

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- Coloured covers/
Couverture de couleur
- Covers damaged/
Couverture endommagée
- Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée
- Cover title missing/
Le titre de couverture manque
- Coloured maps/
Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur
- Bound with other material/
Relié avec d'autres documents
- Tight binding may cause shadows or distortion
along interior margin/
La reliure serrée peut causer de l'ombre ou de la
distorsion le long de la marge intérieure
- Blank leaves added during restoration may appear
within the text. Whenever possible, these have
been omitted from filming/
Il se peut que certaines pages blanches ajoutées
lors d'une restauration apparaissent dans le texte,
mais, lorsque cela était possible, ces pages n'ont
pas été filmées.
- Additional comments:/
Commentaires supplémentaires:

- Coloured pages/
Pages de couleur
- Pages damaged/
Pages endommagées
- Pages restored and/or laminated/
Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées
- Pages detached/
Pages détachées
- Showthrough/
Transparence
- Quality of print varies/
Qualité inégale de l'impression
- Continuous pagination/
Pagination continue
- Includes index(es)/
Comprend un (des) index
- Title on header taken from: /
Le titre de l'en-tête provient:
- Title page of issue/
Page de titre de la livraison
- Caption of issue/
Titre de départ de la livraison
- Masthead/
Générique (périodiques) de la livraison

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DOMINION MECHANICAL & MILLING NEWS

DEVOTED ESPECIALLY TO THE INTERESTS OF OWNERS AND OPERATORS OF

Flour Mills, Saw Mills, Planing Mills and Iron-Working Establishments.

VOL. XI.—NO. IV.

TORONTO, ONTARIO, OCTOBER, 1888.

{ Price, 10 Cents
\$1.00 PER YEAR.

DUPLEX STEAM PUMP.

THE accompanying illustration represents a Duplex Steam Pump, the manufacture of which from Worthington patterns and specifications, has lately been commenced in Canada. The manufacturers claim for these pumps that they are substantially constructed. All bearings are interchangeable, allowing for removal and duplication in case of accident.

The valve motion is the most prominent and peculiar feature of this pump, and is the point to which it owes its complete exemption from noise or concussive action when in operation, and which will allow of the pump being run at a higher speed than can be reached by any single cylinder steam pump. Two steam pumps are placed side by side, and so combined as to act reciprocally on the steam valves of each other; the one piston acts so as to give steam to the other, after which it finishes its stroke and waits for its valves to be acted upon before it can renew its motion; this pause allows all the water valves to set quietly and removes everything like harshness of motion, and as one or the other of steam valves must be always open, there can be no dead point. The pump is therefore always ready to start when the steam is admitted, and is controlled by simply opening or closing the throttle valve.

Further particulars concerning this machine may be obtained by addressing Mr. A. R. Williams, Soho Machine Works, Toronto, who controls the production and sale for the Dominion.

TORONTO INDUSTRIAL EXHIBITION.

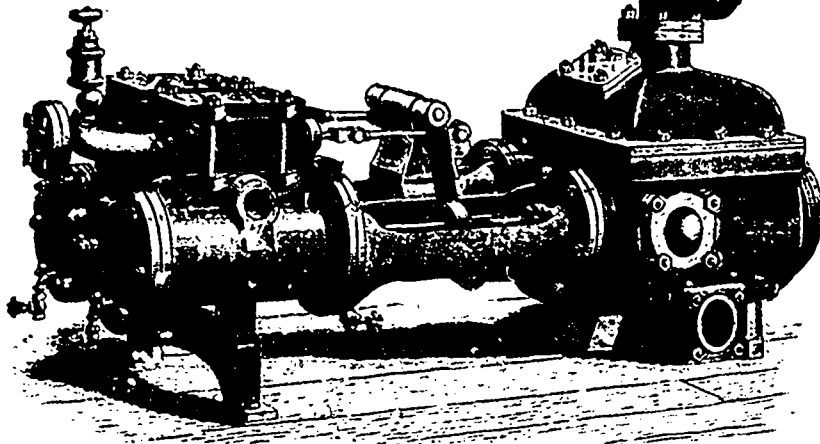
A Financial Success—Notes of Leading Manufacturing Exhibits—A Few Remarks Concerning the Management.

FROM a financial point of view the Exhibition in this city last month was the most successful which has ever been held. The attendance of visitors is estimated at a quarter of a million, and the receipts were nearly \$8,000 in excess of last year. With proper management, there is no reason why "Canada's Great Fair," as it is called, should not increase in interest and importance each succeeding year. The present management have thrown a great amount of energy into the enterprise and are deserving of credit for the result which have been attained. The Industrial Exhibition Association's lease of the Exhibition grounds and buildings from the city of Toronto, will expire during the present year, and if there are any reforms necessary in the management of the Fair, we take it that this is the time to point them out, in order that they may receive consideration when the time comes for the renewal of the lease. In a few particulars the conduct of the Exhibition is not what it should be. We are pleased to notice that some of the daily papers of this city have taken up the subject, and have pointed out some directions in which reform is urgently required. In so doing, they are performing their duty to the citizens of Toronto who are the owners of the Exhibition property, as well as to the outside public whose patronage is essential to the success of the enterprise.

There is reason to fear that what should be the primary objects of the Exhibition, viz., to encourage the highest degree of attainment in the various fields of Canadian production, to show to the world the progress which this country is making, and to provide a source of valuable information and education to the thousands who

annually visit the city at Fair time, is being overlooked in the eagerness of the management to obtain "side shows," or "attractions" of the circus ring variety. It is no doubt true that something is needed outside of the exhibits themselves to ensure a sufficiently large attendance, but it is surely not impossible to obtain attractions that shall attract without demoralizing. To illustrate, we are of opinion that Mr. Edison's phonograph proved as great a source of attraction at the late Exhibition, as did the women in tights who divided attention with the pacers in the horse ring. While the influence of the former was educative in the proper direction, that of the latter, if not actually debasing, could but satisfy idle curiosity.

