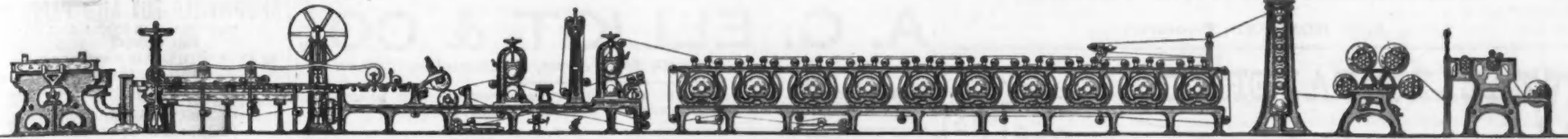


THE PAPER TRADE JOURNAL.



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

VOLUME XVIII.—NO. 37.

NEW YORK, SEPTEMBER 14, 1889.

WHOLE NUMBER 802.

Trade Topics.

Value of Compound Engines.

[WRITTEN FOR THE JOURNAL.]

By W. H. WESTON, M. E.

(Continued.)

In continuing the subject a little explanation of the performance of the different engines may be of use. At the present time the best non-condensing engines use, on an average, about 23 pounds of water per hour per horse power, while the largest per cent. of engines running to-day take 26 to 28 pounds.

With the best compound condensing engines the amount of water per horse power per hour is reduced to 15 pounds, which, compared with one using 25 pounds, shows a saving of 40 per cent., thus demonstrating the saving in coal required to develop a given power; the less water evaporated the less the amount of coal correspondingly.

In some of the very large compound engines which are running at the present time the amount of water used is below 15 pounds. The tendency in these engines is to carry high initial steam pressure, which is, in accordance with the science of steam engineering, the direct way to approach economy. One pound of water evaporated to steam at very high temperature and pressure requires less fuel in proportion to generate it than at lower pressure, and the higher the pressure and drier the steam the less the condensation in the cylinder; hence the economy.

The advantage gained by these engines is secured by the steam expanding from the high initial pressure in the high pressure cylinder to a low one in the large cylinder, through a long range, the condensation of the steam on the surface of the cylinder not being as great as it would be for the same ratio of expansion in a non-compound.

This condensation on the cylinders is the cause of the great proportion of the power in the steam being lost. More than 85 per cent. of the power is sacrificed.

To give a few words in explanation of this, suppose the initial steam pressure to be 100 pounds, the temperature of this will be 328°. Now, if expansion is carried to where the pressure at the end of the stroke is 20 pounds, the temperature of the steam when it is at this pressure will be 228°, and it is evident that the temperature of the cylinder will be somewhere about a mean between the two, or below a mean, because it is alternately exposed to each. When steam from the boiler at 100 pounds pressure and 328° temperature enters the cylinder and comes in contact with the iron at a lower temperature, the contrast is very marked. The result is the condensation of part of the steam, the power imparted to it as steam not becoming available when it is in the form of water. This goes on at every stroke of the engine, thus throwing away the large per cent. of power which the coal generates.

Returning to the compound engine, another element of gain is by the vacuum secured in the large cylinder, which gives an increase of pressure of 12 to 13 pounds, which on the area of the large piston amounts to much increase of power.

Next, the heating of the feed water for the boilers shows a gain of power, having the water delivered from the condenser at about 130° temperature and then running it through a proper heater. If a pump is used to feed it to the boilers it can be raised to nearly 200°, which in a very large steam plant shows a vast saving of coal in comparison to forcing the feed water into them at low temperatures. And right here may be mentioned the destructive and dangerous effects of the running of water at low temperature into a boiler where, coming in contact with the hot plates, it causes unequal contraction and expansion, which are among the most serious elements causing deterioration and explosion.

These may be avoided by heating the feed sufficiently.

The choice of a condenser, whether it be a jet or surface condenser, must be decided by circumstances. An element of advantage given by a surface condenser is that the water of the boilers does not become mixed with that used for condensing the steam, and this is of much importance, as in some instances it is not of a proper nature and would be destructive to the boilers. As an example, the performance at a pumping station may be given where the water was taken from driven wells. Two inch pipes were put down about 70 feet, and brought up a very hard spring water, which caused a hard and flinty scale in the boilers, which attached itself so firmly to the plate as to be almost impossible to remove. As a consequence, the boilers became unsafe in a comparatively short time. Now, by substituting for the jet condensers a surface condenser and using rain water for the boilers the difficulty is avoided.

As in this arrangement of a plant the water in the boilers is used over and over continually, one filling is sufficient for continuous running; the only amount required beyond this is the very little to replace that which may leak out at the pipe joints or be blown out at the cylinder cocks, &c.

Considering the success which has attended the use of rain water in the past, where it has been properly employed, it seems evident that it is the best for the purpose. Experience shows that distilled sea water may develop galvanic action and thereby cause corrosion of boiler plates, and it also shows that usually the replacing of what is lost by leakage, &c., by a different water, hard or containing lime, salt, &c., will counteract the tendency to galvanic action, which affects the plates.

These remarks only apply to particular situations. Of course where a good pond water can be obtained (and there are many such places) it answers every purpose for steam power; being clear and soft and free from any serious scale making properties.

In conclusion, to sum up what has been written in a few words: 1. The extra cost of a compound condensing plant is not a serious element, and will be entirely made up in a short time. 2. The attendance on this plant should not be any more than for a non-condensing engine or engines of the same power. 3. The amount and cost of repairs will be no more for one than for the other. 4. Deterioration will be no greater for the compound engine. And lastly, the saving of about 40 per cent. in coal shows how much the compound engines will increase the profits.

Considering these advantages it is evident that these engines should be used in new mills of large capacity.

Improved Paper Making Machine.

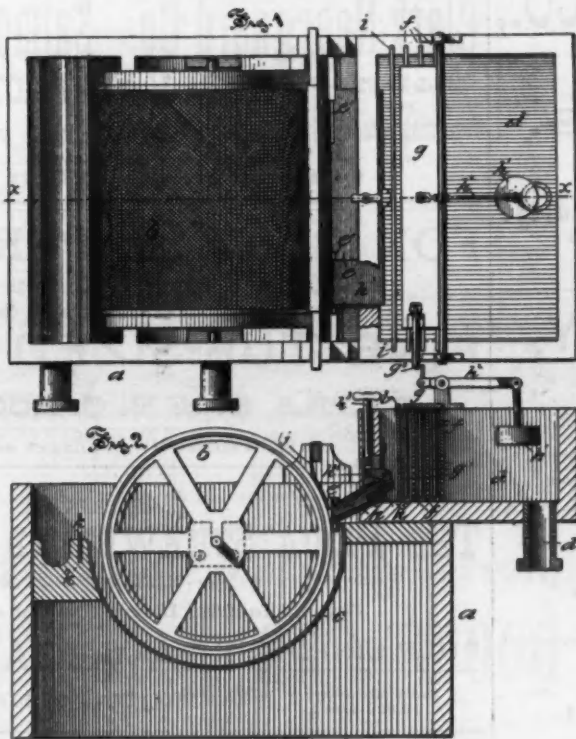
The illustrations on this page represent an improvement in cylinder machines for making paper, the purpose being to provide a machine that will render it possible to produce paper of more uniform texture and density than has heretofore been possible, and one that will enable paper to be formed of increased strength. It consists in the combination in a cylinder machine, of a pulp box with a spout projecting from the box and terminating close against the wire on the cylinder, and a blanket, the lower edge of which defines the line of application of the pulp to the surface of the cylinder.

It further consists in several devices making up the machine, including a reservoir

with delivery spout, a mixer and a regulating gate, and in their combination.

Figure 1 is a top or plan view of the machine. Fig. 2 is a view in vertical central section through the machine, on the line *x x* of Fig. 1.

The letter *a* denotes the frame of the machine as a whole, and *b* the mold supported in suitable bearings in the vat *c*. On one side of the cylinder and with its floor above the level of the point of application of the stuff to the face of the cylinder is arranged a stuff receiving reservoir, *d*, into which the stuff from which the paper is to be formed flows from the screen vat through the inlet pipe *e*. Within this reservoir *d*, and extending across it on the side adjacent to the flume *e*, through which the stuff flows upon the mold *b*, are arranged a series of parti-



IMPROVED CYLINDER MACHINE.

tions *f*, having a number of openings through them for the passage of the stuff. A mixer, *g*, supported above or on these partitions, bears rods or arms, *g'*, which extend down between the partitions, so that when the mixer is moved rapidly back and forth, as by means of the rod *g''*, which is connected to a suitable oscillating or reciprocating device, the stuff lying between the partitions will be thoroughly mixed just before it flows out from the reservoir upon the mold. On the front side of the reservoir and lying on the bottom of the spout *e* is a sliding gate, *h*, the position of which is controlled by means of a handle fast to the rod *h'*, connected to the gate by the bell crank lever *h''* and link *h'''*. A float, *h''''*, is suspended in the reservoir from one end of the lever *h'*, which is pivoted on suitable bearings or supports, and the other end of this lever is connected by means of a rod to a valve or gate which controls the flow of stuff into the reservoir, and when the supply of stuff in the reservoir becomes low the falling of the float causes an increased flow of material into the reservoir, by opening the valve. When the gate *h* is open, the stuff will flow through the spout onto the mold with a pressure depending upon the height of the mass of liquid stuff in the reservoir. The gate *h* has a sliding play on the bottom of the spout, so that the edge adjacent to the cylinder is movable toward or from the latter, so as to contract or widen the outlet from the spout for the liquid stuff to pass onto the wire, and this gate may be used to practically close the outlet and stop the flow, as well as control it. A stop gate *i* is provided in the reservoir, and it is arranged between the mixer and the flume, and by means of this gate the outflow of stuff can be directly controlled. When

this stop gate *i* is opened and a supply of stuff filled into the reservoir, and the gate *h* is opened, the stuff is pressed out through the flume *e* and forcibly against the mold *b*, to which it adheres.

When the pulp emerges from the spout on the liquid mass in the reservoir, the fibre is fixed and set on the mold by impact and in its thoroughly mixed condition, the pressure causing the fibre to remain in substantially the same condition and relative position in the mixture as it held when it left the mixer in the reservoir.

It is said that by the use of this device a much larger quantity of stuff in a denser condition can be formed on the mold, the ordinary suction from within the latter being kept up to hold the paper on the surface of the mold while the latter is moved through

the vat and until the paper is couched in the ordinary manner. In order to hold the blanket *j* against the surface of the mold and thus regulate the line of application of the stuff to the mold, the regulating gate *k* is arranged on the opposite side of the vat, so that it may be raised or lowered to fix the point at which the stuff will overflow from the vat into the return channel *k'*, from which it can flow or is withdrawn by suitable pipes to be again worked over. The height of the upper edge of the regulating gate *k* determines the height at which the stuff will stand against the blanket as it flows from the spout, for the reason that with the regulating gate low the outflow of stuff on the farther side of the vat is freer than when the gate is high, the latter condition of the gate setting back the liquid by obstructing its outflow and causing it to rise higher on the inlet side of the vat near the spout and against the blanket, along the under edge of which it strikes the mold face of the cylinder.

In order to determine the width of the paper as it is formed on the mold, adjustable gauges, *l*, are arranged on opposite sides of the flume or spout *e* in such manner that by sliding them toward or from each other the width of the opening or mouth of the spout can be determined, and these gauges have the width of the ordinary deckle.

Mould in Paper.

Several articles on this subject have appeared, and especially in reference to the presence of mould in papers containing chemical fibre. Schacht and Timpe were of the opinion that the fungi germs which caused the mouldiness had their origin in impure water, while Dr. Klemm was of the view that the germs came from the air, in which they are always abundant, and that coming on paper made with impure water, and stored in a damp place, they found a congenial soil.

Herzberg, of the Charlottenburg Paper Testing Institution, is of this latter opinion. He says:

"Some time ago a cellulose manufactory sent a roll of cellulose to the institution which contained numerous dark spots, from the size of a pin's head to that of a pea. The cellulose had been made on the Ritter-Kellner system, and had been washed with river water. The appearance of the spotted cellulose was quite different from that of straw cellulose which has turned black, as this may be often seen when it is stored long in a damp place. A superficial microscopic investigation showed the action of fungi, the separate cellulose fibres being enveloped with fungi, as trees are with ivy. They proved to be mould fungi, the species of which, since the dying out of the mycelien, could not be ascertained. The brown color of the mycelien showed colonies of fungi appearing as dark spots to

the naked eye. The germs of these fungi do not probably come from the manufacturing water, as the mill people believed, but far more probably from the air.

"The fungi died out after the cellulose was dried. It contained 1.5 per cent. of incombustible components, as against 0.5 per cent. of another make without spots. When the spots were treated with an acid iodine solution for monosulphite of calcium they were found to contain proportionately much of it. The presence of sulphite of lime is considered by some, on the other hand, to be the cause of the fungous formation, and it was suggested that the boiling process should be so managed as to keep the cellulose free from the sulphite or with very little. The extinction of the fungi was caused, therefore, by the acid sap in them liberating sulphurous acid from the lime salt, and thereby preventing their further growth."

Professor Koch, before whom the case was laid, recommends the most thorough drying of the cellulose as the best means of preventing fungi. If this is not always practicable, dilute solutions of disinfectants might be used. Dr. Müller observed fungous formations in various samples of cellulose, and extinguished them by using 1 litre of chloride of zinc solution of a strength of 40° B. to the 100 kilogs. of water. Some 40 kilogs. of such a zinc solution would be required for 100,000 kilogs. of chemical fibre, and this would be put drop by drop in the stuff chests. Given in such small quantity it is said not to be injurious either to the sizing or coloring and to completely prevent the formation of fungi.

Iron Mordants in Coloring Paper Pulp.

Green vitriol (copperas) plays a far more important point than tin mordants in coloring paper, as also the acid solutions of iron, especially in the formation of gray and black shades from the extracts of logwood and catechu.

When this sulphate of iron contains oxide of iron, it consists of green colored crystals, which become humid in the air, and it is precipitated with a rusty brown powder of sulphate of peroxide of iron.

Oxide of iron forms dark colored salts with the pigment acids of the stuff.

The protosulphate of iron (copperas) is used in solution to precipitate the oxide of iron in the pulp. Through the solution of the salt in the water, with iron filings, the oxide in the sulphate of iron is transformed into a protoxide. This transformation is a clearance, which must be taken into account in order to avoid white spots, especially in the preparation of dark colored papers, before using the liquor.

Good sulphate of iron should be free of copper. The presence of copper can be very readily determined by dipping the clean blade of a knife into a concentrated solution of sulphate of iron. The iron surface, in the absence of copper, acquires a reddish tinge.

Paper pulp which has been treated with the protosulphate of iron in a watery solution is always coming into contact with the atmospheric air during its progress through the beating engine. The dissolved salt from this takes up oxygen, and is precipitated as basic sulphate of iron, which forms a haematinate of oxide of iron in combination with the dyestuff of logwood.

The decomposition is as follows: One third of the basic sulphate of peroxide of iron present takes up the sulphuric acid dislodged by the haematinic acid and forms with it a sulphate sesquioxide of iron, while the other two-thirds of the free oxide are indissolubly bound up with the haematin and are mechanically combined with the fibres. One part of wood dye extract is mordanted with 2 parts of sulphate of iron. The sulphate of alumina or alum makes the shade somewhat bluer, and this is more especially the case when the pulp has been treated with an alumina mordant before coloring.

The sulphate of iron is advantageously

(Continued on page 711.)

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(Continued from first page.)

replaced by iron mordants in getting up dark gray and black shades, especially by using nitrate and pyroligneate of iron. Dark shades may be obtained with acetate of iron, but this mordant is not adapted for plant fibres.

When the pulp has to be colored dark, of course iron mordants "load" it, and in this case they are far preferable to ordinary loading matters which absorb too much of the dye.

The addition, too, of specific heavy mineral dyes—which, after all, give only dull tones—cannot be recommended owing to the great waste from the suction boxes of the paper machine. There should, therefore, be a liberal use of iron mordants, as the iron which is precipitated into the fibres is paid for pound by pound as paper and has a great effect on the color itself.

A good liquor of nitro-muriate of iron may be obtained by gradually putting in 15 parts sulphate of iron in a mixture of 6 parts of water, 2 parts of sulphuric acid of 66° Bé. and 3 parts of nitric acid of 35° Bé. A glazed stone or earthenware vessel is used in making, which should be filled to only one-third with the acid liquor.

If too much of the sulphate of iron is poured at one time into the acid liquor some of the mordant may probably run over. The sulphate of iron is added when the gas development is weaker. The mordants must be used in the open air, in order to avoid the deleterious effects of the nitrous gases.

A better process is, however, to pass the gases through lime water and thus render them innocuous.

When the whole of the sulphate of iron has been dissolved the liquid is "cooked" for some hours with steam, in order to complete the saturation by expelling the nitrous gases remaining.

As soon as the boiled liquor has cleared off white iron filings should be put in and stirred up with it, in order to bring back the oxide of iron to a protoxide.

When this precautionary measure is neglected colored papers, mordanted with oxide of iron, have always white precipitates (spots), which are very numerous and cause a great deal of waste.

These stains are caused by a neutral sulphate of iron, which is precipitated from the liquor in the shape of a white powder. To prevent such precipitates the neutral sulphate must be kept in the form of a solution, and to effect this a sufficient quantity of sulphate of iron must be used.

As this, however, lessens the solubility of the basic sulphate of iron, the sulphate of iron should only be used gradually. The effective matter in the mordant is the oxide of iron.

The iron mordants which generally come into the market contain about equal proportions of oxide of iron and sulphuric acid, but on the other hand very little nitric acid. An excess of iron in making up iron mordants does not do much harm, but all excess in using such strong acids as sulphuric and nitric must be guarded against, as they attack the fibres so much.

Pyroligneate of iron is produced by dissolving wrought iron in pyroligneous acid, and old sheet iron is the most suitable for the purpose. In order to be sure that the pyroligneous acid has been fully saturated, iron must be used in excess. The commercial pyroligneate of iron is from 8 to 18° Bé.

As iron mordants are very much diluted by the water in the beating engine, and so much more of the weaker liquors would be required which the beating engine cannot contain, it is advisable, leaving out the question of freights, to use as strong mordants as possible.—*Hoffmann's Handbuch d. Papierfabrikation.*

Correspondence.

Boston Notes.

[FROM OUR REGULAR CORRESPONDENT.]

EASTERN OFFICE PAPER TRADE JOURNAL, 49 Federal Street, BOSTON, September 12, 1889.

Business is not yet sufficiently active in local paper trade circles to justify any booming narratives.

Reports from the majority of dealers are encouraging concerning future prospects, while the present movement of paper is of fair magnitude.

Manufacturers of manilla paper claim that the demands from dealers' hands show some little improvement of late, and they feel that the numerous inquiries now being made are an indication of better times soon to come.

In print paper the prospect of the future is more encouraging than the present call is satisfactory to the manufacturers.

The paper stock business does not seem to admit of encouraging comment. Importers are doing only a limited business in response to the hand-to-mouth policy of paper makers in their buying. There may be a more active demand for rags in the future, but no such conclusion can be decided upon as a certainty from any line of reasoning which can now be presented. So uncertain is the immediate future that importers are not inclined to speculate on the chances, preferring to accept things as they are and be governed accordingly.

The imports of paper stock for the week were light, comprising only 1,602 bales, classed as follows: 892 bales of rags, 363

bales, twenty coils of manilla and 327 bales of miscellaneous grades.

The chemical market is not specially active, but prices are firm, with a fair jobbing trade. Bleaching powders still hold at last week's quotations, 1.70@1.75c., and very little on spot. Caustic soda is quoted at 2.20@2.25c., and very firm. Soda ash remains at 1.40@1.40c. and soda crystals at .90c.

The receipts of chemicals for the past seven days include 954 casks of bleaching powders, 200 drums of caustic soda, 329 casks and 1,720 bags of soda ash.

Other receipts were 145 rolls of sulphite pulp, 747 bags of sizing, 100 casks of china clay and 395 barrels of rosin.

J. A. Kimberly, the prominent paper maker of Wisconsin, is in the city this week and will remain East for some days, as the National Sulphite Boiler and Fibre Company, of Boston, will hold its annual meeting at Portland, Me., on September 18, of which concern Mr. Kimberly is a director.

Charles Dobilinski, of Philadelphia, is doing Boston this week, and, with his wife, is located at the Parker House. Charles is making a sort of vacation trip, business and pleasure combined.

