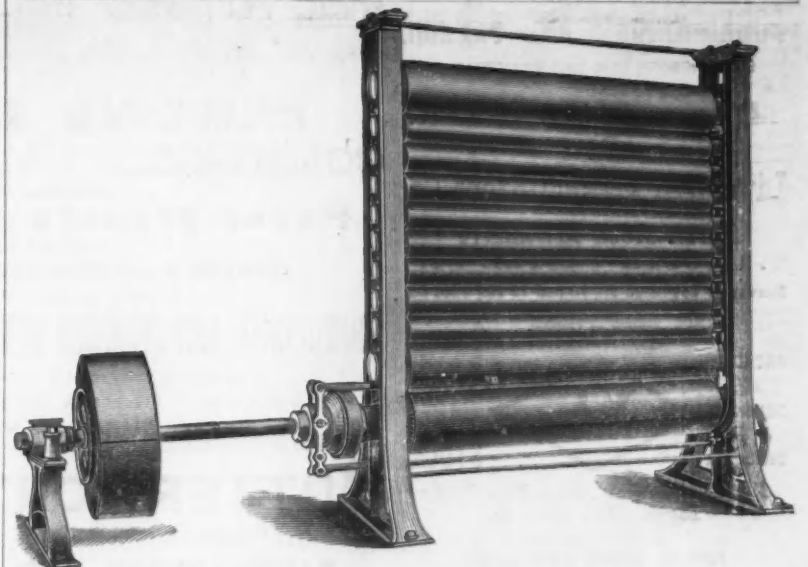
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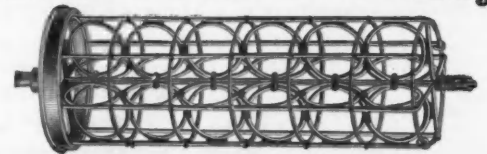


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