We have more than once showed the necessity for a regulation compelling exhibitors to have their goods in proper shape within a couple of days after the opening of the Exhibition. The need of such a regulation was



DUPLEX STEAM PUMP.

more apparent this year than ever before. At the beginning of the second week of the Fair, some of the buildings were closed to the public, while in others very few of the exhibits were in place. This was the case so far as the poultry and horticultural buildings were concerned. This is not just to those who come long distances to see the Exhibition, and, if not righted, the attendance will certainly fall off in consequence. In one of the fly-sheets issued by the Association, the public were informed that if they desired to see the exhibits in comfort, they should come the first week of the Exhibition. But, had they acted on this advice they would have been sadly disappointed, as a very large number of the exhibits could not be seen at all. The Association should manage things in such a way that the public could rely upon its promises. The position of affairs this year was briefly this: One could not examine the exhibits the first week, because in many departments they were not in position, and the second week they could not be examined because the crowd was too great. This decidedly objectionable state of affairs will seriously injure the success of future Exhibitions if not at once remedied.

The uppishness and lack of courtesy which has characterized the conduct of Manager Hill, have called forth a well-deserved rebuke from the daily press, which we hope will have a salutary effect. There are men who occupy positions of far greater importance and responsibility who do not think it necessary to be continually trying to impress the public with a sense of their great importance, or to disregard the grace of politeness in their intercourse with their fellows. Mr. Hill is a capable and energetic officer, and would doubtless become popular if he would add to his many good qualities those of modesty and affability.

The Exhibition has certainly outgrown its present quarters, and doubtless some arrangements will be made to enlarge the grounds. Machinery Hall, as pointed out last year, is too small by half to accommodate the exhibits of our manufacturers. We understand that the manufacturers of Galt are talking of making a grand exhibit next year of the manufacturing capabilities of the "Manchester of Canada," if the Exhibition Association will give them a building for the purpose. We hope the necessary accommodation will be proffered and the proposition carried out. It would prove a good investment for Galt, an incentive to other towns, and a genuine source of attraction to the machinery users of Canada.

Among the leading manufacturing exhibits at the late Exhibition were the following:

GOLDIE & McCULLOCH.

This old-established and enterprising firm of machinery manufacturers, occupied a space with a frontage of 100 feet on the north side of Machinery Hall. This space, which was far too small for the purpose, was crowded with flour mill and wood-working machinery, some of which was in operation, being propelled by a handsome Wheelock engine, itself one of the standard productions of the firm. The attention of millers was especially occupied with a new invention which Messrs. Goldie & McCulloch have recently bought the right to manufacture for Canada, and which is designed to do the work of a purifier and dust collector combined. The advantages of such a machine will be at once apparent to every miller. We reserve a full description for another occasion. The flour mill machinery was in charge of Mr. John E. Wilson, the balance of the exhibits being in the hands of Mr. W. T. Walker.

LONDON MACHINE TOOL CO.

A very fine display of iron-working machines, produced at the works of the above company at London, Ont., attracted the attention of visitors to the south-east corner of Machinery Hall. The machines turned out by this enterprising company have been steadily improving in quality and perfect adaptability for several years past and if not yet perfect, appear to be very nearly so. Mr. A. R. Williams, of this city, who handles the productions of the company, has found the number of purchasers of their machines steadily increasing in proportion as their merits have become known. The fine exhibit made at the recent Exhibition cannot but increase the number.

ALEX. LAIDLAW & CO.

In a central location in Machinery Hall, the above firm exhibited their grain cleaning machinery for the use of flour and oatmeal millers, elevator owners, brewers, etc. The firm were able to back up their claims as to the merits of their machines by testimonials of many prominent firms who have used them successfully.

NORTHEY & CO.

Close beside the western entrance to Machinery Hall, Messrs. Northey & Co. showed several of their steam pumps in various sizes, which we observed came in for a good share of attention at the hands of steam users who doubtless made a mental note of the name and address of the manufacturers.

BALL ELECTRIC LIGHT CO.

Electricity has already become a powerful factor in the manufacturing world, and is destined we believe to come more and more into use for a variety of purposes in the future. The electric light has been successfully introduced into quite a number of our mills and factories, and as its advantages become better known, it will doubtless

be more generally applied. The Ball Electric Light Co., of Toronto, had an exhibit in Machinery Hall which was well calculated to show manufacturers the benefits to be derived from the use of this new and powerful illuminator.

PRESCOTT EMERY WHEEL CO.

This company occupied their old position opposite the western entrance to Machinery Hall. Their exhibit included emery polishers and grinders of every kind and for every purpose.

ROBIN & SADLER

Owing, we presume, to the crowded condition of Machinery Hall, Messrs. Robin & Sadler, the well-known leather belting manufacturers of Montreal and Toronto, occupied a position in the Main Building Annex, where they showed some excellent specimens of belting in various sizes, also a sample of a new waterproof belt which they have lately perfected and intend to manufacture in future. Mr. Sadler, whom we were pleased to meet on the grounds, stated that this waterproof belting is already in use in quite a number of mills, and with excellent results.

WATERFORD ELECTRIC LIGHT CO.

Among the new exhibitors in Machinery Hall this year was the Waterford Electric Light Co., of Waterford, Ont., who made a very fine display of lighting apparatus. This company, which has only been in operation about eight months, manufacture a dynamo which they claim gives unsurpassed results.

JOHN GILLIES & CO.

An increasing number of people are finding out the large amount of pleasure at a small expense which can be obtained in summer on board the tiny steam launches which the above firm turn out from their manufactory at Carleton Place, Ont. An exhibit of the little coal oil engines designed to propel these steam launches attracted a crowd of interested spectators continually to the north-east corner of Machinery Hall during the time of the Fair.

J. C. McLAREN BELTING CO.

Several belts manufactured by the J. C. McLaren Belting Co., of Montreal, were shown in actual service driving machinery. The company have lately commenced to manufacture a patent jointed leather belt, samples of which were also shown.

INGLIS & HUNTER.

This firm, whose name has become so familiar to many of our readers, exhibited one of their celebrated Corliss engines, a handsomely finished piece of mechanism, working in a manner so perfect as to delight the eye of the expert engineer. They also showed a Westinghouse engine.

HODGE WOOD SPLIT PULLEY CO.

The "Dodge wood split pulley" was introduced into Canada two or three years ago by the above company, and the fact that the manufacturers are putting up a large new factory at West Toronto Junction would seem to indicate that they are meeting with success. In Machinery Hall they showed a large number of pulleys of all sizes and adapted for all purposes.