Quite a number of trade representatives are reported in town this week, among them being Hon. P. C. Cheney and F. T. Carpenter, of Manchester, N. H.; Hon. Wellington Smith, of Lee, Mass.; C. J. Barnard, of West Derby, Vt.; William F. Whiting, B. F. Hosford, Moses Newton, Holyoke; F. J. Marshall and W. D. Russell, of Turner's Falls, Mass.; G. F. Peck, of Belleville, N. J.; H. M. Thompson and Edward Arms, of Bellows Falls, Vt.; Geo. F. Fay, of Fitchburg, Mass.; C. S. Mayo, of Lawrence, Mass.; A. N. Mayo, of Springfield, Mass., and Mr. Grayham, of St. Louis.

William R. Munroe, son of Jas S. Munroe, manager of the Munroe Felt and Paper Company, of this city, was buried from his late home at Lexington, Mass., last Sunday.

The deceased was thirty-four years of age, and was highly esteemed by all who knew him, he being very popular with the trade. He was sick only a week, and died from an ulcer in the throat on Friday of last week. He leaves a widow and child.

DELESDERNIER.

Chicago Notes.

[FROM OUR REGULAR CORRESPONDENT.]

WESTERN OFFICE PAPER TRADE JOURNAL, 114-115 La Salle Street, CHICAGO, September 9, 1889.

The Chicago situation may be thus summed up: Business good; steady demand for all lines of papers and prices fairly sustained.

The event of the week has been the plac-

ing of the Wisconsin State paper contract, the bids for which were as follows:

H. Niedecker & Co., Milwaukee—	
First class.....	\$10,350.00
Second class.....	3,527.67
Standard Paper Company, Milwaukee—	
First class.....	10,062.00
Second class.....	3,687.85
Fowler & Sharper, Chicago—	
First class.....	9,675.00
Second class.....	3,694.45
Geo. H. Taylor & Co., Chicago—	
First class.....	10,305.00
Second class.....	3,523.55
Calumet Paper Company, Chicago—	
First class.....	9,900.00
Second class.....	4,019.95
Frank S. Horner, Madison—	
Second class.....	4,049.90

The lowest bids in each class took the prize.

Failing news more pertinent, your correspondent desires to say a word or two on the letter of one "Watchful," who lately addressed THE JOURNAL on the subject of salaries of paper salesmen. "Watchful" talks with his long range mouth, but sees with his smooth bore eye. "Watchful's" letter was all about salesmen in New York; your correspondent was writing of facts in Chicago. "Watchful" says that at least six men in New York sell \$250,000 per year and make \$5,000. The same men would make \$7,500 or more in Chicago on sales of \$250,000. But the "old paper dealer" whose remarks inspired the paragraph in the "Chicago Notes" was not speaking of men who sold from the mills; he was in search of men for a leading jobbing house in this city, and he is still prepared to substantiate his remarks by giving any man a chance at the \$33,000,000 worth of paper sold in this city last year, and the salesman will not need to secure \$250,000 worth of that amount, or anything like it, to make \$100 per week.

The heads of the leading jobbing houses are getting back to their desks. T. F. Rice, of Bradner Smith & Co., has lately returned from a trip to the Yellowstone Park. With him for a portion of the time were E. C. Rogers, of the American Paper Manufacturers' Association, and the Governor of Wyoming, E. C. Smith, who is now in the East, is expected home about the middle of the month.

It looks very much as though Mr. West, ex-editor of the Times, was "knocked out." He appears to be wallowing in a slough of legal fights and moving from one quagmire to another. Next to being able to make a good fight it is a good thing to know when you are beaten.

During the week the following named paper men were in town: J. S. Van Nortwick, Frank Forster, Oglesby Paper Company, Middletown, Ohio; A. H. Teall, Pettibone Paper Company; W. Beckett, Beckett Paper Company; B. E. Pike and George A. Raisbeck.

There seems to be some doubt as to the results likely to accrue to the paper mills

and jobbers in this section by having the world's fair in Chicago. Some think that certain lines of business will be hurt during the six months of its existence, and that the paper business will be one of them. An interview with a leading jobber and mill owner and one who has been "through the mill," so to speak, led to the following: "I estimate that the 'fair' will consume at least \$500,000 worth of paper, and that it will stimulate business in our line both before and after its existence to the extent of several millions. Granted that a man will get back 25 per cent. of his subscription to the stock, the remaining 75 per cent. should be easily returned from the increased volume of business he will do, and on this basis he will have the satisfaction of seeing his city 'boomed' and advertised throughout the world for nothing. The man who wants a better investment than that had better go into the strawboard business." LYSTER.

Miami Valley Notes.

[FROM OUR REGULAR CORRESPONDENT.]

MIAMI VALLEY, September 10, 1889.

Probably the most important item of news from this section is the taking of the Ohio State contract for 6,500 reams of machine finished paper by the Diem & Wing Paper Company at \$4.54, delivered at the printing office, this figure being 13 cents lower than any of the other bidders, six of whom were mill men. The successful firm was represented by Charley Wing, who is well known as a very clever manipulator of paper and men; but it does look to those on the outside as though it will require all of his cleverness to get through the year without some trouble, and it occurs to me to ask what would be the outcome if the Democratic candidate for governor should be successful, and he should, as he would be most likely to do, appoint a Democratic printer? See? At the most liberal estimate, the mill making this paper cannot realize more than 4 1/2 cents for super sized and calendered (?) book; some of our friends who have the best clay and cheapest ground wood for sale would do well to locate that mill. The remainder of the State contract was secured by the following named bidders: Central Ohio Paper Company, antique cover, \$6.24; Chatfield Woods, linen folio, \$11.05; Cleveland Paper Company, double flat cap, \$8.07; manilla paper, \$4.92, \$4.95, \$4.87; post office, \$6.47; H. E. Mead & Co., linen ledger, \$15.76; Diem & Wing Paper Company, double medium and flat cap, \$7.99; folio post, \$7.86; and double super royal or super sized and calendered, \$4.54. The Miami Valley Paper Company's mill was sold last week by the assignee for

THE GLEN MFG. CO., 244 WASHINGTON STREET, BOSTON, **THE HAVERHILL PAPER CO.,**
 DAILY PRODUCT: 80,000 Pounds Finished Paper. **News Paper and Wood Pulp.** DAILY PRODUCT: 80,000 Pounds Wood Pulp—Dry Weight.

W. A. BINGHAM, Paper, Paper Bags, Flour Sacks, &c.,
 178 DUANE STREET, NEW YORK.

"ESTABLISHED 1729."
THE JAS. M. WILLCOX PAPER CO.,
 (W. F. WILLCOX.) Philadelphia, Pa.

THE EMPLOYERS' LIABILITY ASSURANCE CORPORATION, Limited, of LONDON, England.
 Deposited in United States, \$550,000.
 TRUSTEES FOR THE UNITED STATES:
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 Policies issued giving full protection to Employers against loss by Claims from Employees on account of Accident. Rates Proportioned to Risks of Occupation. One Premium the only Payment during year. No Contingent or other Liability on part of Employer.
 Employers with pay rolls of \$50,000.00 already covered. No employer should be without this protection. Cases investigated by competent Inspectors and considered by eminent Counsel. If liability shown, claims settled without litigation.
 AGENTS: SAM'L APPLETON, 28 Central Street, Boston. KIRBY & DWIGHT, 54 Pine St., New York. F. D. HIRSHBERG & BRO., 120 N. Third Street, St. Louis.
 ENDICOTT & MACOMBER, Managers for United States, 71 Kilby Street, Boston.
 GEO. A. GILBERT, 226 LaSalle Street, Chicago. TATTNALL PAULDING and J. G. HOOVEN, Managers, Middle Dept., 411 Walnut Street, Philadelphia.

HOLLINGSWORTH & VOSE, 44 FEDERAL ST., BOSTON, MASS.,
 MANUFACTURERS OF
PURE MANILLA ROPE PAPER.
 Z. T. HOLLINGSWORTH. Mills at West Groton and East Walpole, Mass. Daily Capacity, 22,000 pounds. CHARLES VOSE

PERKINS, GOODWIN & CO.,
 Nos. 66 and 68 DUANE STREET, NEW YORK,
 Have on hand and to arrive all grades of Bleached and Unbleached
SULPHITE AND SODA PULPS.
 SOLE AGENTS FOR ZELLSTOFFFABRIK, WALDHOF, GERMANY. DAILY PRODUCTION, 100 TONS DRY. SEND FOR SAMPLES AND PRICES.

\$22,100, to Howard Friend, of the Geo. H. Friend Paper Company. This company assigned some months ago and the mill was appraised at \$45,000, the stock \$12,000, but failed to sell. A reappraisal resulted in the mill being put up at \$30,000, and the stock was sold piecemeal at auction, netting about \$5,000. This sale was very poorly managed; there being but four buyers present; everybody who would have been likely to attend received their notice the day after the sale. As an example of some of the prices natrona porous alum sold at 1 cent per pound, sulphuric acid in carboys at \$1.30 per carboy, the empty carboys alone being worth \$1.50. The assignee was a very clever lawyer, but his knowledge of the paper business was not very well developed. Two mortgages on the property amounted to over \$20,000, preferred claims about \$15,000, and unsecured almost as much. The mortgages are the only ones who will realize anything.

It was generally supposed the mill would be bought by the Ohio Paper Company, whose mill is on the same water power and close at hand. The sale as made was in the nature of a surprise, as it was thought that Howard Friend had as much as he cared to look after, now that he has his sulphite plant in operation. The sale can easily be considered a good one at the price. I have heard it estimated that the purchaser realized all the way from \$5,000 to \$30,000, and I noticed the amount varied in proportion to the interest the estimator had in the business.

Speaking of the sulphite plant I asked Howard the other day if he was satisfied, and he simply gave me one of those bland smiles for which he is noted and left me to draw my own conclusions. He has now about \$30,000 worth of wood piled up by the railroad tracks for his winter use, so that it is evident he does not regard his investment as an experiment.

Henry Snider reports that he has signed the documents for a sulphite plant to be located near the Fordham mill. He intends to put in the lead lined digester. Relative to the paper business in general he says that Louis Snider's Sons are certainly getting their share and it would seem more, since they are ordering liberally from other mills, their own being full up with orders. Henry leaves for the East this week on business and pleasure combined.

During the past two weeks there has been a marked increase in demand and this is the report from all of the mills in the valley which I have been able to reach.

W. G. Chappell, vice-president of the St. Louis Paper Company, paid a flying visit to

the valley and reports business as increasing in his locality.

C. E. Follansbee, of Chicago, passed through the valley this week in a rather hasty manner. He says that they are not carrying any large amount of paper stock on hand and respectfully declined investigating the advantages of the wood pulp business with a view of changing his line.

George E. Bardeen, of the Bardeen Paper Company, was in Cincinnati several days ago, but I imagine his visit was made more with the intention of buying stock than selling paper, as he is certainly putting out a beautiful sheet of paper, well able to sell itself.

"Tammany Hall" McCormick, the glib Irish "agitator" of felts for F. Bredt & Co., is somewhere in the neighborhood, and I am patiently awaiting his arrival in order to learn what the Democratic majority in Ohio will be this fall.

Col. Harry Mead, of H. E. Mead & Co., has returned from his summer "outing" in the Adirondacks apparently well prepared for a good "inning" in the paper business. Look out for a straw paper trust.

The firm of Browne & Stuart, paper brokers, Cincinnati, has been rather unfortunate lately, the senior member being "done Browne" by some lady at Lake Remington, Ind. "Billy" is now busy looking for "well formed and highly finished" furniture. It will happen on September 25.

J. R. Dunkle, the able assistant of Colonel Taylor, president of the Cleveland Paper Company, says that orders are increasing, and a continuation at the same rate will necessitate their calling on outside mills for assistance before long. They are putting in more wood pulp grinders.

I was told to-day that the Miami Valley Mill, after being down for five months, will be started this week under the management of a gentleman named Buchanan, formerly of the Nonotuck Paper Company.

Frank Grubb, head salesman for H. E. Mead & Co. for the past eight years, has tendered his resignation, and will hereafter be found with the Graham Paper Company, St. Louis.

The Black & Clawson Company is busily engaged in erecting two machines for the Diamond Match Company, Wabash, Ind., one being a Fourdrinier 118 inches in width, the other a strawboard machine of the same size. The former is probably the largest of its kind in the United States, and the latter the largest in the world. This company has just completed and is shipping a large strawboard machine to Melbourne, Australia, and is putting the finishing touches on a double cylinder for Hull, Canada, to be used for the

manufacture of sulphite. The enterprise and success of the members of this company in the manufacture of paper mill machinery show that Ohio ranks second to none in producing a few other commodities besides presidents and diplomatic statesmen.

FIRST PRESS.

Holyoke Notes.

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, MASS., September 12, 1889.

There is very little change in the complexion of business, although the conditions seem to be as favorable as could be expected. Some of the mills are busy, with orders enough on hand to last several weeks, while others are a trifle slack in this respect. A paper mill resembles an omnibus in one respect, at least—there is always room for one more customer. The better grades of writing and book papers are moving well and prices are unchanged. There is no change in the stock market worth noting.

The Water Power Company has just limited the manufacturers to the use of 30 per cent. of their surplus water, this being the first time that restrictions have been necessary this season. The water has not been so low at any time this year and very little is going over the dam. These restrictions make it particularly hard for the new Parsons and George R. Dickinson paper companies, as both mills were cut off from the use of water for several weeks during the repairs on the upper level canal, caused by the flood in June. What we need is several days of steady rain in this valley, especially north of us. Some people have an erroneous idea that a heavy rain here will do much toward filling the river, but this is entirely wrong; it might rain hard for forty-eight hours in this city and the river would not rise a solitary inch. The Connecticut River is fed by numerous little streams at the north, and when it rains hard the water flows into these streams and then into the river, which causes the water to rise here.

The syndicate of Holyoke and Springfield capitalists which recently bought the Plater & Porter mills, in the Nutmeg State, will soon organize a company and will get the mills into running order. The probable output will be 6 tons a day of first-class engine sized and book papers and 3 tons of loft dried. There is no reason why, if this property is judiciously managed, that the business should not be entirely satisfactory. The mills need some repairs and improvements and after these are effected the plant will be in very good shape.

The Chemical Paper Company has expended considerable money within a year in

fire apparatus and its mill is now one of the best protected against fire in the city. Each floor has been supplied with automatic sprinklers of the most approved make and sixteen new hydrants have been placed in various parts of the yard. Two 8 inch fire mains now connect with mains on Canal street, in addition to the old 6 inch mains formerly used. It is thought that thirty lines of hose can now be used on the premises if necessary. It is estimated that these improvements have cost the company \$15,000, and they are a good investment.

Up at Turner's Falls the Montague Paper Company has been making important improvements in its water supply. The mills were shut down two days recently to allow a large pipe to be placed in the mill through which to draw water from the river. A line of 30 inch pipe was carried across the river and through the rapids a distance of 6,000 feet to the mill, and the company now has a good supply of pure water.

James Phillips, superintendent of the Chemical Paper Mill, has returned from a trip of several months' duration to Scotland, his native land.

Treasurer George E. Dudley, of the Syms & Dudley Paper Co., always was a lucky dog, and now he has "capped the climax" by drawing \$5,000 in the Louisiana State lottery. While at Hartford recently he made his first investment of \$1 in the lottery, put the ticket in his pocket, and forgot all about it. Happening yesterday to hear someone say that ticket 39,526 had drawn \$100,000, he went through his vest pockets, found his pasteboard and was surprised to find that his ticket entitled him to one-twentieth of the sum total. He takes his good luck very coolly, and says that he will never put another dollar into the scheme.

Samuel Snell has recently supplied the Valley Paper Company with 2,000 of his patent cement drainer bottoms. He has disposed of 12,000 in this city within a few months.

Charles J. Buchanan, a machine tender at the Nonotuck Paper Mill, has gone to Cleveland, Ohio, to become superintendent for the Cleveland Paper Company.

Frank H. Brown, formerly of this city, but for a year or more bookkeeper for the Whiteman Paper Company, of Dansville, N. Y., has been made assistant treasurer and business manager of the company.

Word comes from Wallingford, Conn., where John E. Clark, of the Dickinson & Clark Paper Company, of this city, has been resting for a number of months, that his health is not as good as could be wished.

The Fairfield Paper Company, of Fairfield, has finished the repairs on its dam, of which

G. L. Bosworth, of this city, had charge. Ground has just been broken for a four tenement block 40x70 feet, and two or three cottages will soon be built.

P. A. Cullen, F. H. Gilpatrick and P. J. Westphal, who recently started a machine shop in the Whitcomb mill, are already driven with work from the mills. They employ twelve hands, and are obliged to run overtime to keep up with their orders.

Alderman Syms, of the Syms & Dudley Paper Company, tells his friends that he is not a candidate for mayor, and will not allow his name to be used.

WILKINSON BROS. & Co.,

72 & 74 Duane St., New York,

MANUFACTURERS OF

Fine Manilla and Colored Paper.

GENERAL DEALERS IN

PAPER AND TWINE OF EVERY DESCRIPTION.

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WEEKLY WANTS.

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Attention of manufacturers and capitalists specially called to the manufacture of Straw Pulp by new process.

Have assurances that from ten to thirty tons of straw pulp daily can be marketed in the East, and can show a good profit in its manufacture.

Facts and figures on file at my office, and thorough investigation invited.

Desire to start a Pulp Mill near New York requiring \$100,000 capital, of which I have \$50,000, including site, pledged.

SMITH'S PNEUMATIC CALENDER FEED.

Patented Sept. 29, 1885; Nov. 16, 1886; other Patents now pending. This Machine is also Patented in England, France and Germany.

THE DANGER TO PAPER MACHINE TENDERS and the LOSS IN BROKEN PAPER at the CALENDER ROLLS MAKE THIS INVENTION OF ESPECIAL VALUE FOR THE REASONS THAT:

It prevents all danger and risk to the person of the operatives ordinarily incident upon leading the paper through the stack. It avoids "making broken" in the stack, as the doctors prevent the paper from clinging to the rolls, and as the action of the doctors upon the individual rolls removes any and all calender spots from their surfaces, the latter are kept in perfect condition, thereby preventing defacement or injury to the paper, which would otherwise be the case; also by keeping the rolls clean, removing all dust and grit, the necessity for frequent grinding of the latter is avoided.

The blower or fan which supplies the air should be located in some place whence cold, moist air can be obtained, and as this cold air is supplied through the doctors to the surfaces of the rolls, the latter are prevented from heating, and a better and more uniform surface is given to the paper.

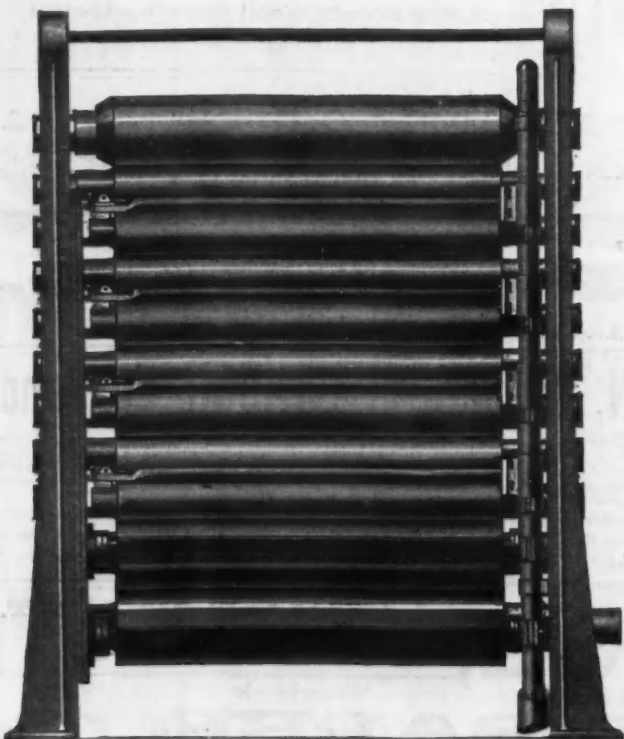
In operation, the paper is introduced at the top roll and is conducted automatically between the other rolls, emerging from the bottom, and can be conducted immediately, without loss, to the reel.