PETER HAY.

Half a dozen rows of brightly polished machine knives, various in size and design, represented the character of the work supplied to Canadian wood-workers by Mr. Peter Hay, of Galt. This was the only exhibit of the kind that we noticed, and it was certainly a credit to the manufacturer.

CANADIAN RUBBER CO.

It would be difficult to enumerate the variety of uses to which rubber has been put during the past few years. Those, however, who inspected the Canadian Rubber Co.'s exhibit in the Main Building would go away with a better understanding of the part which this material is playing in the commercial and manufacturing world. The exhibit included a host of articles, from a lady's gossamer cloak to a ponderous roll of rubber belting capable of standing the strain of the heaviest machinery.

STAMM-SCHMIDT & CO.

The handsome furniture made by this firm, of Preston, Ont., manufacturers, which adorns so many business offices, church, school and lodge rooms in this and other countries, was a pleasing feature in the Main Building Annex.

METALLIC ROOFING CO.

Many a mill and factory has been set on fire by sparks from the smoke stack. Many an elevator has been burned as the result of sparks from a passing locomotive lodging on it. The metallic shingles manufactured by the above Toronto firm, and exhibited by them at the Exhibition, are admirable adapted to render such buildings secure against fire, besides lessening very considerably the cost of insurance.

DICK, RIDGOT & CO.

A mammoth canvass bag, the top of which was almost on a level with the roof of Machinery Hall, was a standing proclamation to the assembled thousands of the kind of goods manufactured by the above firm, whose praiseworthy enterprise is bringing its own reward. No doubt they "bagged" numerous orders as a result of their novel exhibit.

B. GREENING & CO

This well-known firm of Hamilton manufacturers had an interesting exhibit, and occupied a prominent position in the Main Building, near the chief entrance. The exhibit, which was in charge of Mr. Merriman, included perforated zinc from 1/32 to 1 inch round hole, besides a variety of other shapes, plated milling cloth wire, bran duster and full line of wire cloth; malt and oat kiln floors in perforated iron and wire cloth. In both wire cloth and perforated zinc floors a flush joint is made by bevelling down one edge and rivetting together. The firm also showed samples of office railing and patent wire lathing of their manufacture.

NOTES.

Messrs. Inglis & Hunter fully expected to have exhibited a full line of roller flour mill machinery, but were prevented from doing so by orders on hand for their "Case Short System" machinery.

BABBITTING ARBORS.

IF I were buying a saw mill outfit, writes Frank Jefferson to the *Southern Lumberman*, I would include in the purchase a set of forms for use in re-babbitting boxes. These forms, or babbitting arbors, need not be expensive, but there should be enough of them so that no saw arbor, or other high speed shaft, would ever have to endure the abuse of having melted metal poured around it, or, what is worse, half way round it. Such a thing of the arbor will spring it every time. I have tried to remedy the matter by marking the arbor in such a way that I could make sure that I poured the bottom part of the box to one side, and the top part of the box to the opposite side of the arbor, hoping that the last would straighten the first, and I have tried pouring both parts of the box at once, but with only such indifferent success that nothing short of absolute necessity would induce me to pour melted metal against the journal of a new arbor. I have been told that such ideas were two fine-haired for saw mill work.

One man said that he always babbitted right on the arbor where the box belonged, and then he was sure of a good fit, and never had to scrape the box at all. "Why," said he, "I have had to do lots of babbitting in my mill, and it would never do to wait to scrape the box." He did have lots of babbitting to do, and did not know that the cause of so much need of re-babbitting was that he was running crooked journals in crooked boxes, and that the actual contact of the arbor with the box was not more than one-fourth of the length of the box when left as first poured. The short bearing surface is particularly noticeable in small, solid-frame arbor boxes. The inner ends of such boxes will be low on the bottom, the arbor bearing only a little at the outer ends, because the heat expands the lower side of the babbitting arbor, throwing the ends up, and the soft metal takes the same shape. Of course the special babbitting arbors will spring just as much as the real arbor will; but with the real arbor straight, it is an easy matter to put some red lead on its journals, try it in the boxes, and scrape accordingly, and, come to think of it, I would have an old half-round file, ground off smooth, with sharp edges and a rounding end, also included in my outfit, to be used in scraping boxes.

A good form can be made for a four inch arbor, by taking a bar of 1 1/2 inch round iron as long as the saw arbor is, and then where the journals would come, cast some iron sleeves to the right size, but do not file them; leave the tool marks, and the babbitt will not bubble and kick half as much as it will on a polished surface; but for a solid box, when the arbor has to be driven out endwise, the tool marks should not be too coarse. For small arbors, a piece of machinery steel, turned up round and true, is not a very expensive matter.

PUBLICATIONS.

THE *Times* is the name of a new evening daily paper, the publication of which has just been commenced in London, Ont. The *Times* presents a neat, newsy appearance, and we understand is under the management of experienced newspaper men, who have our best wishes for success.

The crop calculators state that Ontario will have 15,000,000 more grain than last year, and that at a great advance in price. If this should be the case, the business depression should take to itself wings and fly away.



England claims the largest electric light in the world. It is in the light-house at St. Catharines, and its capacity is 60,000 candle power.

The reeds and rushes of the lowlands of the Pamna are destined to become of incalculable value for paper pulp, and as a fiber for textile fabrics.

The power of wrought iron to resist torsion being placed at 1, that of cast iron will be 9, cast steel 1.63, gun-metal .27 brass .25, copper .22, tin .13 and lead .1.

A good substance for bronze is composed of thirty parts of good brass (thirty-five parts of zinc, sixty-five parts of copper), sixteen parts of copper, four parts of phosphor-tin, No. 0.

A mixture of 10 parts of tin putty, 8 of prepared buckhorn, and 25 of spirits of wine, makes a good compound for taking the rust off drawing instruments, and will not injure them. They should be rubbed with soft blotting paper after this compound is applied.

Aluminium is one of the most difficult and uncertain of metals to deposit electrolytically. The following receipt is given by M. Herman Reinhold, who states that it furnishes excellent results: 50 parts by weight of alum are dissolved in 300 of water, and to this is added 10 parts of aluminium chloride. The solution is heated by 200 degrees F., and when cold 39 parts of cyanide of potassium are added. A feeble current should be used.

The Italian Admiralty have recently caused to be carried out a number of experiments with a view to testing the comparative merits of castor oil and of olive oil for lubricating purposes on board ship. From the results obtained they have given orders that henceforth all exposed parts of machinery are to be lubricated exclusively with castor oil, while mineral oils are to be used for cylinder and similar lubrication.

FRENCH GOLD SOLDER.—Precipitate copper in a state of fine division from a solution of sulphate of copper by the aid of metallic zinc. Twenty or thirty parts of the copper are mixed in a mortar with concentrated sulphuric acid, to which is afterwards added seventy parts of mercury, and the whole is triturated with the pestle. The amalgam produced is copiously washed with water to remove the sulphuric acid and is then left for twelve hours. When it is required for soldering it is warmed until it is about the consistency of wax, and in this state it is applied to the joint, to which it adheres on cooling.

Some very successful experiments in the way of breaking up steel castings have recently been performed at Messrs. Goodwin & Co.'s foundry, Ardrossan. The castings weighed in some instances as much as 8 1/2 tons, and having become useless, it was necessary that they should be broken up before they could be put into the cupola to be remelted. For this purpose Messrs. Goodwin engaged a few of the dock employes to try the experiment with dynamite. With the 3 1/2 ton mass they were unsuccessful on five different occasions. Eventually Mr. Daniel Blyth, who has been in the service of Nobel's Explosives Company for the long period of fourteen years, brought his wide experience to bear on the difficulty. He charged the largest casting, weighing 3 1/2 tons, with blasting gelatine, the explosion of which at once rent the casting into fragments. The result was eminently satisfactory.—*Iron*.

Mechanics who are beginning to learn the "book" part of their occupation often find difficulty in making computations of areas, contents and proportions. A few simple rules will greatly aid such persons, who lack the knowledge of mathematics that would enable them to compute easily. To find circumference: 1. Multiply the given diameter by 22 and divide the product by 7. 2. Divide 22 by 7 and multiply the diameter by the quotient. 3. Multiply the diameter by 3.1416. To find the area of an oval. Multiply the long diameter by the short diameter, and their product by .7854. To find the circumference of an oval: Multiply one half of the sum of the two diameters by 3.1416. To find the area of a triangle. Multiply the base by one half of the height. To find the surface of a sphere: Multiply the diameter by the circumference. To find the surface of a cone or pyramid: Multiply the area of the base by one-third of the height. To find the contents of a prism or cylinder. Multiply the area of the base by the height. These simple rules may be memorized by the young mechanic, and, once thoroughly learned, they will form a good basis from which to proceed to other more complicated computations.—*Iron Industry Gazette*.

The possibility of storing electricity was first suggested in 1801 by Gautherot's discovery that two plates of the same metal immersed in acid, after having been subjected to the action of an electric current in one direction, would produce a secondary current in the opposite direction. In 1859 Gaston Plante, while engaged in a series of experiments upon this phenomenon, devised a storage battery consisting of plates of lead immersed in dilute sulphuric acid. This, from a scientific standpoint, was a success, and when properly manipulated would yield a high and steady electro-motive force and currents of any desired strength according to the dimensions of the plates. On account, however, of the large surface required to prepare the plates to receive a charge of any considerable magnitude, the Plante battery was not available for commercial use. Camille A. Faure, after many experiments in the field, made the remarkable discovery that a paste of oxide of lead mechanically applied to the plates brought them instantly into the condition to receive a charge which was only accomplished by Plante after months of electrical treatment. Moreover Faure's discovery materially increased the efficiency and capacity of the battery and reduced its size and weight. Imperfections, chiefly of a mechanical character, existed in Gauré's battery which have been entirely overcome by the supplementary inventions of Messrs. Swan, Sellon, Volchmar, Shaw, and others.

THE BIG TIMBER RAFT.

The great timber raft, the progress of which was followed with much interest by all newspaper readers, reached New York safely on the 11th of August, after an uneventful voyage of eleven days, the distance covered being about 700 miles. The event is a noteworthy one for several reasons. It has demonstrated the feasibility, under favoring circumstances, of transporting timber in bulk from the most northerly British provinces, whence timber, valuable for many uses, has heretofore been sent by the much more costly mode of transportation by vessels. The experiment has been several times attempted, but two earlier attempts failed signally. The idea of rafting timber in this way originated with Hugh R. Robinson, of St. Johns, New Brunswick, who obtained (in 1886) a patent on a peculiar mode of fastening such a structure by chains. The first raft built on the Joggins shore, on the eastern side of the Cumberland basin in the Bay of Fundy, collapsed while being built. The second attempt was more successfully put together and launched, but, as will be remembered, it went to pieces in a storm when a few days out, and caused great alarm to vessels, as the floating masses were strewn over the ocean in the direct path of the transatlantic steamships. The third attempt, as all are now aware, has turned out successfully, and the

any strain on the main towing chain caused the whole structure to be gripped more tightly, so that the greater the draught on the main chain the tighter the raft would be bound together. As an additional safeguard, steel cables were attached midway between the cross-cables. Thus bound together, the great raft formed an extremely strong and compact structure.