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| GLEN MANUFACTURING CO., Berlin Falls, Vt. (3) | GLENS FALLS PAPER MILL CO., Glens Falls, N. Y. |
| HAVERTHILL PAPER CO., Haverhill, Mass. (2) | FRANK GILBERT, Waterford, N. Y. |
| RUSSELL PAPER CO., Lawrence, Mass. (6) | TILESTON & HOLLINGSWORTH, Groton, Mass. |
| SUGAR RIVER PAPER CO., Claremont, N. H. | FAIRCHILD PAPER CO., Pepperell, Mass. |
| MONTAGUE PAPER CO., Turner's Falls, Mass. | VAN NORTWICK PAPER CO., Batavia, Ill. |
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| LAKE GEORGE PULP AND PAPER CO., Ticonderoga, N. Y. | SYMS & DUDLEY PAPER CO., Holyoke, Mass. |
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| GEORGE H. FRIEND PAPER CO., West Carrollton, Ohio. | W. C. HAMILTON & SON, Philadelphia, Pa. |
| SPRING GROVE PAPER MILLS, Spring Forge, Pa. (3) | |
| BRIDGE MILL PAPER CO., Pawtucket, R. I. | |

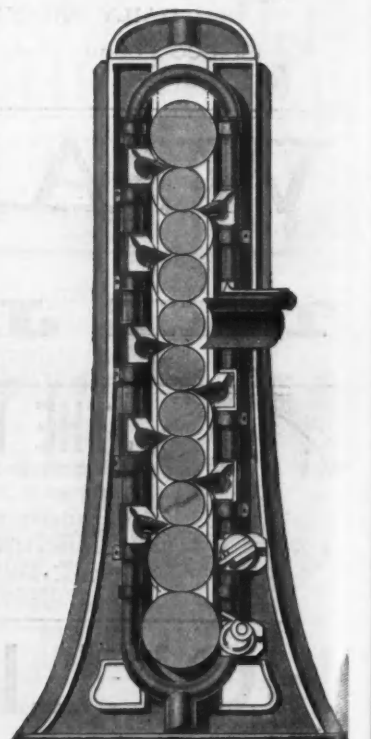
Convincing testimonials as to the real merits and advantages of SMITH'S PNEUMATIC CALENDER FEED will be shown upon application. The entire device is compact, readily adjusted, and enables large stacks to be easily and efficiently managed with least labor, and with but little or no loss of broken or damaged paper.

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A Doctor for each Roll keeps off all Calender Scabs.

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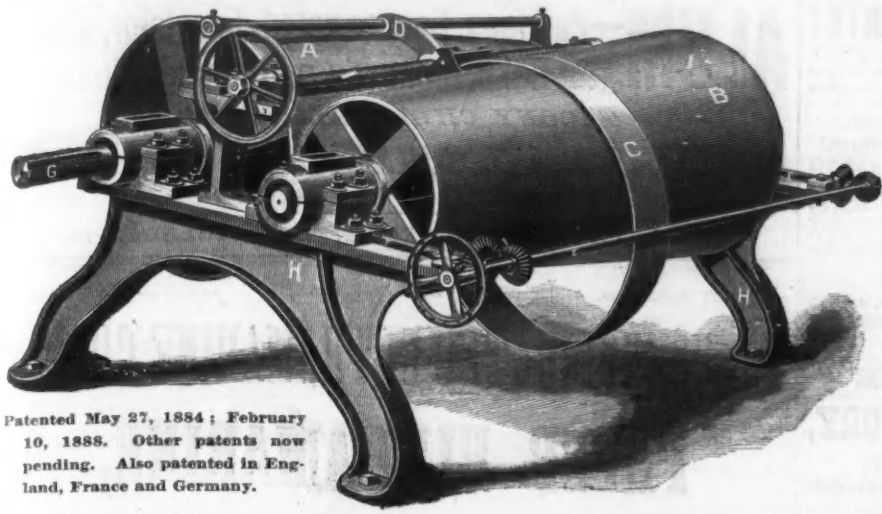
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For REGULATING and CHANGING SPEED of PAPER MACHINE.

The machine can be stopped or started by simply turning a hand wheel to open and close the Cones. The speed can be quickly and easily varied while running from 100 to 200 feet per minute. They are

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SAVES COAL AND SECURES STEADY STEAM.

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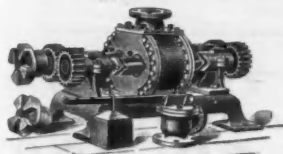
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Fourdrinier and Cylinder Machines, Washing and Beating Engines,
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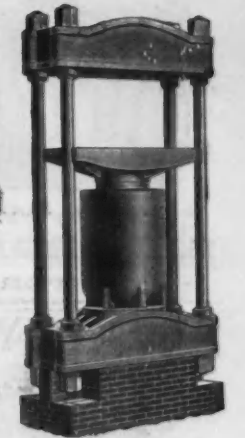
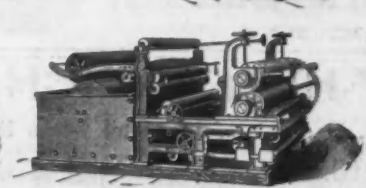
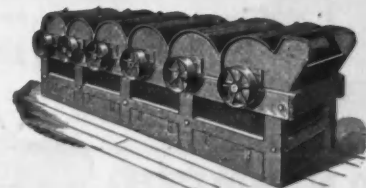
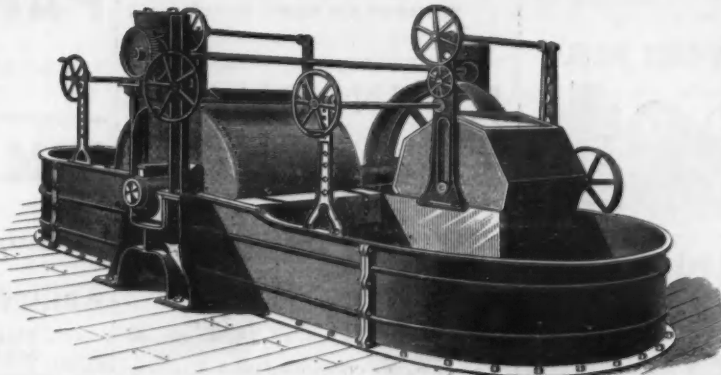
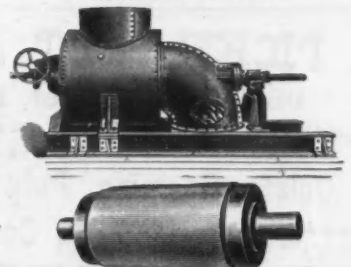
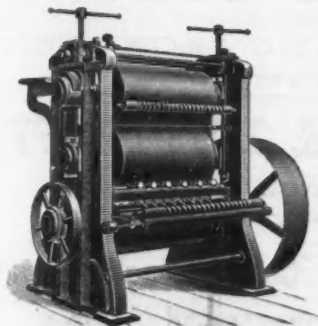
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All Kinds of CALENDERS for PAPER MILLS, GLAZED PAPER and CARDBOARD MANUFACTURERS.

Dusters, Engines, Turbine Wheels, Cotton Rolls, Husk Rolls, Paper Rolls, Chilled Iron Rolls, Elevators, Wood Pulp Machinery, Hydraulic Presses.



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MARSHALL'S PERFECTING ENGINE.

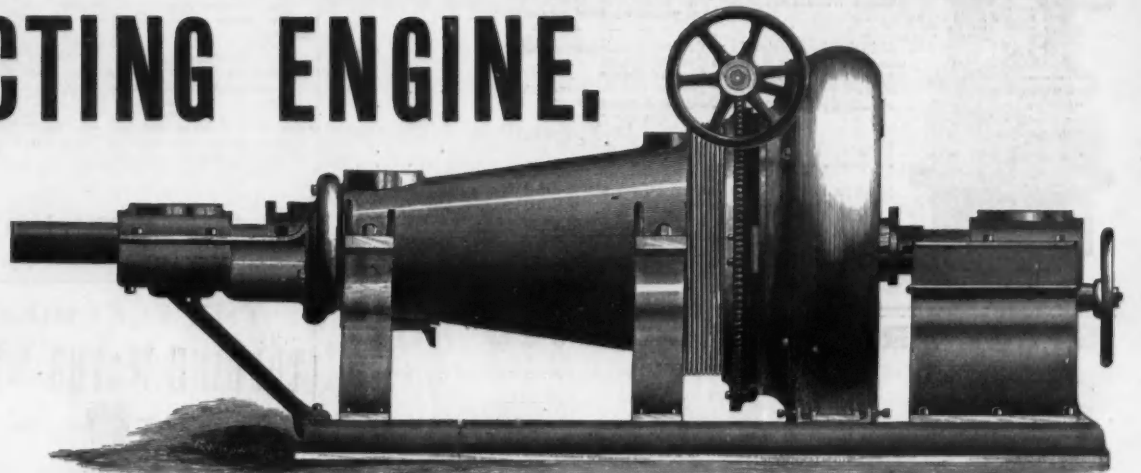
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Very Best of References Furnished.



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FOURDRINIER and CYLINDER WET and PRESS FELTS and JACKETS.
All sizes and styles, suitable for making from the Coarsest to the Finest Paper.
ALL FELTS GUARANTEED TO RUN WELL, OR THEY CAN BE RETURNED.
We also manufacture Blankets and Stocking Yarns of all colors; also an EXTRA HEAVY SCARLET FLANEL FOR UNDERWEAR, which we guarantee not to shrink.
All the above we offer to Paper Makers at the lowest wholesale prices, in quantities to suit.
For the best results from fast running, try our XX Style Felt for Fourdrinier Machines, and Style "C" for Cylinder Machine. Prices sent upon application.

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N.B.—Our Felts are superior to any other Felts made in America. NEWS PAPER FELTS A SPECIALTY. A trial solicited. Satisfaction Guaranteed.

LOCKWOOD'S DIRECTORY

FOR 1889-90 JUST OUT.

Only standard work of the kind published. Contains a list of Paper Manufacturers and Dealers; also list of Retail and Wholesale Stationers, Booksellers, &c. PRICE \$2.00. Address **HOWARD LOCKWOOD & CO., PUBLISHERS, 126 & 128 Duane Street, cor. Church, New York.**

FARREL FOUNDRY AND MACHINE CO.,

ANSONIA, CONN., U. S. A.,

THE LARGEST MANUFACTURERS OF

Chilled Rolls

IN THE WORLD.

CHILLED AND DRY SAND ROLLS

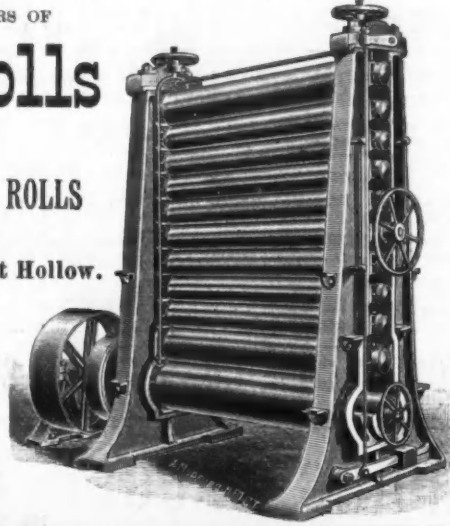
FOR ALL PURPOSES.

Rolls Bored for Steam or Cast Hollow.

COMPLETE CALENDERS.

Lift Rods operated by wheels above for raising any number of the rolls. Housings so made that the rolls may be taken out endwise through frame.

OLD ROLLS RE-GROUND AT SHORT NOTICE.



ROBERT POOLE & SON CO.'S

Leffel Turbine Water Wheel,

Made of Best Materials and in the Best Style of Workmanship.

MACHINE MOLDED MILL GEARING,

From 1 to 20 feet diameter, of any desired face or pitch, molded by our own Special Machinery.

Shafting, Pulleys and Hangers

OF THE LATEST AND MOST IMPROVED DESIGNS.

Mixers and General Outfit for Fertilizer Works.

Shipping Facilities the Best in all Directions.

ROBERT POOLE & SON CO.,
BALTIMORE, MD.

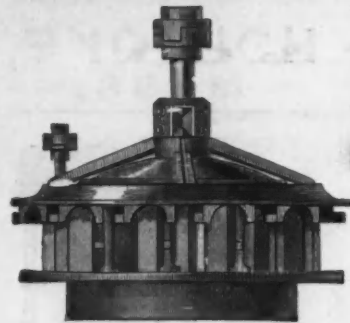
N. B.—SPECIAL ATTENTION GIVEN TO HEAVY GEARING.

THE SUCCESS WATER WHEEL.

This Wheel is strong and durable. Excelled all other wheels in the great trial tests. Is in use all over the nation. I also make a specialty of

Heavy Gearing and Machinery

FOR PAPER, COTTON AND GRIST MILLS.



SEND FOR PAMPHLETS AND PRICES.

S. MORGAN SMITH,
YORK, PA.



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Engineers, Machinists, Iron and Brass Founders.

TURBINE WATER WHEELS, Upright or Horizontal,
IRON FLUMES and PENSTOCKS, HEAD GATE GEARING,
REGULATORS, and everything pertaining to Water Wheel Work.

These Wheels are made with great care, and their excellence for durability and high power or efficiency superior.

54 inch wheel tested in mill, after running two years.	8480
86 inch wheel at Holyoke Testing Flume.	8516
80 inch wheel at Holyoke Testing Flume.	9090
80 inch wheel at Holyoke Testing Flume (another wheel).	8789
80 inch (deep wheel) at Holyoke Testing Flume.	8461

PART GATE.

80 inch wheel at Holyoke Testing Flume.

Proportional quantity of water, .762, one-half gate opening.	7642
Proportional quantity of water, .528, one-third gate opening.	7283

Used in many of the largest Paper and Pulp Mills in the United States. 6,000 horse power furnished one mill, 7,000 to another, and one manufacturer 69 wheels.

CATALOGUE FREE.

BOSTON OFFICE: 70 Kilby Street. ORANGE, MASS.

"STEEL ARMOR PROTECTED" HOSE,

Registered Trade Mark. PERMANENT GRIP. PATENTED SEPT. 1, 1885.

"FOUR ACE,"

"GIANT,"

"GRANITE,"



BRANDS OF Hydraulic, Steam, Air Drill, Water, Garden and Suction HOSE.

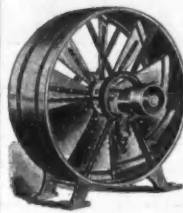
THE WIRE CAN BE CUT AT ANY PART AND IT WILL NOT UNCOIL. IT IS IMPOSSIBLE FOR THE HOSE TO KINK OR BURST.

COVERING POOR HOSE WITH WIRE DOES NOT MAKE IT GOOD. GOOD HOSE COVERED WITH WIRE IS MADE VERY STRONG.

REVERE RUBBER COMPANY, Sole Manufacturers,

BOSTON: 63 Franklin St. NEW YORK: 64 Beade St. PITTSBURG: 2 & 4 Wood St. CHICAGO: 150 Lake St. SAN FRANCISCO: 16 Fremont St.

VENTILATE! VENTILATE!



Why suffer from Heat, Steam and Dust in your Machine Rooms, Rag Rooms, &c., when

THE CLARK LIGHT RUNNING ADJUSTABLE WING EXHAUST FANS

will effectually remedy these evils. Thirty days' trial. Correspondence solicited. Catalogue free.

GEO. P. CLARK,

Box R.) WINDSOR LOCKS, CONN.

ESTABLISHED 1848.

GEO. J. BURKHARDT'S SONS' CEDAR TANK FACTORY,

2831 TO 2839 NORTH BROAD ST.,
Downtown Office, 221 Chestnut St. PHILADELPHIA.



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— MANUFACTURERS OF —

MILL SUPPLIES

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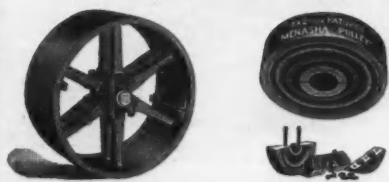
SPECIALY ADAPTED FOR USE IN PAPER AND PULP MILLS.

Leather Belting and all kinds of Mechanical Rubber Goods carried in stock or made to order.

HERCULES FIRE HOSE.

191 and 193 Lake St., CHICAGO; 7 Barclay St., NEW YORK.

MENASHA PULLEYS.



We are Sole Makers of the Hardwood, Bent Rim Spoke Arm and Iron Hub Pulleys, bushed and gripped to the shaft by pure friction board. Also, we are Makers of the smallest Wood Split Pulley made. We make them as small as 1 inch diameter. Also, we are Sole Makers of the only Split Loose Pulley in the market. It has metaline bushing that requires no oil or other lubricant. No glue used in the construction of our pulleys. They are made of the best seasoned and kiln dried hardwood. We also make the largest Wood Split Pulleys in the Market. A large number of Paper Mills in the United States are operated with our pulleys. The pulleys are similar to the above cuts. Send for Illustrated Circular and Price List.

MENASHA WOOD SPLIT PULLEY CO.,

MENASHA, WIS., U. S. A.

THE FLENNIKEN TURBINE WATER-WHEEL



Is the most Simple, Strong, Durable and Economical Wheel manufactured. Send for Circular to **UTTER MANUFACTURING CO.,** ROCKFORD, ILL.

ALUM—Peerless, Concentrated, Excelsior, Eagle, Cake, Ammonia and Potash Alums.

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The Oldest Alum Manufacturers in America.

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THE CONSOLIDATED ULTRAMARINE CO. LTD.

PAPER ULTRAMARINE,

Equal to any Imported.

C. U. C.

No. 55 MAIDEN LANE,

NEW YORK.

A. KLIPSTEIN,

BRANCH: 120 Arch St., Philadelphia.

OFFICES: 134 Milk St., Boston.

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EOSINE.

VENETIAN STRONG REDS,

Ochres, Clays and Copperas,

MANUFACTURED EXPRESSLY FOR PAPER MAKERS' USES BY

THE S. P. WETHERILL CO., Limited,

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47 N. FRONT ST., PHILADELPHIA.

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MANUFACTURER AND IMPORTER OF

Chemically Pure Colors

FOR PAPER STAINERS,

62-68 NORTH ELEVENTH STREET, BROOKLYN, N. Y.

CHAS. E. HORE, Superintendent.

GLOBE ANILINE WORKS.

HELLER & MERZ, Proprietors.

PAPER MAKERS' COLORS.

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IMPERIAL FELTS AND JACKETS.

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— IMPORTERS OF —

Aniline Colors, Carmine, Pulp Colors, Eagle Brand Ultramarines, N. C. F. Concentrated Alum.

MASON, CHAPIN & CO.,

IMPORTERS & JOBBERS.

Sole Receivers for United States and Canada, of Following Brands

BLEACHING POWDERS:

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PROVIDENCE, R. I.

141 Milk Street, BOSTON.

58 Pine St., NEW YORK.

FERRIC CHEMICAL AND COLOR CO.,

— MANUFACTURERS OF —

Pillar Copperas, Venetian Red and Oxides of Iron, WORCESTER, MASS.

CYPRESS IS THE MOST DURABLE WOOD FOR TANKS, VATS, &c.

We have all thicknesses in stock, and shall be pleased to answer inquiries in regard to the same from PAPER MANUFACTURERS and others.

THE A. T. STEARNS LUMBER CO.

11 Federal Street, NEPONSET, and 470 Albany Street, BOSTON.

IMPORTED ENGLISH WOOD PULP GRINDSTONES

OF THE—"ACME"—BRAND.

"In every way Perfectly Satisfactory."

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WALTER R. WOOD, IMPORTER, 283 and 285 Front St., New York.

DIRECTORY.

Cards under this heading will be charged for at rate of \$15 per annum for each card.

NEW YORK HOUSES.

Jute Butt Brokers. CABOT, RAY & CO. DALAND, WILLIAM S. Note Broker. GOLDMAN, M., & SACHS. Paper Bag and Box Machinery. Paper Clays. Paper and Paper Makers' Supplies. Paper Manufacturers. Printed Wrapping Paper. Rags and Paper Stock. Recording Gauges. Straw Boards. Wholesale Paper Dealers. IMPORTS AT NEW YORK. IMPORTS OF PAPER STOCK AT NEW YORK. JANUARY 1 TO SEPTEMBER 10, 1889. OUT OF TOWN HOUSES. Architects. Dandy Roll Manufacturers. Filters. Paper Makers' Felts and Jackets. Paper Manufacturers. Paper Makers' and Paper Stainers' Colors. Paper Making Machinery. Paper Mill Engine Bars and Plates. Rags, Paper and Paper Stock.

Rags, Paper and Paper Stock.