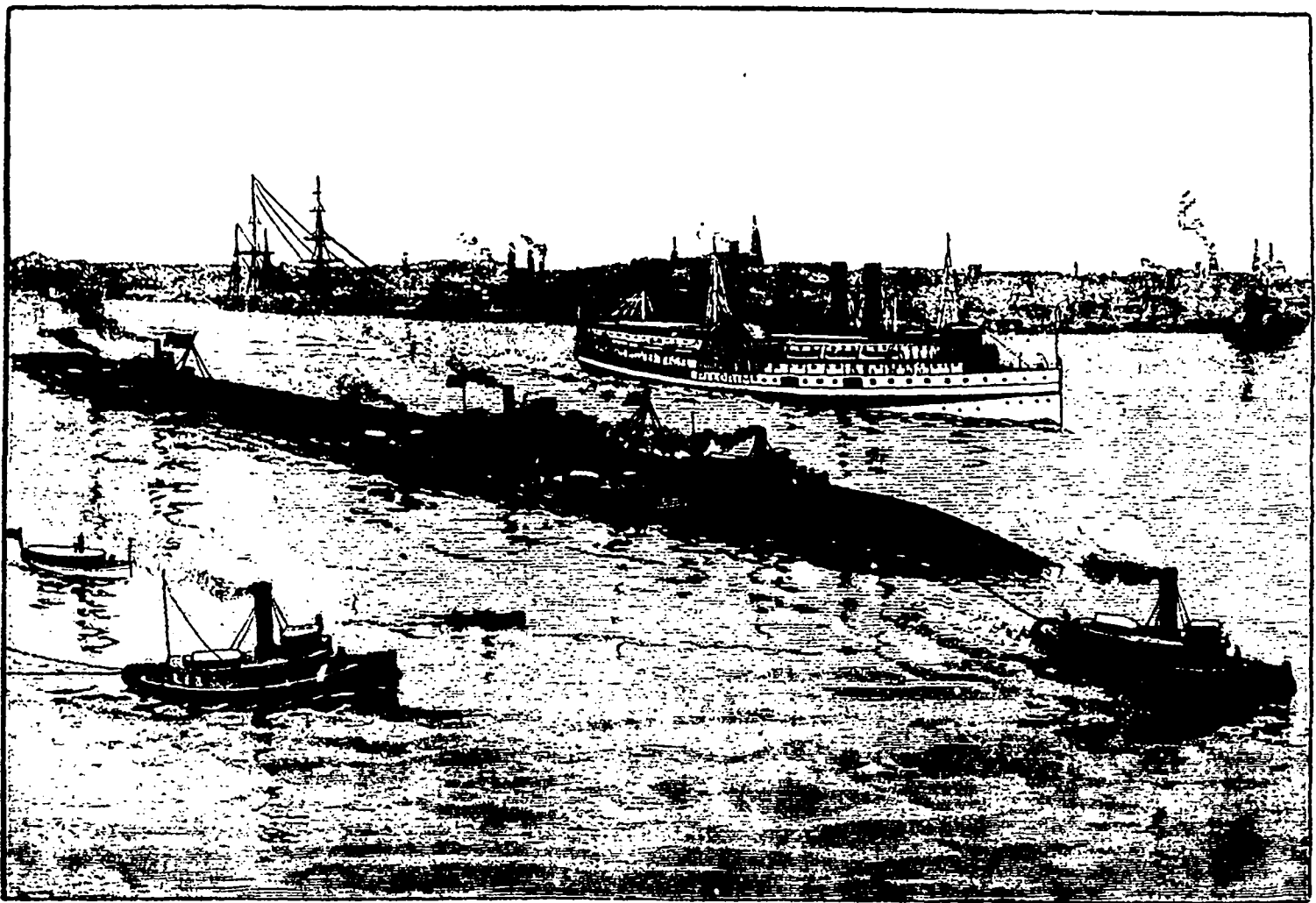
It was towed from Joggins to and through Long Island Sound, and to Flushing at the entrance of the East River, by two powerful tugs. At this point five more tugs were attached to tow it through the winding channel of the East River to the Erie Basin, below Governor's Island, which was its final destination.

The cost of the timber at the place where it was cut is estimated to have been about \$13,000, and the cost of constructing the raft and towing is believed to have been within \$10,000. The piles are worth at New York \$2 each, making the value of the raft \$44,000, thus leaving the handsome profit of \$21,000 on the venture. By the usual mode of transport, it is calculated that the cost to land the timber in New York, including the cost of the timber, would have been \$34,000 leaving a profit of \$10,000—a balance in favor of the raft of \$11,000.

POINTS FOR MILLERS.

To make operatives believe high grinding was better

thought of by many, that a wheat cleaning machine is a purifier; it purifies the wheat before it is broken. The middlings purifier purifies it after it is broken. The purification of the wheat preliminary removes impurities which cannot be removed by subsequent operations. It removes impurities which cannot be separated from the break flour. Emphatically, the wheat-cleaning machinery is the purifier of break flour. The greatest improvement that may be made in the quality of the break flour will be through the medium of the wheat-cleaning machinery. The proper cleaning of the wheat largely reduces the proportion of low grade flour, in that it removes contaminating substances which renders impure a large amount of good stock, and which therefore, will find its way to the low-grade end of the mill, if it is not instrumental in degrading directly the higher products. A miller will buy a centrifugal reel or two for the purpose of pulling up the standard of his break flour; this he does by rebolting. He throws a certain amount of contaminated stock to the low-grade end of the mill. While the quality of the high-grade flour is improved by the centrifugals, it is also plain that there is material thrown out because of its contamination by the impurities of the wheat which goes to make low-grade flour, and which, in the event of wheat having been properly cleaned, would have been in much smaller quantity.



THE GREAT TIMBER RAFT FROM JOGGINS, NOVA SCOTIA.

probabilities are that the venture will recompense its enterprising projector for his previous losses and leave a handsome margin of profit.

The timber of the region of Joggins is in much demand in New York and Boston for piling, and the annual exportation is said to reach 100,000 sticks, giving cargoes to about 200 schooners now engaged in this trade.

The appearance of this monster raft is well shown in our illustration, made from a photograph taken as it was towed down the East River. It has the general shape of a cigar, and has the following dimensions: Length, 595 feet; width, 55 feet; girth, 150; depth, 38 feet. Its weight was from 10,000 to 15,000 tons, and it contained 22,000 sticks of timber, which it is estimated would have required forty-four schooners (500 sticks to a vessel) to transport in the usual manner, and at a cost for freight very much greater than the actual cost of the making and towing of the raft to its destination.