BRODERICK BROS., 608-614 W. Pratt St., Baltimore. ELLIOT, A. G., & CO., Paper and Paper Stock, 32 and 34 South Sixth St., Philadelphia. LANEY, JAMES, & CO., Dealer in Paper and Paper Stock, Cotton and Woolen Rags, Rochester, N. Y. RICHMOND, F. H., & CO., Paper and Paper Stock Warehouse, Cotton Waste Dealers, Providence, R. I. SIMMONS, JOHN, Wholesale Dealer in Paper and Rags, 20 and 22 Decatur street, Philadelphia. SNIDER'S, LOUIS, SONS, Manufacturers and Wholesale Paper Dealers, 121 Walnut st., Cincinnati, Ohio. WILLCOX, JAMES M., & CO., Wholesale Commission Paper and Rag Warehouse, 509 Minor street, Philadelphia, Pa. Recording Gauges. EDSON PRESSURE-RECORDING GAUGE. Saves coal and secures steady steam. Address JARVIS B. EDSON, 145 Broadway, cor. Liberty Street, New York. "PEERLESS" RECORDING GAUGES. Write for testimonials. S. P. JONES, No. 28 School St. Boston, Mass. Rosin for Paper Makers. E. E. CLARK is at first hands for perfectly clean Batting Strained Rosin for Paper-Maker's use. Orders solicited. 5 Custom-House St., Boston, Mass. Screen Plate Manufacturers and Repairers. HARDY & PINDER, manufacturers of Patent Cast-Metal Sectional Screen Plates. Fitchburg, Mass. Sealing Wax. BROWNE, M. C.—Especially for Paper Mills and Wholesale Paper Dealers, Holyoke, Mass. Straw Boards. TUCKER'S, E., SONS, Straw Boards, Paper, Twines, Paper Box Mach'v, 100 Trumbull st. Hartford, Conn. Wholesale Paper Dealers. MOORE & STARK, Wholesale Paper. 637 West Main Street, Louisville, Ky. IMPORTS AT NEW YORK. FOR THE WEEK ENDED SEPTEMBER 6, 1889.

Table with columns: An. Colors, Alum, Alum's Cake, Bl. Powders, Soda Ash, Soda, Soda, Ultramarine, Books, Newspapers, Engravings, Ink, Lead Pencils. Values in \$ and units.

Table with columns: Whence Imported, Rags, Old Paper, Chemical Fibre, Ground Wood, Manila Stock. Values in Bales, Tons, and Bales.

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Jessup & Moore Paper Company, Otranto, Dundee, 162 bs. manillas. Burgass & Co., Martello, Hull, 114 coils rope. Neumark & Gross, Otranto, Hull, 102 bs. manillas. Jessup & Moore Paper Company, Assyria, Liverpool, 50 bs. rags. James Pirnie, St. Ronans, Liverpool, 41 bs. rags, 6 bs. old papers, 125 bs. bagging. Perkins, Goodwin & Co., by same, 425 bs. bagging, 65 coils rope. Burgass & Co., by same, 253 bs. bagging. Burgass & Co., Persian Monarch, London, 75 bs. strawboard cuttings. E. Hatton & Co., Astronom, Pillau, 123 bs. bagging. Burgass & Co., by same, 176 bs. rags. Lewy Brothers, by same, 1,247 bs. rags. Burgass & Co., Polynesia, Stettin, 81 bs. bagging. Burgass & Co., Island, Stettin, 36 coils rope, 163 bs. rags. Lewy Brothers, by same, 177 bs. rags. F. H. Wight, by same, 80 tons chemical fibre. A. Wertheim & Co., by same, 90 tons chemical fibre. Norwegian Wood Pulp Company, by same, 150 tons chemical fibre.

PAPER. H. H. Ross, State of Nevada, Liverpool, 2 cs. Jacob Schuster, Rotterdam, Rotterdam, 15 bs. L. De Jonge & Co., by same, 16 bs. American News Company, by same, 6 bs. Banatt Brothers, by same, 5 bs. Neuss, Heselstein & Co., by same, 47 bs. W. Botterling, Noordland, Antwerp, 9 cs. James E. Ward & Co., by same, 3 cs. L. De Jonge & Co., by same, 20 cs. Louis C. Wagner, by same, 10 cs. Merchants Dispatch Company, by same, 2 cs. Scovill & Adams Manufacturing Company, by same, 8 cs. Dingelstedt & Co., by same, 5 cs. John A. Norman, by same, 5 cs. B. Illfelder & Co., Marsala, Hamburg, 8 cs. J. C. Vaughn, Gellert, Hamburg, 4 cs. E. & H. T. Anthony & Co., by same, 16 cs. Scovill & Adams Manufacturing Company, by same, 9 cs. S. Ascher, by same, 7 cs. L. De Jonge & Co., by same, 2 cs. E. Hawley, by same, 2 cs. W. H. S. Lloyd, Adriatic, Liverpool, 1 cs. hangings. Schultz & Heiser, Island, Stettin, 15 bbls. May Brothers, La Champagne, Havre, 2 cs. W. S. Kimball, by same, 3 cs. F. W. Devoe & Co., by same, 4 cs. Neuvus & Haviland, Etruria, Liverpool, 1 cs. hangings. E. & H. T. Anthony & Co., La Champagne, Havre, 2 cs. photographs. Levi Wechaker & Co., St. Ronans, Liverpool, 22 bs. John Hunter, Otranto, Dundee, 23 cs.

EXPORTS of Paper, &c., from New York for the Week Ended September 10, 1889. BOOKS, to Argentine Republic, 7 es.; to Bremen, 3 cs.; to London, 24 cs.; to British possessions in Africa, 20 cs.; to British Australasia, 52 cs.; to British East Indies, 2 cs.; to British Guiana, 2 cs.; to Central America, 24 cs.; to Hamburg, 2 cs.; to Liverpool, 28 cs.; to Mexico, 2 cs.; to Nova Scotia, 1 cs.; to New Zealand, 3 cs.; to Venezuela, 2 cs.

PAPER, to Brazil, 5,425 rms., 52 pkgs.; to Central America, 38 pkgs.; to Cuba, 34 pkgs., 1,430 rms., 4 cs.; to Ecuador, 4 cs., 64 pkgs.; to Hayti, 2 cs.; to Liverpool, 14 pkgs.; to Mexico, 174 pkgs., 1 bale; to London, 113 cs.; to San Domingo, 118 pkgs.; to United States of Colombia, 18 pkgs.; to Argentine Republic, 108 pkgs., 2 cs.; to British Australasia, 137 pkgs., 6 cs.; to British West Indies, 55 pkgs.; to Bremerhaven, 14 cs.; to Chili, 1 cs.; to Denton, 6 pkgs.; to Dutch West Indies, 1 cs.; to Dutch Guiana, 1 bbl.; to Danish West Indies, 2 pkgs.; to Darmstadt, 1 pkg.; to Havre, 1 cs.; to Hong Kong, 5 cs.; to Leith, 26 pkgs.; to Marseilles, 10 bbls.; to New Zealand, 99 pkgs.; to Rotterdam, 64 bbls.; to Schoonenwerd, 1 cs.; to Uruguay, 6 cs., 4 pkgs.

STATIONERY, to Argentine Republic, 21 cs.; to Central America, 12 cs.; to Cuba, 20 cs.; to Chili, 6 cs.; to Liverpool, 2 cs.; to London, 10 cs.; to British Australasia, 14 cs.; to Brazil, 6 cs.; to British West Indies, 2 cs.; to Dutch West Indies, 1 cs.; to Danish West Indies, 1 cs.; to Hamburg, 17 cs.; to Havre, 2 cs.; to Nova Scotia, 1 cs., 1 pkg.; to Porto Rico, 1 cs.; to San Domingo, 7 cs.; to United States of Colombia, 38 cs.; to Uruguay, 2 cs.; to Venezuela, 3 cs.

Table with columns: Paper, reams, Paper, pkgs, Paper, cases, Books, cases, Stationery, cases, Resin, bbls. Values in \$ and units.

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Table with columns: Paper, reams, Paper, pkgs, Paper, cases, Books, cases, Stationery, cases, Resin, bbls. Values in \$ and units.

Sulphite Pulp. Train, Smith & Co., De Ruyter, Antwerp, 145 rolls. Bleaching Powders. Morey & Co., Bavarian, Liverpool, 95 cks. Mason, Chapin & Co., by same, 198 cks. Linder & Meyer, by same, 131 cks. E. & F. King & Co., by same, 81 cks. Warren & Co., Kansas, Liverpool, 330 cks. E. & F. King & Co., by same, 110 cks. Caustic Soda. E. & F. King & Co., Kansas, Liverpool, 200 drums. Soda Ash. Warren & Co., Kansas, Liverpool, 83 cks. James Lee & Co., Bavarian, Liverpool, 35 cks. E. & F. King & Co., by same, 29 cks. Linder & Meyer, by same, 86 cks. and 976 bags. Linder & Meyer, Pavia, Liverpool, 13 cks. and 744 bags. J. L. & D. S. Riker, by same, 81 cks. China Clay. John Richardson, Pavia, Liverpool, 100 cks. Slime. C. A. Cheney, Kansas, Liverpool, 273 bags. Train, Smith & Co., by same, 140 bags. W. A. Castle, by same, 128 bags. C. A. Cheney, Bavarian, Liverpool, 266 bags. Rosin. E. E. Clark, Chatham, Baltimore, 305 bbls.

PHILADELPHIA IMPORTS. FOR THE WEEK ENDED SEPTEMBER 7, 1889. Books. Porter & Coates, Lord Clive, Liverpool, 2 cs. George Barrie, by same, 1 cs. Paper Stock. Order, Minnesota, Swansea, 563 bags thread waste, 345 pkgs. wood fibre, 135 bs. old papers, 21 bs. cotton waste. Brown Brothers & Co., by same, 111 bs. old papers, 30 bs. waste. Brown, Shipley & Co., Lord Clive, Liverpool, 119 bs. bagging. Order, by same, 207 bs. bagging. Soda Ash. Churchman & Co., Lord Clive, Liverpool, 75 cks. Order, by same, 414 cks. Brown Brothers & Co., by same, 50 cks. Pennsylvania Salt Manufacturing Company, by same, 135 bbls. Caustic Soda. Order, Lord Clive, Liverpool, 90 drums. J. I. Keefe, by same, 128 drums. Bleaching Powders. Order, Lord Clive, Liverpool, 114 cks. Baring Brothers & Co., by same, 12 cks.

TRAIN, SMITH & CO., IMPORTERS OF AND DEALERS IN ALL DESCRIPTIONS OF Paper Makers' Supplies, 24 FEDERAL STREET, BOSTON. BRANCH OFFICES: 86 BEEKMAN STREET, NEW YORK. 21 ST. MARY AXE, E. C., LONDON. EDMUND ST. CHAMBERS, LIVERPOOL.

WM. J. CORBETT & CO., SUCCESSORS TO BARLOW & CO., WHOLESALE DEALERS IN AND PACKERS OF Woolen Rags and Paper Makers' Supplies, 287 and 289 SOUTH STREET, and 66 and 68 UTICA STREET, BOSTON, MASS. WOOLEN RAGS GRADED IN COLORS AND QUALITY.

STEPHEN LEE, SPRINGFIELD, MASS., IMPORTER OF AND DEALER IN Paper-Makers' Supplies. F. BREDT & CO., No. 194 Fulton Street, SOLE AGENTS FOR New York City, U. S. A. JOSEPH PORRITT & SONS' ENGLISH FELTINGS. MARINE BLUE (Aniline) for Newspaper Mills. Jacketing, Roll Cloth, Double Extra Canvas, Ultramarine Blue. ESTABLISHED 1855.

DARMSTADT & SCOTT, IMPORTERS AND PACKERS OF PAPER STOCK. Offices: 21 and 23 Centre Street; Packing House: 312 Water Street, New York. SPECIAL ATTENTION CALLED TO OUR OWN PACKING. GRIFFIN & LITTLE, PAPER MILL CHEMISTS, Office and Laboratory: 103 Milk Street, Boston. SPECIAL ATTENTION GIVEN TO ALL CHEMICAL WORK RELATING TO THE MANUFACTURE OF PAPER. YEARLY Contracts at Low Figures made with Pulp and Paper Mills for CHEMICAL ADVICE and ANALYTICAL WORK. NEW PROCESSES INVESTIGATED. EXPERTS IN THE SULPHITE PROCESSES. We are prepared to furnish Drawings for all apparatus peculiar to the process, and to take charge of new Mills at time of starting.

STILWELL'S PATENT LIVE STEAM FEED WATER PURIFIER. (HORIZONTAL STYLE.) Removes all Impurities. Entirely Prevents Scale in Steam Boilers. CATALOGUE ON APPLICATION. STILWELL & BIERCE MFG. CO., Dayton, Ohio.

ess was infringed by the machine process of Leinbach.

The court, therefore, issued an injunction to restrain L. Waterbury & Co. and the Pultz & Walkley Company from making their bags by that process after September 1.

In the meantime the Union Paper Bag Machine Company has carried the construction of its machines so far as to put one or two sizes of bags on the market.

From this it would appear that the New York concern and its licensees are the parties who really introduced the self opening square paper bags to the trade, and it is claimed that only for their long continued efforts and heavy expenditures that bag would probably never have been introduced at all.

The question now is whether the Union Paper Bag Machine Company will be able by means of its patent on the Deering hand process to stop the machines of the New York Paper Bag Machine and Manufacturing Company, or whether the latter will be able by means of its machine patent to stop the machines of the competing concern.

The outcome of this important and somewhat complex litigation will be looked for with interest.

Possibly some inventor will be level headed enough to produce a machine which will make S. O. S. bags and not conflict with the claims of either party.

INQUIRER.

Changes, Removals and New Firms.

- Ed. Bichsel, stationer, Denver, Col., has sold out. Charles B. Jones, printer, Cedar Falls, Ia., has sold out. W. Haas, bookseller, &c., Temple, Tex., has sold out.

Journal Company, with a capital stock of \$10,000, to publish the Alliance Journal, at Montgomery, Ala.

The National Democratic Publishing Company has been incorporated in West Virginia to publish the National Democrat, at Washington, D. C.

Handley & Macowsky, newsdealers, &c., San Diego, Cal., have sold out.

The firm of George Metcalf, stationer, &c., Douglas, Wyo., has been dissolved.

A stock company is being organized to publish the Bulletin, at Goldsboro, N. C.

F. Hamelin, paper manufacturer, Port Neuf, Que., is advertised to be sold out.

Jones & Miller, dealers in paper hangings, Pueblo, Col., have dissolved partnership.

B. M. Barrington will publish a newspaper, to be called the Daily States, at Helena, Ark.

The Southern Gazette Company, Louisville, Ky., has discontinued the publication of the Southern Trade Gazette.

L. E. Hodges, Kissimmee, Fla., is about to start the publication of a paper to be known as the Florida Cracker.

Rice & Chapple, booksellers and stationers, London, Ont., have sold out the retail department of their business.

S. P. Richards & Sons, dealers in books, stationery, &c., Atlanta, Ga., have removed to No. 36 Whitehall street in that city.

A new corporation for the manufacture of envelopes has been formed at Worcester, Mass., with Everett M. Low, president; William Byron Emerson, secretary and manager, and George D. Barber, treasurer.

A portion of the Basset Building, on Foster street, has been leased by the new company, and possession will be taken at once.

The company will use machines which were invented and patented by Messrs. Emerson and Low, both of whom have for several years been connected with the Logan, Swift & Brigham Envelope Company.

Failures.

A. J. Hawks, stationer, &c., Buffalo, N. Y., has made an assignment.

Wm. S. Long, dealer in paper hangings, Norristown, Pa., is in the hands of the sheriff.

H. L. Pitts & Co., printers, Richmond, Va., have made an assignment.

Schedules in the assignment of George W. Hill, paper and leather board dealer, New York, to Hosford B. Nilo, state liabilities \$36,374.95, nominal assets \$26,256.46 and actual assets \$9,627.54.

A meeting of the creditors of D. C. Bowne, Pueblo, Col., was held at the rooms of the Board of Trade on Tuesday last, George L. Pease presiding.

Alexander Balfour, of the Richmond Mill, of Philadelphia, on Wednesday last, September 11, issued execution against M. H. Eaton, 309 Cherry street, of that city, upon a judgment note for \$1,390.18.

Garrett A. Hobart, receiver of the Ivanhoe Paper Company, Paterson, N. J., has filed his report with the Court of Chancery, and has given notice to the creditors of the company that on September 24, at 10 A. M., he will move for a confirmation of the same and his discharge.

A. J. Alred & Co., printers, Montgomery, Ala., have been succeeded by Smith, Alred & Co. W. C. & G. C. O'Brien, publishers, McGregor, Tex., have dissolved partnership.

property of the corporation, "so that with the exception, perhaps, of a few chattels of comparatively little value the entire assets of the corporation passed into petitioner's hands encumbered for far more than petitioner could possibly realize."

In Town.

E. E. Judd, Stillwater, N. Y.; Mr. King-land, Holyoke, Mass.; Charles Hanmer, Burnside, Conn.; C. D. Browning, Greenville, Conn.; J. Howard Lewis, Swarthmore, Pa.; C. C. Benton and H. B. May, Lee, Mass.; Mr. Trundel, Batavia, Ill.; L. I. Hartwell, Lawrence, Mass.

SPECIAL NOTICES.

[Insertions under this heading will be charged 50 cents a line. Payment invariably in advance.]

THOS. BUTLER & CO., Rags, Paper Stock, Old Metals, Rubber, 248-252 CANNON ST., BOSTON, MASS.

CARPENTER & BARTLETT, Cotton and Woolen Rags, Paper Stock, Old Metals and Rubber, No. 190 FRONT STREET, HARTFORD, CONN.

JAMES SAVAGE, JR., Rags, Paper Stock, Rubber, &c., &c., 130 TO 136 WEST 33RD ST., NEW YORK.

Market Review.

OFFICE OF THE PAPER TRADE JOURNAL, FRIDAY, SEPTEMBER 13, 1889.

THE MONEY MARKET.—The stock market was dull and irregular. The money market was a little more active and rates a shade higher, at 3 3/4 per cent.

Double named—Sixty days—Four months—First class—4 1/2 @ 5—4 1/2 @ 5—Good—3 @ 6—3 @ 6—Single named—First class—2 @ 6—2 @ 6—Good—1 @ 7—1 @ 7—Not so well known—7 @ 10—7 @ 10

The market for sterling is extremely dull. Posted rates closed at \$4.85@4.85 1/2 for sixty days' and \$4.89 for demand. Rates for actual business were as follows: Sixty days' sight, \$4.84 1/2; demand, \$4.88 1/2 @ 4.88 1/2; cables, \$4.89 @ 4.89 1/2; commercial, \$4.83 1/2.

THE PAPER TRADE.—The feeling in the paper market has improved, and with a somewhat better movement of goods less complaint is heard. Of course, there is yet considerable room for improvement, but the prospects are brighter than they were a month ago.

JUTE BUTTS.—The Jute Butt market is very quiet. Few sales are being made, and they are wholly of small and unimportant lots.

WOOD PULP.—The market for Ground Wood is still in its old condition. Domestic grades are not only in control of the market here, but there are shipments being made to England.

WOOD FIBRE.—The demand for Chemical Fibre is not so active as it might be; values, however, are fairly steady.

FOREIGN RAGS AND PAPER STOCK.—There is a continued improvement in the market for foreign rags, and both Linens and Cottons have been selling to some extent, the inquiry being mainly for low grade Cottons.

30 tons German Blue Cottons now due at 1.95c., and 25 tons New Unbleached Cuttings (French) at 5c. There have been some sales of Linens, F F's and others, but prices have not yet been revealed.

DOMESTIC RAGS.—There is a steady movement and values remain as they have been. The volume of new business is not large, but old contracts are absorbing supplies quite closely.

BAGGING, &c.—The demand for Gunny Bagging is almost nothing and the market is nominally 1 1/2 c., although some importers claim they cannot sell at lower than \$1 a ton above this figure.

OLD PAPERS.—There is a fair average business in progress, and values are steady. We quote: No. 1 Hard White Shavings, 3 1/2 c.; No. 1 Soft White do., 2 1/2 @ 2 3/4 c.;

STRAW.—The market is weaker, owing to more plentiful supplies. We quote: No. 1 rye at 65 @ 75 c.; short rye at 40 @ 50 c.;

ROSINS.—Rosins are without change on moderate demands. We quote in lots from the yard: Common to Good Strained, \$1.27 1/2 @ 1.30;

CHEMICALS.—The market for paper makers' chemicals is practically the same as it was last week. Under date of 28th ult., J. P. Brunner & Co. say of the Liverpool market: "Last week there was more doing all around in chemicals, but the market has gone quiet again, and although quotations show little change the tendency is rather in favor of buyers."

During the week there have been sales of 500 cks. Bleach at 1.72 1/2 @ 1.75 c.; 250 tons 48 per cent. Soda Ash at 1.25 @ 1.37 1/2 c.;

CHINA CLAY.—China Clay has been fairly active, with a very moderate supply of the superior grades on hand and little or none at sea.

stocks within the next six or eight weeks. The ordinary grades of prime and medium are available in sufficient quantities for all present necessities.

COAL.—There has been no great change in general conditions since last week. Philadelphia reports a quiet trade.

EDWIN BUTTERWORTH & CO.

MANCHESTER, ENGLAND. PAPERERS OF ALL KINDS OF Paper Stock, Cotton Waste and Buffalo Sizing, Wood Pulp, Moist and Air Dry Pulp, Soda and Ground Pulp.

CRATTY BROS. & ASHCRAFT, Lawyers, 189 Dearborn Street, CHICAGO, COMMERCIAL AND CORPORATION LAW.

COBURN-TAYLOR MFG. CO., Holyoke, Mass. IMPROVED RAG CUTTER.

An economical Labor Saving Machine, suitable for all classes of Paper Mills.

PRICES CURRENT. NEW YORK MARKET.

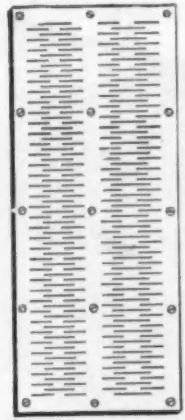
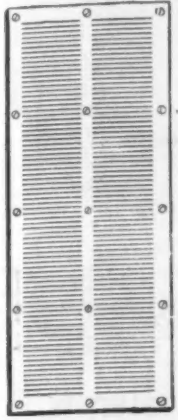
Table with multiple columns listing various paper products and their prices, including Ledger and Record, Flat Caps, Paper Stock, etc.

JUDSON & WILLIAMS,

Holyoke, Mass.,

MANUFACTURERS OF

Screen Plates.



REPAIRING
OLD
SCREEN
PLATES
A SPECIALTY.

Chicago Steam Boiler and Machine Works,
113-119 Michigan St., Chicago, Ill.



ROTARY BLEACHERS A SPECIALTY.
SEND FOR PRICES.



DISK FAN OR EXHAUSTER,

For Drying and Ventilating, Removing
Steam, Dust, &c.
Specially adapted for use in Paper Mills.

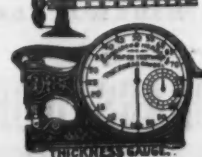
MANUFACTURED BY
ANDREWS & JOHNSON,
59 and 61 Lake St., Chicago.

SEND FOR CIRCULAR CONTAINING PRICE LIST.

THE MORRISON & HERRON
TESTING SYSTEM.

THE MORRISON & HERRON
IMPROVED
**PAPER TESTING
MACHINES.**

PAPER SCALE.



STRENGTH INDICATOR.

Three Different Machines
FOR
Strength, Thickness and Weight

A NEW PRINCIPLE APPLIED IN
TESTING PAPER.

Thickness shown to the sixteen-thousandth part
of an inch.

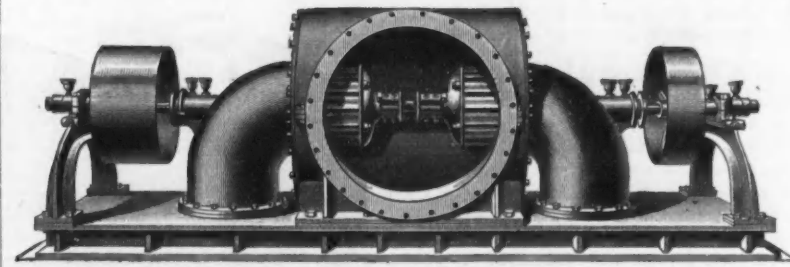
Used in the GOVERNMENT PRINTING OFFICE
and the DEPARTMENTS at Washington.

Price, complete, \$150.00
Or Strength Indicator, 75.00
Thickness Gauge, 75.00
Paper Scale, 30.00

ADDRESS ALL ORDERS TO
E. MORRISON,
805 D Street, Washington, D. C.

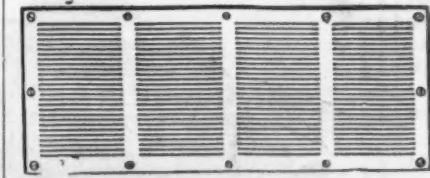
CAUTION.
All persons are liable to prosecution who make, buy
or use Paper Testers that confine and break paper
within its edges, as my Patents cover that method.

THE VICTOR TURBINE.



THE above engraving represents a pair of 12 inch **VICTOR TURBINES** arranged on a horizontal shaft, with Cast Iron Flume, Draft Tubes, End Bearings for Shaft, and Driving Pulleys complete, all mounted upon a substantial cast iron bed plate. The entire arrangement is very complete and strictly first-class in every particular. We are now prepared to furnish Victor Turbines either single or in pairs on horizontal shafts and where the situation admits of their use we recommend them.

NATHAN BARNETT. ROBERT A. HALEY. WM. C. MARTIN.
ANNANDALE
Screen Plate Co.,
PATERSON, N. J.



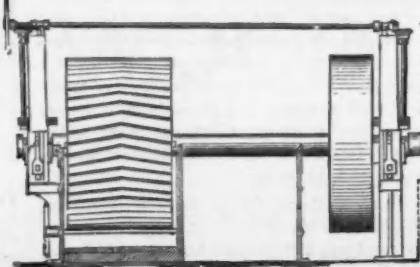
Manufacturers and Repairers of
SCREEN PLATES.

Our New Plates are made of the
VERY BEST METAL,
and for price and durability cannot be
surpassed.
OLD PLATES RE-CLOSED.

GRESSMAN'S IMPROVED RAG ENGINE

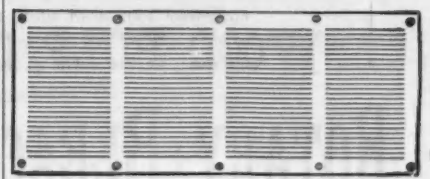
With Geared Lighter, for raising both
ends of the Roll Shaft alike.

THE roll in this Engine has angular knives
or fly bars, whereby the stock is more
effectively and rapidly acted upon, making
more regular and even stuff. This improve-
ment is in use in a number of leading mills.



For further information, address

GEO. W. CRESSMAN, Lafayette Hill, Montgomery County, Pa.



A. A. TRAIN,

MANUFACTURER OF
Screen Plates

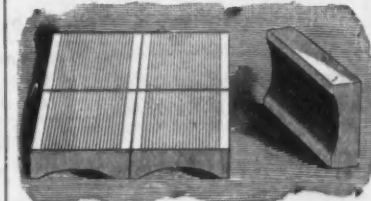
OF BRASS OR CAST METAL,
At Prices that Cannot be Surpassed.
21 MAIN ST. FITCHBURG, MASS.

THE
HARDY & PINDER
PATENT
Cast Metal Screen Plates

HAVE STOOD THE TEST OF YEARS AND ARE ACKNOWLEDGED
BY PAPER MANUFACTURERS

The Best in the World!

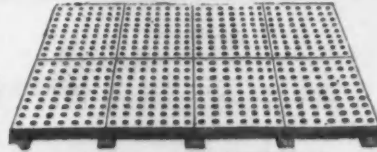
HARDY & PINDER,
FITCHBURG, MASS., U. S. A.



SAMUEL SNELL,
Holyoke, Mass.,

MANUFACTURER OF
FILTERING STONES,

Under the KLAN and SNELL Patents.



REFER TO:
(Size No. 1.)
HOLYOKE PAPER CO., Holyoke, Mass.
PARSONS PAPER CO., Holyoke, Mass.
BYRON WESTON, Dalton, Mass.
BREMNER & MOORE, Louisville, Ky.
KIMBERLY & CLARK CO., Appleton, Wis.
ALEX. HUNTER & CO., Montreal, Can.
FATTEN PAPER CO., Appleton, Wis.
MORRISON, BARK & CASS, Tyngsboro, Pa.
And many others.

(Size No. 2.) SEND FOR CIRCULAR.

UPRIGHT or HORIZONTAL.

In use in a large number of best Paper and Pulp Mills in this and other Countries.

Passes more than Double the Capacity of other
Water Wheels of same diameter, and has
produced the Best Results on Record,
as shown in the following tests
at Holyoke Testing Flume:

SIZE WHEEL.	HEAD IN FEET.	HORSE POWER.	PER CENT OF USEFUL EFFICI.
13 inch.	18.06	30.17	.8982
17 1/2 inch.	17.96	36.55	.8989
20 inch.	18.21	43.00	.8852
25 inch.	17.30	63.63	.8584
30 inch.	11.85	52.54	.8976

WITH PROPORTIONATELY HIGH EFFICIENCY AT PART GATE.
Such results, together with its nicely working gate, and simple, strong and durable construction, should
favorably commend it to the attention of all discriminating purchasers.

THESE WHEELS ARE OF VERY SUPERIOR WORKMANSHIP AND FINISH.
THE VICTOR WHEEL HORIZONTAL SHAFT,
Is particularly adapted to setting on DISPENSING ENTIRELY
WITH GEARS.

STATE YOUR REQUIREMENTS AND SEND FOR CATALOGUE TO THE
STILWELL & BIERCE MFG. CO., DAYTON, OHIO,
U. S. A.

THOMPSON & CAMPBELL

(Successors to KREIDER, CAMPBELL & Co.,
1030 Germantown Avenue, Philadelphia, Pa.)

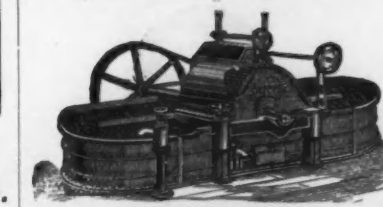
W. H. RUSSELL'S SAND WASHER,
An improvement in Washing Engines.

MACHINISTS AND MILLWRIGHTS.

Manufacturers of Beating and Washing Eng-
ines, Pumps, Rag Cutters, and Paper
Mill Work in General.

MILLWRIGHT WORK A SPECIALTY.

ALSO, MAKERS OF
Improved Cylinder and Fourdrinier Machines.



GEO. E. BARTON, Treas. CHAR. E. BARTON, Pres. LEWIS C. STONE, Manager.

RICE, BARTON & FALES MACHINE AND IRON CO.

(At Old Stand of Rice, Barton & Co.)

WORCESTER, MASS.,

MANUFACTURERS OF-

PAPER MACHINERY

OF EVERY DESIRABLE VARIETY.

Iron and Brass Castings, Chilled Iron and Paper Calendar Rolls, Rag Engines,
Rag Cutters, Steam Pressure Regulators, &c.

HYDRAULIC PRESSES, FROM 5 TO 14 INCH PISTON.

PAPER MACHINERY.

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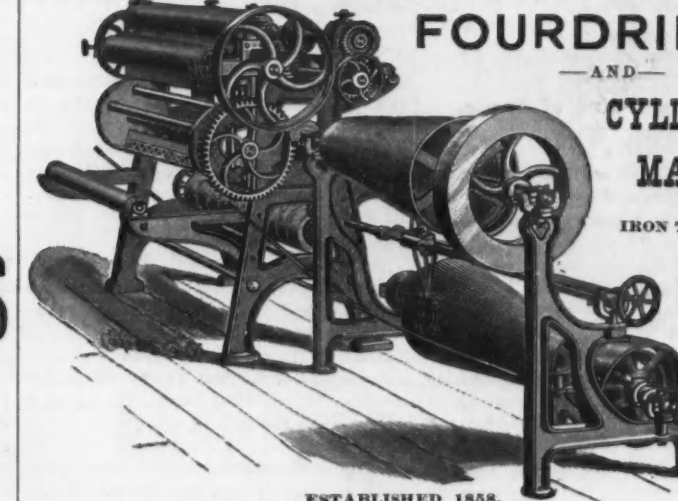
—AND—

**CYLINDER
MACHINES.**

IRON TUB and
WOOD TUB

BEATING
ENGINES.

WET
MACHINES,
Rag Cutters,
Water and
Stuff Pumps,
&c., &c.



ESTABLISHED 1858.

BELOIT IRON WORKS, Beloit, Wis., U. S. A.

BOSTON BELTING CO.,

New York. Established 1828. Boston.



256 to 260 Devonshire St., Boston.
100 Chambers St., New York.
100 Madison St., Chicago.
2 & 4 California St., San Francisco.

ORIGINAL MANUFACTURERS.

Rubber Belting, Hose, Packings. Rubber Rolls—Press, Sizing, Couch.
DECKLE STRAPS. FIRE HOSE—RUBBER, COTTON, LINEN.
Sole Manufacturers, "IMPERIAL" Sewed Rubber Belting

Fires.

The *News*, New Britain, Conn., has been burned out.
 Wm. E. Best & Co., booksellers and stationers, Tacoma, Wash., have been burned out.
 E. E. Hull, publisher, Fort Worth, Tex., has been burned out. Loss, \$4,500; insured for \$1,700.
 Johnson, Roberts & Co., dealers in paper hangings, &c., Tacoma, Wash., have been burned out.
 Fire started on the afternoon of September 9 in the paper stock warehouse of P. J. McArdle, corner of Arch and Church streets, Albany, N. Y. The building was a four story brick structure and was filled with junk. The flames spread with great rapidity, and the entire structure was soon a seething mass of flames, upon which the volumes of water seemed to have no effect. An immense crowd of people was attracted to the spot by the dense volumes of smoke. Two women whose names are unknown are known to have perished in the flames. It is believed that there are other bodies in the ruins, but only a search will reveal the facts. A cry of horror went up as a woman was seen in a fourth story window surrounded by the flames. She looked below for a moment and then jumped to the pavement. Her ribs were fractured and she sustained serious internal injuries. Her name is Ellen Frank. Daniel Gannon, a boy, was the next to appear in the window; he jumped, receiving a fracture of the ribs. Richard Gamble jumped down the elevator shaft and was fatally injured. A Mrs. Powers jumped from a fourth story window and fell upon a pile of iron. She was horribly bruised and was expected to die. The latter two were taken to the hospital. The fire originated in the second story, over the boiler, but from what cause is unknown. The spread of the flames was so quick and the heat so great that it was reported that a number of operatives did not have time to escape. The most alarming reports were circulated, and at one time it was reported that a dozen persons had met death in the building.

Mortgages, Etc.

[In the appended list R. signifies a renewal of a pre-existing mortgage, B. S., bill of sale; and Real, a mortgage on real estate.]

EASTERN STATES.	
Mortgages.	Amount.
Bridgeport Paper Company, Bridgeport, Conn. (Real and personal)	\$208,236
D. P. Baker, Providence, R. I.	
MIDDLE STATES.	
Rogers Paper Company, Binghamton, N. Y.	4,521
WESTERN STATES.	
D. M. Fraser, Elmore, Cal.	910
Chas. H. S. Whipple, Leadville, Col.	300
Paul R. Goddard (Goddard & Ireland), Pierre, Dak.	500
Benjamin L. Weaver, Chicago, Ill.	510
S. H. Dodge, Beloit, Kan. (Real)	1,000
L. W. Vaepel, Saginaw, Mich. (B. S.)	—
J. M. Wright, Huntsville, Mo.	144
McBride & Ryan, Omaha, Neb.	750
CANADA.	
M. Putnam, Winnipeg, Man.	7,980
LIENS RELEASED.	
H. C. Stilwell Bartling, (Phillips & Stilwell)	3,000

Stationers' Board of Trade.

At a regular meeting of the trustees of the Stationers' Board of Trade, William I. Martin, as chairman of the committee having in charge the raising of money for the sufferers by the Pennsylvania floods, presented a report, showing that the committee had collected \$6,033.30, which had been transmitted to and acknowledged by Governor Beaver.
 On motion of Alexander Agar, the president was empowered to appoint a committee of five to communicate with the Secretary of State and tender to him their hearty co-operation in his efforts to show the delegates from South America to the coming congress the large and growing industries represented by the members of the board.
 The report of R. G. Evans, delegate of the board to the convention of commercial

bodies held at Minneapolis, September 3, was received. Mr. Evans reported that the bill to establish a uniform system of bankruptcy throughout the United States, as prepared by Jay L. Torrey, of St. Louis, was adopted with some slight alterations, which alterations Mr. Evans will forward to the board as soon as printed.
 President G. L. Pease appointed as the committee to aid in receiving the delegates from South America to the Congress of the Three Americas, Samuel I. Knight, William I. Martin, Oscar S. Greenleaf, Walter G. Berlin and Charles E. Runk.

Obituary.

SAMUEL H. MOLLESON.

The members of the paper and stationery trades were shocked on Thursday by the announcement of the death of Samuel H. Molleson, of Molleson Brothers, paper dealers, 18 Beekman street, New York. For some time past Mr. Molleson has been in ill health, being a sufferer from Bright's disease. On Saturday



SAMUEL H. MOLLESON.

last he attended the baseball game at Washington Park, Brooklyn, and, being unable to obtain a seat, was obliged to stand on the grass. He took cold, was unable to go to business on Monday, and on Monday night the attack developed into a severe case of pneumonia, which terminated fatally at 6:30 o'clock on Thursday morning.

Samuel H. Molleson was born in New Brunswick, N. J., on January 13, 1843, and when sixteen years of age started in the paper business as a boy in the office of Cyrus W. Field & Co., 11 Cliff street, then a prominent house in the trade. He remained with this house until its failure in 1861. He then connected himself with Hand & Ellsworth, with whom he remained for seven years. He then started in business for himself, the firm being Molleson & Allen. The junior partner went out of the firm in about three years, his place being taken by Theodore Molleson, and the firm style was changed to Molleson Brothers, which it has since continued.
 Mr. Molleson was a man of genial disposition and sterling integrity, and paid close and strict attention to his business. His loss will be felt by a very large circle of friends, by whom he was highly esteemed. He was a trustee of the Stationers' Board of Trade, and was serving his second term as an officer of that body.

CHARLES W. RICH.

Charles W. Rich, of St. Albans, Vt., died at his home in Swanton on Tuesday, August 27, at the age of seventy-two years. Mr. Rich had been for many years acquainted with the paper trade, having been one of the earliest lime manufacturers in the State. He was also owner of a straw paper mill at Ausable Chasm, N. Y.

Samuel Graves, editor of the Lebanon (Ky.) *Standard and Times*, died, on September 9, of blood poisoning, at his home at Lebanon. He was thirty-seven years old and was one of the best known and ablest members of the State press. He leaves a wife and one child.

Isaac Warren Parmenter, who died at his home on September 9, was one of the first to engage in the advertising agency business in this city. He was born at Sudbury, Mass., in 1825, and began his business life

in a book store in Boston. He came to New York thirty years ago, and after engaging in the book business he established an advertising agency, which he had conducted since. For the last year he had been living at leisure at his home in Summit, N. J. He was sixty-four years old and leaves a widow.

D. S. Walton & Co. have received a telegram announcing the death of Mrs. George A. Robertson, which took place at Hinsdale, N. H., on Thursday last. The deceased was the mother of the four sons who now compose the firms of George A. Robertson & Co. and Robertson Brothers, of Ashuelot. These gentlemen are well known in the paper trade and their bereavement will create a good deal of sympathy from their many friends. Mrs. Robertson was widely respected for her strong common sense qualities, and her womanly virtues, Christian character and cheerful and generous disposition were known to all. It will be remembered that George A. Robertson, the husband of the deceased, was killed some years ago by the falling of a derrick during the erection of Roberson Brothers' mill at Ashuelot.

General Notes.

The Fox River Paper Company, Appleton, Wis., is making a supercalendered book paper of good quality and finish.

Jenkins Brothers, 105 Milk street, Boston, are general agents for the "Metropolitan" automatic injector for feeding water to boilers. An illustrated descriptive price list of this injector has been issued which can be had by addressing the agents.

A paper on some difficulties encountered in the operation of pumps as met by the "Positive Piston" pump, written by Josiah Dow, has been reprinted in pamphlet form in the *Journal of the Franklin Institute*. It is an interesting review of the subject on which it treats.