The mode of building this structure was about as follows: It was built on an enormous cradle resting on rows of pillars. The piles (about 12 to 16 inches thick at the butt, and tapering to a few inches at the top) were about 40 feet long, and were laid in tiers, overlapping each other, to the depth of 38 feet. Through the entire length of the raft passes a heavy chain. Other smaller chains, crossed in all directions and spaced about 10 feet apart, are clamped to the outside tier of piles by cross-arms of wood. The raft was towed by the heavy chain, and the heavy cross-chains were so disposed that

than low, that impurities could be removed from middlings and flour by air, that rolls would produce better flour than stones, that gradual reduction would give better results than one reduction, that the round or centrifugal reels were better than the hexagon, and the sieve scalper (which is sure to come into prominence) is better than the hexagon for the first flour breaks on the wheat—these are great triumphs, both of the power of discovering and the power of convincing. We may readily allow this when we recollect how recently these improvements have come into practice, and with what objections each was met.—*Northwestern Miller.*

Never since the introduction of rolls into the mills of the country has wheat been properly cleaned. The rolls themselves, or the inception of the roller mill idea, has had nothing directly to do with this deficiency; indirectly it is responsible for it all. The rolls, and the machinery which came with them, have monopolized the attention of millers and mill builders, so that the attention to wheat cleaning methods has been spasmodic; the miller will buy a pair or more of rolls, and in times past, a purifier or two, and now more easily a centrifugal, or other form of short reel, without giving the matter any very great attention or feeling the weight of the expense. The buying of wheat-cleaning machinery is more serious in a comparative way than is the expenditure of a similar sum of money in any other line in the mill. It is forgotten, or never was

Not only that, but the higher grade of flour would have been of still better quality.—*The Millstone.*

The new wheat season is upon the miller again, and the day is here, when he who is versed in profanity swears at rolls with dull corrugations, reels which are lacking in good cloth cleaners and machines that fail in capacity. The wise miller has taken time by the forelock, and has had his dull rolls recut, his reels put in order and his machines in general brought up to maximum efficiency. This miller is a little cautious, too, about how much new wheat he mixes into the old, and when the old disappears, he is not slow about cutting down his feed. It is too late to get excited after the mill is choked. Better grind a few bushels less per hour, until you know what you can do, than to get bunged up in a manner that requires hours of work to open up communications, and perhaps, a half day or more to feed accumulations in again. Those who provide for this time and exercise a degree of caution, are the ones who can pass from the old wheat to the new without any appearance of riot about the mill.—*Milling Engineer.*

Duncan H. Cameron, of Woodville, Ont., has patented a boiler cleaning compound composed of a decoction of five parts, or thereabout, of the leaves and bark of cedar; two parts, or thereabout, of the leaves and bark of tamarac, one part, or thereabout, of the leaves and bark of each hemlock, oak and sumac, said decoction produced by steaming the ingredients in a closed vessel and then decanting the liquid.

CORLISS ENGINE.

AMONGST the many exhibits in Machinery Hall at the late Industrial Exhibition none drew the attention of practical men more than the celebrated "Corliss" engine, as made by Inglis & Hunter, the old established and well known engineers of this city.

From the critical examiners on "American Day," perhaps none took greater interest than two "Corliss" engine builders from the United States, who expressed their unqualified admiration at the excellence of the workmanship, and also their surprise that the finish was fully equal to the celebrated high-class "Corliss standard" a standard, by the way, which is frequently introduced and insisted upon in the engine specifications of the best engine firms in the United States. The reputation which the "Corliss" has obtained in the United States and Canada as the most economical and easily regulated engine at present on the market, has naturally produced many imitations, and so-called "Corliss engines," and "Corliss valves" are everywhere met with, and it is needless to say are frequently palmed off upon non-professional customers as the genuine article.

One of the important features of this engine is that steam is admitted by the valve to the piston at full boiler pressure. The cut-off is regulated by the load by means of a very sensitive automatic governor, and the expansive property of the steam after the same has been cut off is fully developed and utilized to the best possible advantage, so that a given power is readily obtained at a less evaporation of water than by other engines. The steam passages are so short and the way between full boiler pressure and piston so direct, that little or no loss is occasioned by wire-drawing or condensation.

The valves and valve gear are of the very simplest description, all the parts are easily accessible, and the motion actuating the valve is outside the steam chest, and only one simple eccentric moves the valves. All joints are adjustable, and the material used is of the very best. The proportion of all surfaces in contact is ample, the slot is made heavier than usually adopted, and the fly-wheel is designed on the most liberal proportions.

From the large number of these engines now in use, it is interesting to know, (and the fact is unique,) that not a single second-hand genuine Corliss engine is to be found in Canada to day, and this fact is the more remarkable in the United States, where the proportion of Corliss engines to all other makes, is at least ten to one.

We understand that Inglis & Hunter have at present a large amount of marine and stationary work on hand, besides a very large number of boilers.

CHIMNEYS FOR MANUFACTORIES.

A WELL proportioned chimney, of neat design, from 200 to 300 ft. high, is always an imposing structure and an ornament to a large manufacturing establishment, but it may well be questioned if it is ever worth while to build them over 150 ft. high. Where cost is no consideration, there is no objection to build them as high as one pleases; and sometimes the location, or the nature of the business carried on, or both combined, may make an extremely high chimney a necessity; but for the purely utilitarian purpose of steam making, we have yet to find a case where it was necessary to build a chimney more than 150 ft. high; and in many cases where this height has been reached, equally good results might have been attained with a shorter chimney at not much more than one-half its cost.

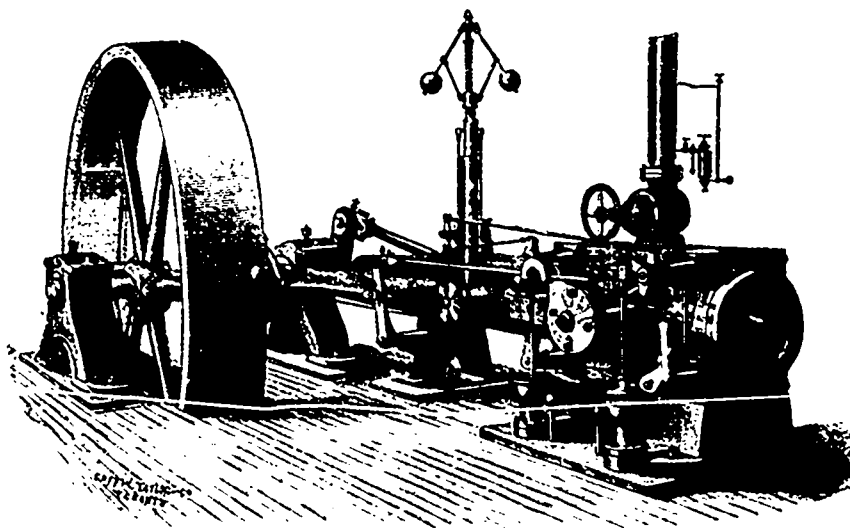
We do not wish anyone to understand from the above that we are making an argument in favour of very short chimneys, for we believe that many, in fact, more than one half, the chimneys in use at the present time are too short. The point we would call attention to, is the fact that, after a certain height has been attained—enough to insure sufficient intensity of draught, if the chimney is of proper sectional area to burn any sort of fuel, the economical limit of height has been reached, and any additional amount of chimney power is obtained at a much less cost by keeping the height at this point and using a large chimney than can be by increasing the height. For example, a chimney is needed for a large battery of boilers. After much consultation and guessing, it is decided that a chimney with a flue 10 ft. in diameter and 250 ft. high will be about right, and it is built. This is perfectly satisfactory, but it should be borne in mind that exactly the same results would have been attained at not over two-thirds the cost by making the flue just 16 in. larger, or 11 ft. 4 in. diameter, and