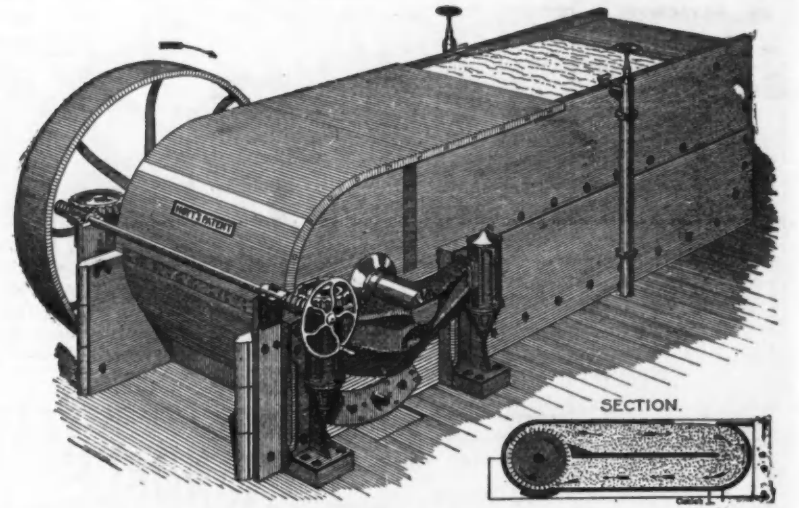
The fifteenth edition of Lockwood's Directory of the Paper and Stationery Trades is a handbook for all buyers in the lines of trade to which it relates. It is ready for delivery to parties wanting it. A purchaser says: "We consider it best value for the money we've had this year."

Chas. T. Bainbridge's Sons, 21 Beekman street, New York, have taken the agency for the United States and Canada of L'Union des Papeteries for "vegetable parchments," which are coming largely into use for printing and painting, and in the lighter weights for packing lard, butter, preserves of all kinds and meats.

At the request of the Government, Wilkinson Brothers & Co., who are to make the paper for the postal cards, have made a large variety of samples of various tints. These show excellent strength, finish and color, and are far superior to the cards now in use. The tints produced are very delicate and have been much admired by those who have seen them.

The entire production of the M. & W. H. Nixon Paper Company's mills, of Philadelphia, as far as supercalendered and machine finished book papers are concerned for the Philadelphia market, is handled by the Nescochague Manufacturing Company and A. G. Elliott & Co. of that city. Up to the present time the trade has been supplied by either of these firms. By an arrangement just entered into between the Nixons and the two firms they will hereafter have one fixed price to the trade, the advantage being that the price agreed upon is that at which the paper is billed to them direct by the Nixon Company, the compensation for their handling and disposing of the paper being a concession or rebate upon the gross quantity placed each month by them. By this means the dealer or jobber ordering from the sales agents can afford to supply his customers at the same rate as though buying from the mill direct. Mr. Nixon has named as the mill price, in this connection, 6 and 6 1/2 cents for two grades of supercalendered book paper. The output of these mills, handled exclusively by the two firms referred to, runs up into the hundreds of tons of supercalendered and machine finished book papers alone.

HOYT'S PATENT BEATING ENGINE.



FOR PARTICULARS ADDRESS **JOHN HOYT, Manchester, N. H.**

HARRINGTON & KING PERFORATING CO.
 MANUFACTURERS OF PERFORATED SHEET METALS OF ALL KINDS FOR MILLING & MINING MACHINERY and all other uses. CHICAGO, ILL. U.S.A.

For Mining and Concentrating Works, Coal, Slime and Ore Screens, Fine and Water Works, Clay and Sand Screens, &c.

For Paper, Woollen, Oil and Flour Mills, Filters, Dryers, Strainers, Ventilators, &c.

PAPER MILL WORK A SPECIALTY. Perforated Iron, Copper and Brass for Vats and Drainer Bottoms, Washers, Pulp Screens, False Bottoms, Stock Jokers, both Rotary and Stationary; Sand Traps, Button Catchers, Suction Box Covers, Shower Pipes, &c., &c. Screens and Filter Plates, Perforated Tin and Brass of all sizes. Iron, Steel, Copper, Brass and Zinc punched to any size and thickness required. CORRESPONDENCE SOLICITED. SATISFACTION GUARANTEED.

THE HARRINGTON & KING PERFORATING CO.
 MAIN OFFICE AND WORKS: 224 and 226 North Union St., CHICAGO, ILL.
 EASTERN OFFICE: 100 Beekman St., NEW YORK.

WOOD PULP, STRAW PULP, ROTARY BLEACHING BOILERS.

THOSE WHO HAVE UNSAFE ROTARY BOILERS IN USE CAN EXCHANGE THEM FOR THE Loring Patent Rotary, and can be furnished with abundant evidence that the Loring Boiler is absolutely safe, and the only safe Rotary Bleaching Boiler in use. For the production of chemically prepared wood pulp it has been found extremely difficult to make a boiler that would remain absolutely tight for any considerable length of time. I have accomplished this result by adopting modes of construction far in advance of the best methods for producing first-class boiler work, in combination with substances and methods entirely independent of boiler work, and only known to myself. I invite special inquiries in regard to my patent **WOOD PULP BOILERS**, patent **STRAW PULP BOILERS**, and Rotary Bleaching Boilers; also to my patent process for extracting water from wood and straw pulp, and to my improved Fibre or Drainer Tanks, and Fibre Valves. The common steam boilers built by the undersigned have proved more durable and safer than those of any other manufacturer in the United States. Steam boilers now in good condition that have been in constant use twenty-eight years can still be seen in use in Boston. Not one of the many thousand boilers, varying in weight from one-half to forty tons, has ever exploded or given out, to cause injury to a single person or to one dollar's worth of property, during the twenty-eight years.

HARRISON LORING, Boston, Mass.

NOTICE—I have been informed that irresponsible boiler makers have offered to build Rotary Boilers with whole wrought iron heads and a hollow journal, which would be an infringement of my patent. Such boilers will be made by the undersigned at low prices—having special tools for the work—and no extra charge made for the patent right, which would have to be paid by the user if made by an unauthorized person.

HARRISON LORING.

SANDY HILL IRON AND BRASS WORKS,
 Sandy Hill, Washington County, N. Y.,
 —MANUFACTURERS OF—

PAPER MILL MACHINERY
 Fourdrinier and Cylinder Paper Machines of extra heavy pattern. Stock, Engines, Rag, Rope and Jute Cutters, Stuff and Fan Pumps, Chilled Calendar Rolls, Gun Metal Rolls. Wood Pulp Machinery of all kinds, Water Wheels and general Mill work. Boils Reground by patent process.

HARPER'S IMPROVED FOURDRINIER MACHINES.

Established 1861. Removed to Syracuse 1881. For PAPER AND PULP MILLS, Tanneries, Contractors, Dry Docks, Etc., Etc.

BALDWINVILLE CENTRIFUGAL PUMP WORKS.

VERTICAL, HORIZONTAL AND SUCTION IRRIGATING PLANTS A SPECIALTY. ALSO SAND PUMPING PLANTS.

PUMPS

IRVIN VAN WIE, Proprietor, Syracuse, N. Y.

CYLINDER WASHERS.

FOR EFFICIENCY AND DURABILITY UNEXCELLED.

All Iron and Copper except the shaft.

THE BEST TURNING RAG ENGINE BUILT. Tubs either Iron or Wood.

Double Lighters, Relief Lever, Adjustable Breast and Fall, Iron Rolls.

GENERAL PAPER MACHINERY,


DOWNTOWN MFG. CO.,

Downtown, Pa., U.S.A.



THE J. H. HORNE & SONS CO.,

THE PATENT JORDAN PLUG.



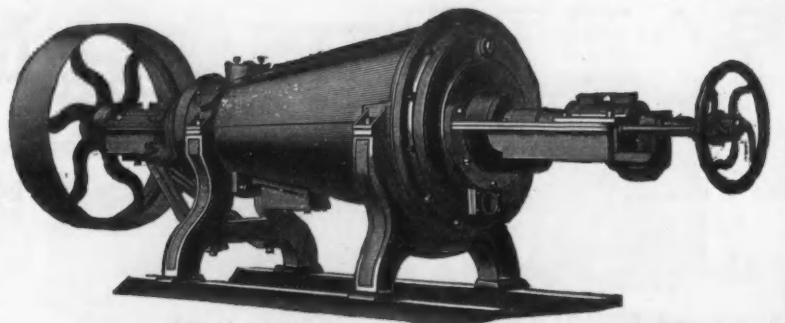
Patented May 25, 1875, and Jan. 5, 1885.

This Plug is an improvement over all kinds in the country. It can be Refilled with New Bars at the mill where it is used, when worn out, by any ordinary mechanic, in a short time, and thereby save freight and expense of sending it away to be refilled. All of our Jordans contain this style Plug.

MANUFACTURERS OF
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JORDAN ENGINES REFILLED.
JORDAN BAR AND
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constantly on hand.



THE JORDAN ENGINE.

THE "HORNE" PATENT BEATING ENGINE.

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IT IS THE ONLY
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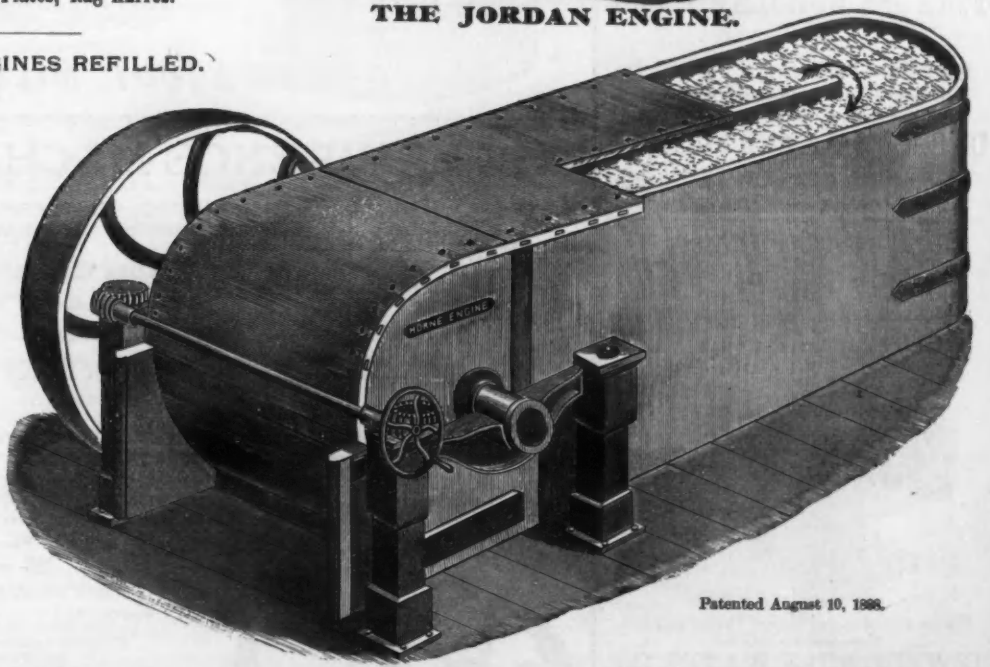
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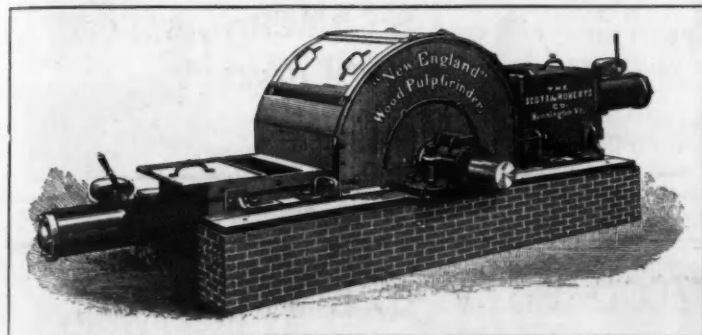
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Manufacturers of Paper Mill Machinery.

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THIS MACHINE IS PRODUCING THE MOST WONDERFUL RESULTS EVER KNOWN IN THE HISTORY of Wood Grinding. Mills, with only moderate power, using this Machine, are turning out enormous quantities of Pulp, and making more money at present prices than they ever made under the old systems. The **NEW ENGLAND** is manufactured in two sizes: one size has stone 25 inches wide, and the other size is made to set in the place of the old Voelter Machine. Parties desiring to do so can use their old shafts, flanges, pulleys, &c.

We guarantee that the **NEW ENGLAND GRINDER** will produce more Pulp of a superior grade than any machine now on the market, when operated according to our New England system.

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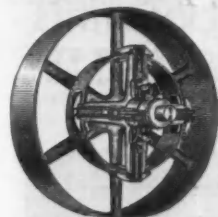
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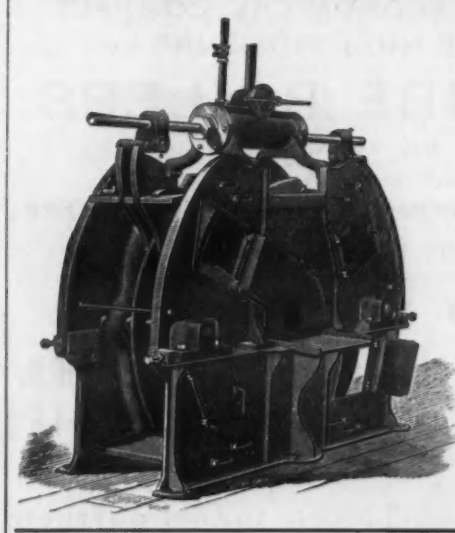
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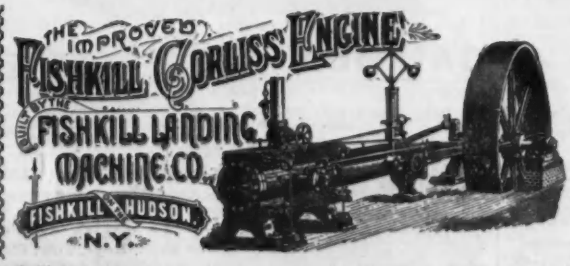
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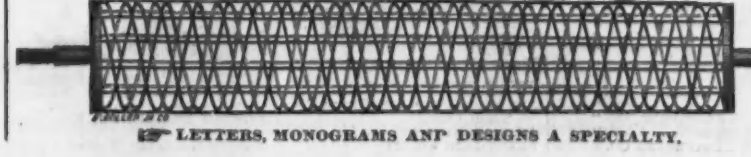
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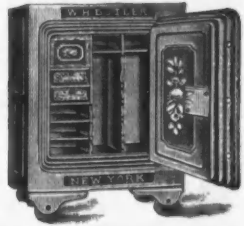
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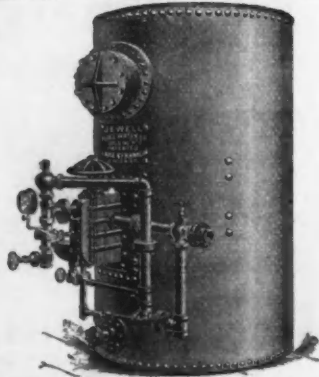
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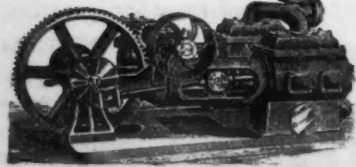
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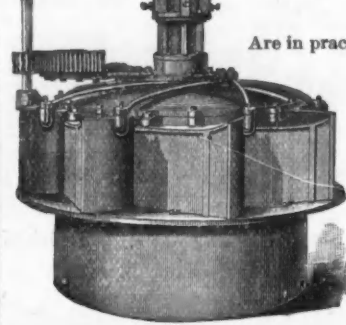
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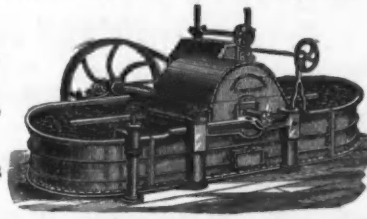


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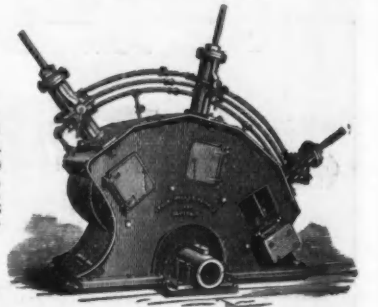
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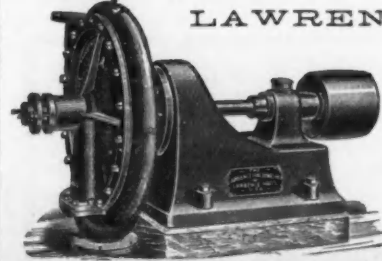
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Hydraulic feeds, fine adjustments;
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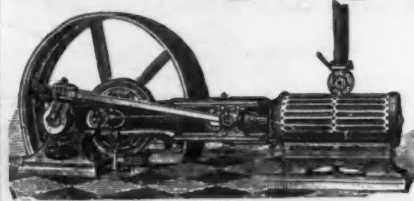
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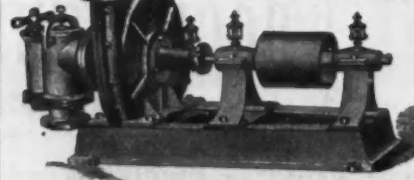
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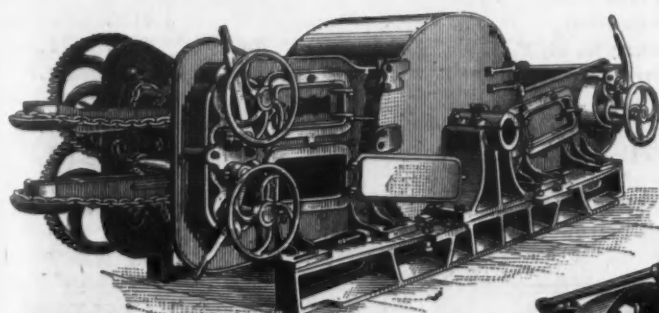


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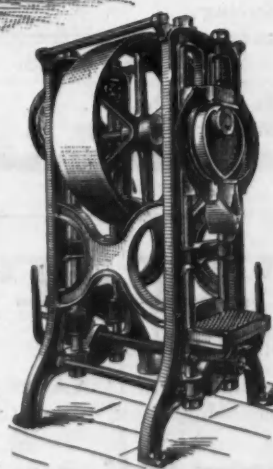
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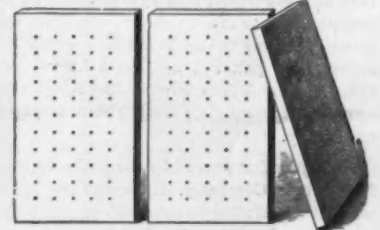
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BEATING-ENGINE.



DETACHABLE

CHAIN BELTING,

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CONVEYORS, CARRIERS,
DRIVING BELTS,

For the handling of PULP, STRAW, CLAY,
BALES, BOXES, CHEMICALS, ETC.

We furnish complete outfits for handling material of all kinds.

For Catalogue and Prices address

THE JEFFREY MFG. CO.,

175 East 1st Ave., Columbus, Ohio.

NORWEGIAN WOOD PULP CO., Limited,

No. 41 Broad Street,

NEW YORK,

AGENT FOR

CHR. CHRISTOPHERSEN,

Christiania, Norway,

Manufacturer of

MECHANICAL

—AND—

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WOOD PULP.

G. A. CHENEY,

—IMPORTER OF—

PAPER STOCK AND SIZING,

58 & 60 Federal Street,
BOSTON.

Manufacturing News.

EASTERN STATES.

The Sibley Machine Company, Norwich, Conn., is building an 1,800 pound washing engine for the Oakland Paper Company, Manchester, Conn.; a three cylinder railroad duster for Hunter & Shiland, Essex Junction, Vt.; shafting, pulleys, &c., for John Robertson's new mill at Quaker Hill, Conn., and is making a new vat and doing repairs for the Yantic Paper Company, Greenville, Conn. This company reports that it is quite busy on general mill work.

An addition, 40x57 feet, is being made to the mill of the Worthy Paper Company, Mittleague, Mass.

The paper mill at Henniker, N. H., which has been shut down for extensive repairs, has been started up. Most of the employees have been away during their vacation.

The J. H. Horne & Sons Company, Lawrence, Mass., has engaged in the manufacture of Fourdrinier and cylinder machines, and proposes to make this an important adjunct of its business. It is now ready to fill orders. Its patterns are extra heavy, entirely new, and the company has everything complete for making fast running paper machinery.

An injunction served by the Union Square Paper Bag Company, of New York, upon the Pultz & Walkley Company, of Southington, Conn., has caused a suspension of work in the paper bag department of the Connecticut company.

The dam across the river at Piscataquis Falls, Me., where the new pulp and paper mill is building, is nearing completion, and but little remaining work needs to be done. The works are owned by a party of Boston capitalists, and it is said that they will have the largest capacity of any pulp mill in the country.

MIDDLE STATES.

The Sandy Hill Iron and Brass Works, Sandy Hill, N. Y., lately shipped one pulp board machine to J. P. Lewis, Beaver Falls, N. Y. It was a 62 inch four cylinder with twenty-three dryers. Another 62 inch double cylinder with thirteen dryers was shipped to Mosher & Neilson, Stillwater, N. Y.

The Pusey & Jones Company, Wilmington, Del., is now making welded digesters for the manufacture of chemical wood fibre, either by the soda or bisulphite process. "No seams, no rivets, no leaks" are distinguishing features of these digesters.

WESTERN STATES.

The Lyons Paper Mill Company, Lyons, Ia., has taken the mill lately run by A. A. Carpenter. The mill has one 68 inch and one 72 inch machine, with a capacity of 15 tons for twenty-fours. The 68 inch machine is now running, but the 72 inch machine, having been shut down for two years, will require a delay of thirty days before it will be ready to start. The mill will run on all kinds of straw and rag wrapping and express paper. R. N. Rand will take charge of the office as general manager, and A. A. Carpenter, as a practical paper maker, will give his personal attention to the mill.

Last season Stout, Mills & Temple, Dayton, Ohio, shipped twelve carloads of paper and pulp mill machinery and turbine wheels to Japan, and have since received orders for a turbine wheel and other machinery for the same region of Japan. They have just shipped five carloads of beating engines and other machinery to parties in Australia, and have also orders for two turbine wheels for the Argentine Republic, South America. Among some of their present home orders are a pair of 16 inch New American turbines, placed in a quarter iron flume, for the Hennepin Paper Company, Minneapolis, Minn.; a 60 inch New American turbine for the Kaukauna Paper Company, Kaukauna, Wis.; one 66 inch New American turbine and other

machinery for the Kentucky River Mill Company, Frankfort, Ky., and a large number of other New American turbines for different parts of the United States, ranging from 10 inches to 66 inches in diameter. They have also an order for a 22 inch New American turbine for parties in Cork, Ireland. Among other prominent contracts for turbine wheels are two 66 inch for the Dells Water Power Company, Eau Claire, Wis. The two wheels are geared together by a line shaft, which transmits the power to a line shaft running at right angles to the cross line, and the entire 800 horse power is transmitted through one pair of powerful wood and iron teeth cut gears, the whole being mounted on stone walls and 20 inch I beams, the gears and bearings being supported by heavy cast iron bridge trees. The whole outfit contains nearly 100 tons of iron. The power will be used for propelling electrical machinery for lighting the city and operating an electric railroad, and will be one of the largest electrical water power plants in the country. This is likely to attract the attention of electricians and others interested in electrical machinery. It is the intention of the Dells Water Power Company to have this machinery in full operation by the first day of October.

It is said that the paper mill at Kearney, Neb., will soon have to close its doors. Those who subscribed to the subsidy fund refuse to pay up, and the proprietor has no money to repair the damage caused by the recent storm there.

The Appleton correspondent of THE JOURNAL telegraphs that Waldemar Thilmany has sold for \$90,000 his franchise for manufacturing sulphite fibre to the extent of 20 tons daily in the Fox River Valley. The purchaser is an Eastern syndicate represented by H. T. Thurber and ex-Postmaster General Don M. Dickinson, of Detroit. The syndicate will immediately begin the erection of a plant estimated to cost \$250,000.

SOUTHERN STATES.

It is stated that the stock of the new Lynchburg Pulp and Paper Mill Company, Lynchburg, Va., has been fully subscribed to, and that work on the new mill will be commenced at once.

The Bel Air (Md.) *Egis*, of September 5, says: "J. C. Smith, general manager of the Susquehanna Paper Company, has erected a cable ferry across the river, at the paper mills. Freight is loaded on a car in the mills, from whence it is run on board a scow that is attached to the cable in such a manner that the force of the current will carry it across to Paper Mill Island. There the cars run upon a track crossing the island, and on the other side it is again placed upon a scow and carried on the cable to the Cecil County side. This arrangement, it is stated, will greatly facilitate operations at the paper mills, which have lately been much retarded by the damage to the canal and to Conowingo Bridge. The latter is now in good repair again, and the repairs on the canal are proceeding vigorously under the direction of the superintendent, D. F. Shure, Sr. It was expected that water will be let into the canal between Stafford and Lapidum this week."

Personals.

Henry Lindenmeyr, who has been in Europe for two months, has returned. He is looking very well.

Archibald Christie, representing James R. Crompton, paper maker, Bury, Lancashire, England, arrived in this city on the Gallia on Friday of last week. He is accompanied by Mrs. Christie.

Gus L. Otterson, a wealthy paper hanging manufacturer of Allegheny City, Pa., has been missing from the Hotel Royal, in this city, since August 15. He left his home in Allegheny City the day previous to go to Philadelphia on business, and dined at the Hotel Royal, August 15, with two ladies from his town, and has not been seen or heard

from since. A body found in the river was taken to the morgue, which resembled very much the missing man.

A number of prominent paper makers recently made a trip West, taking in the Yellowstone Park. The party included E. C. Rogers, president of the American Paper Manufacturers' Association and of the Massachusetts Paper Manufacturing Company, Holyoke; ex-Lieut. Gov. Byron Weston, of Dalton; T. F. Rice, vice-president of the Bradner Smith Paper Company, of Chicago; Gov. F. E. Warren, of Wyoming; E. A. Slack, proprietor of the Cheyenne *Sun*, and Robert C. Morris, who is the Territorial stenographer and statistician. Leaving Chicago they went to Denver, thence to Georgetown, Colorado Springs and Manitou, and returning to Denver, went from there to Cheyenne. From the latter place Governor Warren took the party out for a drive over his extensive ranches, and at one of the ranches dinner was served. Telephone wires connect the different ranches, running in all directions, and when the wire reaches a wire fence running in the same direction connection is made and the fence is made to serve as a telephone wire. The itinerary was continued from Cheyenne to Ogden, Salt Lake City and through Beaver Cañon to the park. Returning by way of the Mammoth Hot Springs, the party passed through North Dakota and Minnesota. Many favors were received from Captain Boutelle, U. S. A., a former resident of Fitchburg, Mass., and also from Captain Bomus.

The *World-Budget* Company, Charleston, S. C., will meet on September 23 to authorize the issuing of bonds to the amount of \$100,000, probably for the enlargement of business.

William N. Dickinson, formerly stationery buyer for Tiffany & Co., and lately with James H. Hart, of Brooklyn, N. Y., has entered suit against the latter gentleman, alleging breach of contract and laying his damages at \$10,000.

ENGINE INSURANCE.

We have in these columns made plain and explicit statements of the real duty of the Westinghouse Compound Engine. In this paragraph we shall explain "how we know, you know."

If the duty guarantees as usually made are run down to their source, it will generally be found that the performance undertaken is based on a theoretical computation from the data of steam pressure, degree of expansion, clearance, &c. In other words, the duty is one which the builder *hopes to get*. Possibly he has gone further and made an accurate test of one or more of his engines in actual service. On the results thus obtained he predicates his guarantee for all other engines without regard to size, conditions or individual deficiencies. In other words, it is a duty which he *has once had*. He may even go further, and at considerable expense erect and test an engine in his shop, and assume that all other engines of the same size would give the same performance. In other words, it is a duty which he *thinks he has got*.

Contrast the above, of which the first is by far the most common case, with the way duty is actually determined. At the works of the Westinghouse Machine Company is a test room containing foundations on which ten engines can be tested at once. These foundations are provided with planer bed tops, so that any size of engine can be readily bolted to them. A pair of large boilers fired by natural gas furnish steam at any pressure, and superheating devices are added for experiments in that direction. The full load is given to the engine by a Prony friction brake, lubricated with suet and cooled by the circulation of water in the hollow rim of the wheel. This company has from the first tested all their engines individually under a full load, simply for power and running qualities, from the 5 horse power Junior Engine to the 250 horse power Standard Engine. On the completion of the Single Acting Compound Engine came the conviction that it must go before the public on an unimpeachable record for economy. To this end we must know the duty of each engine *individually*, and it was determined that each engine should be tested for its actual consumption of steam and brought down to a standard performance before shipment. A large surface condenser and air pump were therefore provided of sufficient capacity to maintain vacuum for 500 horse power. Below the condenser are two galvanized iron tanks standing on

iron scales in such a position as to receive the discharge from the condenser in either tank at will. It is evident that with this arrangement all the steam which enters the engine will be accounted for in the condenser in the form of water, except such as may pass from the overflow in the crank case, which is separately measured. The accuracy of the test is therefore beyond question, while at the same time it is practical in its nature, and presents no refinements beyond what may be reproduced in ordinary commercial usage.

Each engine when completed is bolted to a foundation and connected with the boilers and the condenser. A force of three skilled men are constantly employed in the tests. No. 1 manipulates the brake, maintaining a full and steady load and noting the brake readings which give the net horse power. No. 2 takes frequent indicator diagrams showing the gross or indicated horse power. No. 3 fills, weighs and empties the tank, keeping the log of the run.

The difference between the indicated and brake horse powers is that lost in friction of the engine. In new engines, which are stiff and close in their fits, the friction would range from 6 to 8 per cent. of the full load. After a few days' run the friction falls to 3 1/2 or 5 per cent., doubtless a lower percentage of less than can be realized in any other engine not similarly lubricated. Tests are usually of ten minutes' duration, and are repeated several times on each engine. The weight of water collected in the condenser divided by the horse power and corrected for the duration of the test is, therefore, the duty of the engine in pounds of water per horse power per hour. The first tests are always made with the condenser open to the atmosphere, no vacuum being maintained, and the condenser serving only to collect the steam exhausted. If a vacuum test is desired the condenser is closed and the air pump started. Every engine turned out is obliged to show a water rate non-condensing as low as 24 pounds per horse power before it is passed. Experience has shown that its duty is improved at least 1 pound after the packing rings, &c., have worn tight by two or three months of use.

The log and results of the test are entered in a record book, a facsimile of one page of which is here shown. The original indicator diagrams taken during the test are posted on the opposite page, and the signatures of the men conducting the test are

subscribed to each record. The manufacturer, therefore, becomes positively insured as to the duty which the engine he is about to purchase will give, and takes no chances whatever. The thoroughness of this system will strike every careful investigator. Its value to ourselves is, however, the point which we have most in mind. Thus, for instance, it occasionally happens that out of a lot of twenty engines all but one will come down at once to the standard duty, while one will refuse to come below 25 to 28 pounds. This engine is made on exactly the same templates and with the same care as the other nineteen, and were it not for the test room it would certainly be shipped as a perfect engine, in which case, if undiscovered, it would cheat the customer every day that it ran, and if discovered it would rob the engine of its record and us of our reputation. When such a defective engine is found the cause is persistently searched after and invariably removed. It becomes the manufacturer, therefore, to consider if he will assume the risk of getting a high duty, with possibly the expense of a costly expert test to demonstrate it, and with the ruinous alternative of taking out the engine, if a failure, or of putting up with its lack of economy as the least of two evils. It is probably true that the majority of the guarantees which are made are based on little else than the chance that the customer will never test the engine, or at least will accept and pay for it rather than submit to the loss and delay which must follow its rejection and replacement by another engine. When the manufacturer purchases a Westinghouse Compound Engine he has in advance a positive certainty of the duty which he will get, the responsibility being taken wholly by the builder. If he wishes to make assurance doubly sure our test room is at his disposal, and he may satisfy himself in any way that he pleases, and accept or reject the engine before shipment—not after its foundations are built and the engine erected, piped up, and its power become so vital a factor in his business that rejection is practically out of the question.

Very respectfully,
WESTINGHOUSE, CHURCH, KEES & CO.,
Engineers,
17 Cortlandt Street, New York,
630 Atlantic Avenue, Boston, Mass.,
156 and 158 Lake Street, Chicago,
Westinghouse Building, Pittsburgh,
608 Chestnut Street, Philadelphia.

TEST, No. 90. DATE, April 18, 1889.

OFFICE RECORD.

No. of Engine,	52	Tested for	
Class of Engine,	Compound	Address	
Size of Engine,	12 and 20 by 12	Jacketing,	None
Maker's Name, Westinghouse M. Co.		Steam Lap,	1 1/8 ins.
Tested at	Pittsburgh	Exhaust Lap,	0 ins.

TESTER'S RECORD.

	No. 1.	No. 2.
No. of Engine,	52	52
Boiler Pressure, lbs.	100	100
Speed, rev.	300	303
Brake Load, lbs.	767	567
Time of Start,	12:08	12:21
Time of Stop,	12:18	12:31
Duration of Test, min.	10	10
Full Barrel "A," lbs.	304	257
Empty Barrel "A," "	100	100
Full Barrel "B," "	302	257
Empty Barrel "B," "	91	100
Vacuum, ins.		
Temperature of Discharge, deg.		
Water per hour, lbs.	2,490	1,884
Leakage per hour, "	34	34
Brake Radius, ins.	27.75	27.75
Initial Pressure, lbs.	98	98
Terminal Pressure, "	9	6
Ratio of Expansion,	4.71	5.38
High Pressure M. E. P., lbs.	51	42.1
Low Pressure M. E. P., "	19.1	12.9
Indicated Horse Power,	106.94	80.89
Brake Horse Power,	98.67	72.97
Loss by Friction, H. P.	8.27	7.92
Percentage of Loss,	7.73	9.79
Gross Indicated Water Rate, lbs. per H. P.	23.6	23.71
Gross Brake Water Rate, per hour.	25.58	26.28
Spring, lbs.	40	40

REMARKS.

Indicated by Bole.
Water weighed by Wilson.

SIGNATURE OF TESTERS.

W. A. BOLE.
NELSON C. WILSON.



NATIONAL FILTER.

MAIN FEATURES: SIMPLICITY, ECONOMY AND SURFACE WASHING.

We are now altering over to our NATIONAL System Filters of the ROESKE, HYATT, and other makes. The "NATIONAL" Filter is the only one in the market that can be thoroughly cleansed. In successful operation in the leading Paper Mills of the country.

— SEND FOR CATALOGUE TO —

NATIONAL WATER PURIFYING CO., 145 Broadway and 86 Liberty Street, New York City.



Substitute for Ivory, Etc.

A new material or compound adapted to be used as a substitute for ivory, horn, whalebone, india rubber, gutta percha and analogous materials...

In preparing the base any suitable fibre or cellulose matter—such as cotton combings, paper, esparto, grass or rags—is taken and treated with a mixture of fuming nitric acid of about 1.420° specific gravity and sulphuric acid of about 1.840° specific gravity...

The solvent is prepared by distilling acetate of lead and anhydrous lime, in the proportions of about 2 parts, by weight, of acetate of lead to about 1 part, by weight, of anhydrous lime.

The base prepared as described, being dissolved in the described solvent, will produce a plastic mass which when dry can be used

as a substitute for ivory, bone, horn, whalebone, india rubber, gutta percha and other materials.

It will be obvious that the proportions of the base and solvent will vary with the nature of the material required. For example, to produce a good substitute for ivory, bone, horn, whalebone, or hard india rubber about equal proportions, by weight, of the base and solvent give good results.

plastic state the material can be molded into any required form under suitable heat and pressure, or be formed into sheets by being passed between heated rollers or otherwise, as is usual in treating this kind of material or compound...

When the material is required to be used

in a liquid state the proportion of the solvent is increased so as to form a thin solution, which can be applied to any article as a coating or varnish by means of a brush or in any other suitable manner...

If the material is required to be of a more

or less flexible nature, oils, gums or hydrocarbons are incorporated therewith. This is patented.

WANTED—FOREMAN FOR LARGE MANILLA mill, one who has had long experience and made No. 1 manilla and bag papers a specialty...

ARTHUR J. McQUADE, -DEALER AND PACKER OF- Paper Stock IN ALL GRADES, Warehouse: 535 and 537 East 13th Street, New York.

LOWVILLE IRON WORKS, HUGHES & HORTON, Proprietors, -MANUFACTURERS OF- TWO AND THREE POCKET HYDRAULIC Wood Pulp Grinders, WET MACHINES, WOOD BARKERS, -AND- A FULL LINE OF Wood Pulp Machinery. LOWVILLE, N. Y.

VALLEY IRON WORKS MFG. CO., APPLETON, WIS., U. S. A.,

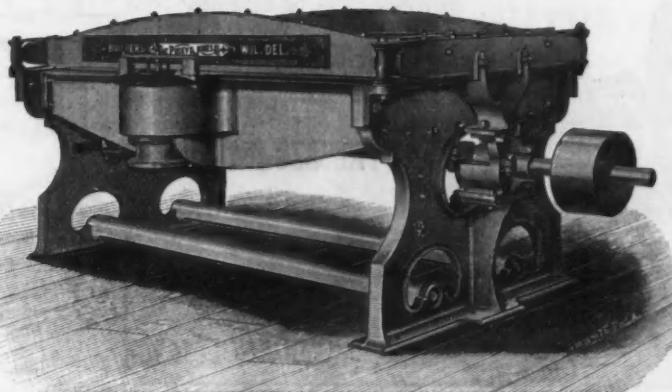
New Elmer Turbine Water Wheels, BEATING ENGINES, GIANT WASHERS, FELT WASHERS, STEAM REGULATORS, SLIVER SCREENS. Large Illustrative and Descriptive Catalogue sent free.

HYDRAULIC FEED PULP GRINDER. TWO, THREE OR FOUR POCKETS. RIGHT OR LEFT HAND. IMPROVED WET MACHINES AND ALL OTHER PULP MACHINERY. FOR INFORMATION AND PRICES, ADDRESS THE BAGLEY & SEWALL CO., WATERTOWN, N. Y.

Northwestern Pulp Grinders. Something new, practical and indispensable to Pulp makers is our PULP MILL SUCTION SCREEN for reducing the percentage of water in the pulp. Write for full descriptions. BARKING and SPLITTING MACHINES. PULP MILL WOOD SAWS, FEED GRINDING MILLS, HORSE POWERS, &c., &c.

PATENTED GOULD SCREEN.

Table of purchasers for the Gould Screen, listing names and locations such as Weissenborn, Germany; Montreal, Canada; Georgetown, Ont., Canada; Havana, Cuba; Yokohama, Japan; Lugo di Vicenza, Italy; Wilmington, Del.; Rockland, Del.; Newark, Del.; Elkton, Md.; Conowingo, Md.; Elkton, Md.; Paterson, N. J.; Bridgeton, N. J.; Philadelphia, Pa.; Philadelphia, Pa.; Philadelphia, Pa.; Philadelphia, Pa.; Philadelphia, Pa.; Philadelphia, Pa.; Reading, Pa.; Reading, Pa.; York Haven, Pa.; Modena, Pa.; West Newton, Pa.; Lancaster, Pa.; Erie, Pa.; Tyrone, Pa.; Mt. Holly Springs, Pa.; Roaring Springs, Pa.; Swarthmore, Pa.; Spring Forge, Pa.; Royersford, Pa.; Lock Haven, Pa.; New York City; Johnsonburg, Pa.; Glens Falls, N. Y.; Ticonderoga, N. Y.; Ticonderoga, N. Y.; Ticonderoga, N. Y.; Palmer's Falls, N. Y.; Niagara Falls, N. Y.; Salisbury Mills, N. Y.; Herkimer, N. Y.; Saugerties, N. Y.; Watertown, N. Y.; Watertown, N. Y.; Wallonsac, N. Y.; North Hoosic; Danville, N. Y.; Walkill, N. Y.; Niagara Falls, N. Y.; Providence, R. I.; Providence, R. I.; Bridgeport, Conn.; Buckland, Conn.; Southford, Conn.; Birmingham, Conn.; Burnside, Conn.



GOULD'S PATENT SCREEN. THE PUSEY & JONES COMPANY, WILMINGTON, DELAWARE.

THESE SCREENS have withstood the test for many years, and have been pronounced by all who have used them satisfactory in an eminent degree. About three hundred of them are now in use in this country, and the fact that there are no second-hand ones for sale indicates that all who have purchased have been pleased.