100 ft. shorter, or 150 ft. high. Ordinarily, this would represent a clear saving of about 5,000 dollars. This saving in first cost results from the saving of bricks and labour where the height is kept down within reasonable limits. We are aware that many engineers like to make the height of the chimney about 25 times the diameter of the flue. This makes a neatly-proportioned stack, but, with all due respect to looks, we would suggest that "looks" are not what chimneys are built for—their primary object is to furnish draught to burn coal or other fuel as it should be burned. If a ratio of height to diameter of 25 to 1 is adhered to, then the smaller sizes of chimneys, for one or two boilers, will not be high enough to produce sufficient draught force, the chimneys for a large battery of boilers will be higher than will be at all necessary, and, as we stated above, their cost will be from 30 to 50 per cent. greater than it should be.

After a sufficient height has been reached to produce draught of sufficient intensity to burn fine, hard coal, provided the area of the chimney is large enough, there seems no good mechanical reason for adding further to the height, whatever the size of the chimney required.

Sufficient draught will be furnished to burn any fuel to be obtained if the area of the chimney is equal to the combined area of the tubes where tubular boilers are used and the height is 100 ft. With this height, the area of the chimney may also be made equal to one-eighth of the grate surface, that being about the ratio existing between the tube area and grate area when boilers are well proportioned. A much less height than 100 ft. cannot be recommended for a boiler chimney for the reason above given. The lower grades of fuel cannot be burned as they should be with a shorter chimney.

Thus we see, if the rule of making the height twenty-five times the diameter were followed with a 24-inch flue, our chimney would be but 50 ft. high. This is not



CORLISS ENGINE.

high enough to properly burn anything but the very softest fuel. And if the same rule is adhered to where a 10 or 12 foot flue is required, the height will be from 250 to 300 ft.—much greater than is at all necessary for proper combustion of the fuel.

The idea obtains to a considerable extent among those unacquainted with the principals upon which chimney draught depends, that the draught power of chimneys increases directly as their height; so that, if we have two chimneys of the same size, but one being twice as high as the other, the higher chimney will have twice the power of the shorter one—or, in other words, will give sufficient draught, under the same conditions, for twice as many boilers as the other. This is an error.

The increase of power would be, theoretically, but 41 per cent. more, and in practice, owing to the fact that the frictional resistance of the sides of the flue to the passage of the gases would be doubled, it would be less than 41 per cent. Given two chimneys having flues of the same size, but different heights, their power to burn coal under similar batteries of boilers would be in proportion to the square roots of their heights; so if one was to have double the power of the other it would have to be four times as high.—*Locomotive.*

PETROLEUM FOR FUEL.

AT an electrical convention held recently in New York, the use of petroleum for fuel was the subject of a paper by S. S. Leonard, and elicited extended discussion. The speaker had made tests with oil for heating steam boilers and found a saving over coal of from 17 to 52 per cent. He also found that one man could much easier attend to seven to ten 150 horse-power boilers burning oil than one burning coal. And at the end of a week the boiler flues are cleaned. As regard to safety, he thought oil properly handled, as safe as coal.

A Chicago manufacturer said that they paid about \$3 per ton for coal by the car load and could get oil at 60 cents a barrel, two of which were estimated equal to a ton of coal. They are changing to oil, and expect to save about 35 per cent. Another member, Mr. Pendle, ton, spoke of the disastrous results in the burning out of boiler furnaces when oil is used. Prof. Man der Weyde said he was glad Mr. Pendleton mentioned this, because in his observation for 14 days in a petroleum furnace he saw that it suffered greatly, and was expecting that if it was used for a protracted time it would give out. "Another illustration comes to my mind," he added, "In the city of Yonkers, at Hastings, there are gas works where petroleum is used to be converted into gas. They commenced with coal as fuel, and after a while they tried petroleum, and instructed by the experience I had before with a dynamo I told them I did not expect they would be satisfied. It turned out that way. They abandoned the use of petroleum and returned to the use of coal."

PROCTOR'S POINTS.

IF the readers of the MECHANICAL AND MILLING NEWS have about forgotten your correspondent, he begs to make a new bow, and to say that he will endeavor in the future to materialize more regularly. He has a word just now for the Directors of the Industrial Exhibition Association that it might pay them to ponder.

"A great success." Everybody says so, and of course it must be so. "Proctor" is pleased as any one can be about it, but he is anxious about some of the points and elements that apparently contributed to that success, and fearful that their continuance may be very injurious to the Association and contribute to anything but its future success. Let us look at a few items.

The permanent success of any Exhibition of this kind depends upon the manufacturers who exhibit at it. Not on the fireworks,—although they are a very handsome and entertaining addition; not on the horse ring,—although most of the visitors enjoy the attractions there, not on the Horticultural Department—for any country fair can show as large squash and pumpkins, not on the Dairy Department which is of very little practical value as a mere exhibit; not on the latest designs of crazy quilts—although endless pains and stitches may have gone into their construction, &c., &c. It will be patent to any thinking man who will give the matter

consideration, that the opening statement of this paragraph is correct.