Anyone who is in doubt as to the kind or type of Screen to use can safely rely upon the judgment of parties whose names appear herewith, and feel assured they are doing what is right and best for their own interests when they follow the example set them by these well-known leaders in their trade.

Anyone who refers to the List of Purchasers will be impressed with the fact that it comprises a large proportion of the most able and successful Paper Manufacturers. It will also be found from this List that the GOULD SCREEN is successfully used in almost every variety of Paper Mills, including those where the finest Writing, Lithograph and Ledger Papers are made, as well as in those where the coarsest Wrapping, Strawboard, and all intermediate grades are manufactured.

It is an acknowledged fact that a Screen that is pre-eminently valuable on one kind of stock will be so on others also. And, judging from the testimonials of purchasers, the GOULD SCREEN will give better results than any other in mills where Sulphite or Chemical Pulp is made, and no Ground Wood Pulp plant should be without them.

Table of purchasers for the Gould Screen, listing names and locations such as G. W. WHEELWRIGHT PAPER CO., Boston, Mass.; WILDER & CO., Boston, Mass.; HOLLINGSWORTH & WHITNEY CO., Boston, Mass.; HOLLINGSWORTH & VOSE, Boston, Mass.; STYS & DUDLEY PAPER CO., Holyoke, Mass.; NONOTUCK PAPER CO., Holyoke, Mass.; WINONA PAPER CO., Holyoke, Mass.; PARSONS PAPER CO., Holyoke, Mass.; GEO. R. DICKINSON PAPER CO., Holyoke, Mass.; EXCELSIOR PAPER CO., Holyoke, Mass.; DICKINSON & CLARK PAPER CO., Holyoke, Mass.; CROCKER MANUFACTURING CO., Holyoke, Mass.; J. & W. JOLLY, Holyoke, Mass.; WHITING PAPER CO., Holyoke, Mass.; FITCHBURG PAPER CO., Fitchburg, Mass.; FRANKLIN WYMAN, Westminister, Mass.; AGAWAM PAPER CO., West Springfield, Mass.; COLLINS MANUFACTURING CO., North Wilbraham, Mass.; FAIRCHILD PAPER CO., Pepperell, Mass.; F. W. BIRD & SON, Winslow's, Mass.; HURBUT PAPER CO., South Lee, Mass.; CRANE BROS., Westfield, Mass.; E. & S. MAY PAPER CO., Lee, Mass.; THOS. RICE PAPER CO., Newton Falls, Mass.; FAIRFIELD PAPER CO., Salmon Falls, Mass.; CAREW MANUFACTURING CO., South Hadley Falls, Mass.; RIVERSIDE PAPER CO., Holyoke, Mass.; TILESTON & HOLLINGSWORTH, Mattapan, Mass.; VALLEY PAPER CO., Holyoke, Mass.; HAMPSHIRE PAPER CO., South Hadley Falls, Mass.; BYRON WESTON, Dalton, Mass.; CONTOCOOK VALLEY PAPER CO., W. Henninger, N. H.; TRAIN, SMITH & CO., Bristol, N. H.; LAKE SUNAPEE WOOD PULP CO., Sunapee, N. H.; OLCOTT FALLS CO., Olcott, Vt.; MOORE, ARMS & THOMPSON, Bellows Falls, Vt.; ALBEMARLE PAPER MFG. CO., Richmond, Va.; RICHMOND PAPER MFG. CO., Richmond, Va.; WINCHESTER PAPER MFG. CO., Winchester, Va.; POTOMAC PULP CO., Falling Waters, W. Va.; SHENANDOAH PULP CO., Harper's Ferry, W. Va.; BOWDOIN PAPER MFG. CO., Brunswick, Me.; OTIS FALLS PULP CO., Portland, Me.; ALVIN RECORD, Livermore Falls, Me.; SHAWMUT FIBRE CO., Somerset Falls, Me.; WARLOW-THOMAS PAPER CO., Middletown, Ohio; TTUS PAPER CO., Middletown, Ohio; MIAMI VALLEY PAPER CO., Miami, Ohio; G. H. FRIEND PAPER CO., W. Carrollton, Ohio; C. L. HAWES CO., Dayton, Ohio; EAGLE PAPER CO., Franklin, Ohio; THREE RIVERS PAPER CO., Three Rivers, Mich.; BARDEEN PAPER CO., Oscego, Mich.; KALAMAZOO PAPER CO., Kalamazoo, Mich.; ALPENA SULPHITE FIBRE CO., Alpena, Mich.; DETROIT SULPHITE FIBRE CO., Detroit, Mich.; JACKSON PAPER CO., Jackson, Mich.; PENINSULAR PAPER CO., Ypsilanti, Mich.; J. R. BEARDSLEY, Elkhart, Ind.; DIAMOND MATCH CO., Wabash, Ind.; KIMBERLY & CLARK CO., Neenah, Wis.; S. P. TAYLOR & CO., San Francisco, Cal.

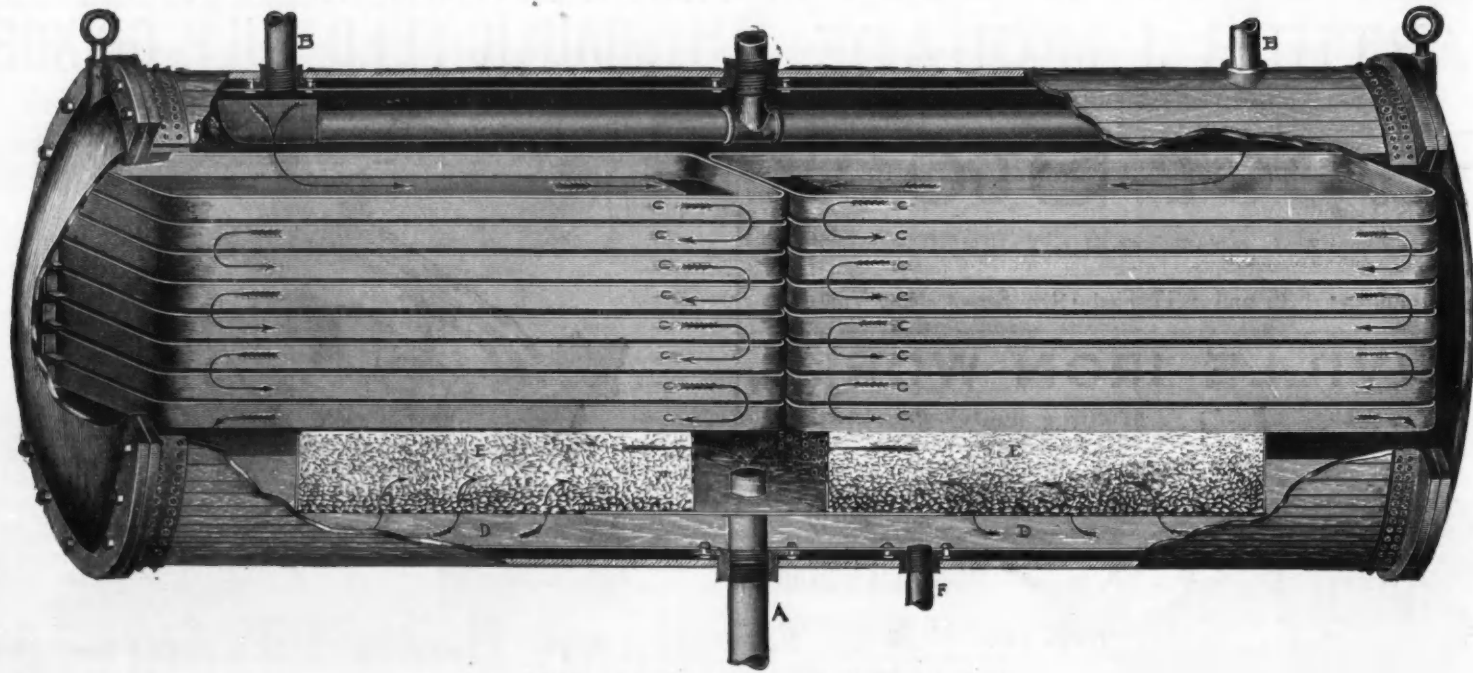
Live Steam Water Purifier.

The desirability of supplying pure water to steam boilers has been frequently adverted to in these columns, and mention has been made of various devices for purifying water so as to prevent incrustation or formation of scale. The deterioration of boilers, the waste of fuel, the frequent danger of explosion, the foaming of the boilers,

ton, Ohio, have attained reputation and prominence. The illustration on this page shows the design of a horizontal purifier made by the company named. As will be observed, it is a horizontal cylinder made of the best steel boiler plate, and which may be placed in any convenient locality above the boilers to be supplied, and with which it is directly connected. The cold water, or water from the exhaust

with openings in the bottom at alternate ends, and the water is compelled to traverse their entire area in a thin sheet, as indicated by the arrows. As the heat and pressure in the purifier are the same as in the boilers, the water, in its passage over these pans, is subjected to the same chemical change as in boilers, and is relieved of scale producing impurities, which are precipitated upon the surface of these pans, from which they can

be removed through the pipe A. It is claimed that the feed water is then pure, and at substantially the same temperature as the water in the boiler, thus effectually preventing the deposit of sediment in the boilers, and the strain upon the boiler incident to the introduction of water at a low temperature. Each end of the purifier is provided with a heavy head fastened in place with cap



STILWELL'S PATENT LIVE STEAM PURIFIER, HORIZONTAL STYLE.

frequent and expensive repairs, and the loss of time incident to stoppages, rendered necessary by frequently cleaning the boilers, are all incidents of impure water which greatly affect the economical administration of a steam plant.

Among the forms of improved purifiers designed to effectively remove the impurities from water prior to its entry into the boilers those manufactured by the Stilwell & Bierce Manufacturing Company, Day-

heater, is introduced at A, through a pipe connected by a tee with a horizontal pipe inside of the shell. From both ends of this horizontal pipe the water escapes in the form of a shower. Live steam is admitted at BB, filling the purifier with steam at boiler pressure. The water falls from the induction pipe through a body of steam into the top of two series of shallow iron pans, C, each pan being one-half the length of the purifier shell. These pans are provided

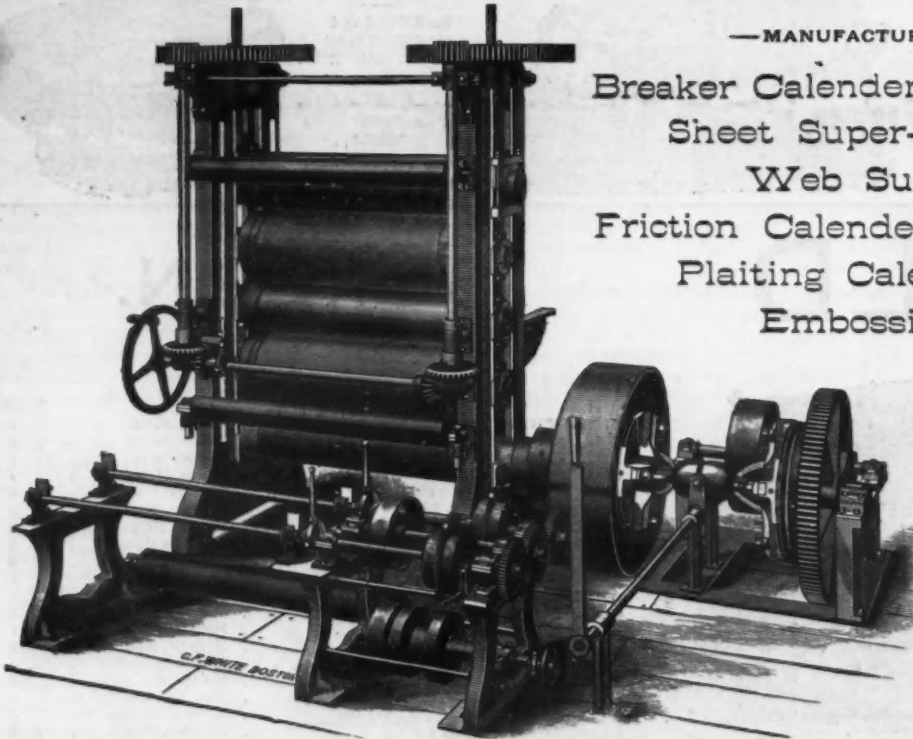
quickly and easily removed. After passing the circuit of the pans the water drops into the large settling chamber DD, in the bottom of the purifier, where the non-crystallized impurities deposit in the form of slush or mud, and are blown off at frequent intervals through the blow-off F. To complete the work of purification the water passes through the filtering chambers EE, which are filled with coke or other suitable material, into the pure water chamber, then into

screws. The depositing pans slide on ways which are fastened to the shell, and can easily be removed through either end of the shell for cleaning, and any impurities which may attach to the bottom of the purifier shell can readily be raked out, as removing the head exposes the entire inner structure.

GRANGER FOUNDRY AND MACHINE CO.

—MANUFACTURERS OF—

- Breaker Calenders,
- Sheet Super-Calenders,
- Web Super-Calenders,
- Friction Calenders,
- Plaiting Calenders,
- Embossing Calenders,



- AYER'S PATENT WINDER,
- HYDRAULIC PRESSES and PUMPS,
- Chilled-Iron Rolls,
- Cotton Rolls,
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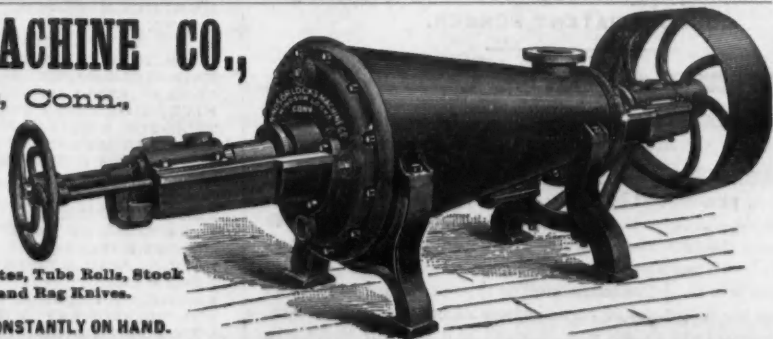
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THE STRONGEST TESTIMONIALS THAT WE have to offer in support of the merits of the UMPHERSTON PATENT WASHING AND BEATING ENGINES are shown by the list of users in this country, as set forth below.

We commend to your notice the number of cases in which additional orders have been received from the same parties.

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Jessup & Moore Paper Co.	One 10 cwt.
" " " 2d order	One 10 cwt.
" " " 3d order	Three 10 cwt.
Remington Paper Co.	Two 10 cwt.
" " " 2d order	Two 10 cwt.
" " " 3d order	Two 10 cwt.
C. H. Dexter & Sons	One 10 cwt.
" " " 2d order	Two 10 cwt.
S. D. Warren & Co.	Two 6 cwt.
" " " 2d order	Two 6 cwt.
Fitchburg Paper Co.	One 10 cwt.
Wardlow-Thomas Paper Co.	One 10 cwt.
" " " 2d order	One 10 cwt.
Hudson River Pulp and Paper Co.	One 10 cwt.
" " " 2d order	Six 10 cwt.
Xenia Paper Co.	Two 10 cwt.
Hollingsworth & Vose	One 10 cwt.
" " " 2d order	Three 10 cwt.
Brown Brothers	One 10 cwt.
Fairchild Paper Co.	Two 10 cwt.
" " " 2d order	Three 10 cwt.
Lake George Pulp and Paper Co.	One 10 cwt.
Glens Falls Paper Mills Co.	Three 10 cwt.
J. Howard Lewis	One 10 cwt.
Reading Paper Mills	Two 10 cwt.
J. D. Stowe & Sons	One 10 cwt.
Ogden Paper Co.	Two 10 cwt.
Harding Paper Co.	One 10 cwt.
" " " 2d order	Two 10 cwt.
Geo. H. Friend Paper Co.	One 10 cwt.
Beckett Paper Co.	Two 6 cwt.
J. E. Sheffield & Son	One 10 cwt.
F. W. Bird & Son	One 10 cwt.
" " " 2d order	Two 10 cwt.
Moosam Manufacturing Co.	Two 10 cwt.
Marquette and Menominee Paper Co.	One 10 cwt.
Van Nortwick Paper Co.	Two 10 cwt.
Hollingsworth & Whitney Co.	One 10 cwt.
Ball Mountain Paper Co.	Two 10 cwt.
Tilston & Hollingsworth	Three 10 cwt.
" " " 2d order	One 6 cwt.
Warren Manufacturing Co.	One 10 cwt.
L. Waterbury & Co.	One 10 cwt.
Edwin H. Sampson	One 10 cwt.
Friend & Forsy Paper Co.	One 10 cwt.
Morrison & Cass	One 10 cwt.
The Hartford Paper Co.	One 6 cwt.

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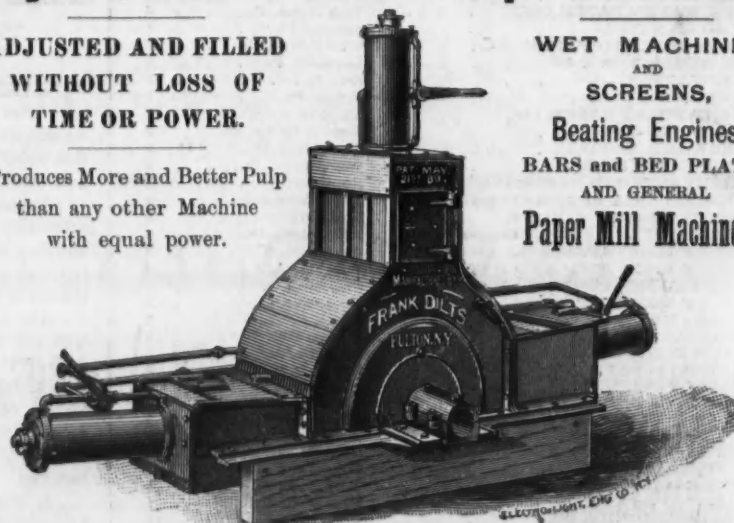
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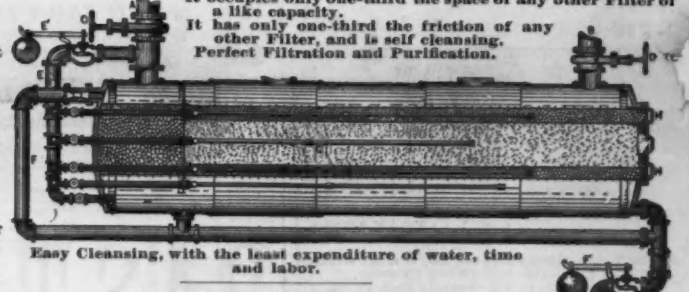
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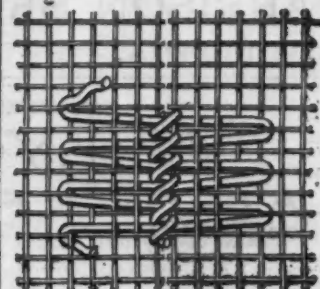
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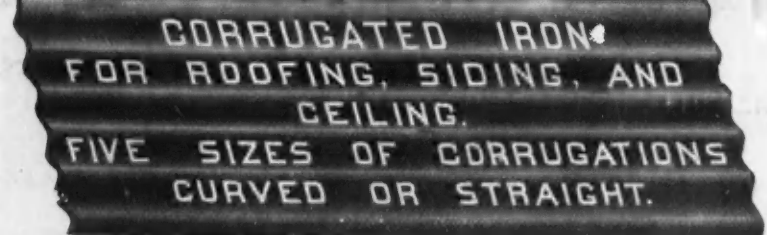
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
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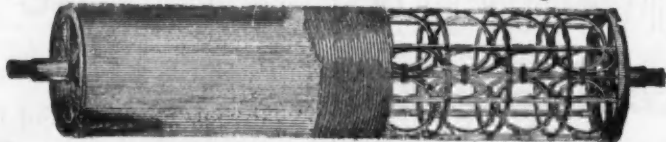
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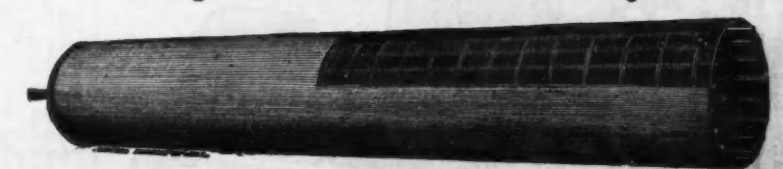
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