If it is, then it certainly behooves the directors and management of the Association to treat the manufacturers very liberally and courteously, because they have to be at very considerable expense. With very many of them it is a matter of doubt whether the returns are sufficient to cover the outlay and confusion in business arising from exhibiting. It is very harassing to a manufacturer when everything is in a rush to know that because his entry tickets of attendants got mixed up by his men that they were all taken up at the gate. Then after being lectured by Manager Hill or some of his subs for not reading that fine, blurred print on the ticket, which told him: "This ticket will admit the person whose name it bears, once each day and once each evening only," the passes were given back; but before 24 hours had gone over, he found out to his cost that this statement was entirely deceptive and untrue, as his men were refused admittance in the "evening" unless they paid.

Many manufacturers with large exhibits also found it very difficult to obtain passes for enough men to erect or attend to their exhibit, and so an extra drain of a few dollars—not amounting to so much perhaps, if it were not for the petty annoyance. Other (Toronto city exhibitors,) found it difficult or impossible to obtain an entry ticket for their horse and carriage, which would have been a very minor courtesy in some cases, where a large amount of service had been rendered to, and money spent for the Association itself, by the parties who asked for it.

Then these travelling "fakers," professional jumpers, contortionists, female bicyclists. *et sic genus hominum.*

Some degree of discretion beyond the present ought to be exercised in this direction, or the whole business will land up where most of the leading American Exhibitions have arrived,—about on a par with a combination of Cole's circus and a Bowery dime snake show.

The extent to which newspaper proprietors have of late years pursued the practice of canvassing for paid "notices" on the various Exhibition grounds throughout the country, has at length become intolerable, and must speedily result in either its abatement or the withdrawal of all respectable exhibitors from these fairs. The expense of any considerable exhibit, *en transit*, not to speak of the loss of time and money incidental to its remaining on exhibition during a period aggregating not unfrequently several weeks, is under all ordinary circumstances, surely a sufficient drain upon the exhibitor, without being thus subjected to a systematic levying of "backsech" which savors more of Zululand than of a country claiming the rank in nineteenth century civilization which Canada does. The practice is alike discreditable to the employer and degrading to the employee, and of quite sufficient importance to exhibitors to justify common cause being taken with a view to stamping it out.

* * *

"Proctor" has only the best interests of the Exhibition before him, but he is "loaded up" along this line, and would give you a page or two if he had time to write. He has seen shows "wax and wane" for twenty years past, and has noted "cause and effect," and will speak right out so as to be heard if some changes are not made.

PROCTOR.

BELTS VS. GEARS.

A MAN had an "up and down" saw mill upon a light stream, which, if properly improved, would yield about ten horse power. He resolved to put in a turbine, and went to a certain builder and employed him to undertake the job. An 18-inch wheel was put in, which, under the head of 19 feet, would, at full gate, give 16 horse power. The power was transmitted from the water wheel shaft to the shaft, A, by a quarter-twist belt. From the counter, A, the power was belted to the crank shaft of the saw, and the belt was run in the direction shown, with the tightener pulley upon the upper and tight side of the belt.

When the wheel was started, it was found that it took full gate upon the wheel to drive the empty saw to speed, and but very little work could be done, and in a few minutes all the water was out of the race. The water wheel builder was sent for. "I have made a mistake," said he, "the wheel is too large. I will put in a smaller one." "But," said the mill owner, "how will that help me, if you put in a smaller wheel, for even now this 18-inch don't give me power, although it drinks up all my water, and a smaller wheel wouldn't turn at all?" The wheel builder was stuck, and the poor mill owner was in a bad way, for his means were limited, he had destroyed his overshot, his busy season was at hand and he could do no business. His trade was going to his competitors above and below him and bankruptcy stared him in the face. In his extremity, some one advised him to see the "Perfection" water wheel people, whom he was told were specialists in curing sick water powers. It was thus that the case came into the writer's hands.

I was solicited to make a journey to the mill and see what could be done. The water was measured, and it was found that the stream supplied sufficient to fill a 14-inch "Perfection," and would give about ten horse power. The miller was told that the "Perfection" would be put in, and if it did not drive the mill up good and strong and prove all that he desired, it would not cost him a cent, and he could have the "Perfection" as a gift. The wheel was accordingly set, with no changes whatever, except a smaller pulley on the water wheel shaft, and the tightener removed from the tight side of the belt and placed as in Fig. 4, on the slack side. The result was that the wheel and mill went off the minute the gate was opened, and the mill owner was the happiest man I ever saw.

There is a point where I would like to take exception to what one of your correspondents writes. He says: "At this point it will be well to remark that the single quarter-twist drive had better be consigned to the lower regions along with gears. * * * It is once and forever a nuisance to all who have dealings with it; * * * forever eating up its worth in belts."

Now I say: Use a quarter-twist transmission whenever you can do so. It is one of the best ways to take off the power, and when rigged up properly, with the proper sort of belt, is just as good and will last just as long as a straight open belt. The writer has dozens of wheels

in operation from which the power is taken off by quarter-twist belts, and he has never had a case but it has given the best of satisfaction. The widest belt we have used is 20 inches, and this was put in seven years ago, in a large cotton factory, transmitting the power from a "Perfection" turbine to the line shaft of the mill, and is to-day as good as the day it was put in.

Quarter-twist transmissions are sometimes very troublesome, but this is not the fault of the plan, but the way it is carried out. Almost every millwright or mill owner, when he has occasion to use a quarter-twist transmission, sends his order for the usual style of straight belt carried in stock by his supply house. This belt, when he rolls it out on the floor, lies nice and straight, like Fig. 5. He takes it, gives it the twist and puts it on the pulleys. As is well known, all the work is done by one side, or edge of the belt, and it, after running a week or so, he will take it off and roll it out on the floor again, he will find it will take the rainbow shape of Fig. 6, a badly injured belt, one edge being stretched beyond the limit of its elasticity. This is why quarter-twist transmission is "forever eating up its worth in belts."

But the remedy is so easy and simple that I wonder it is not more widely known. It is merely to order

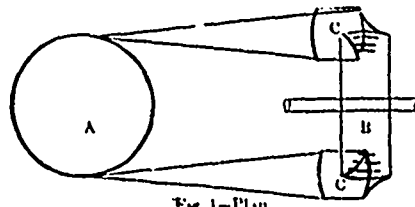


Fig. 1—Plan

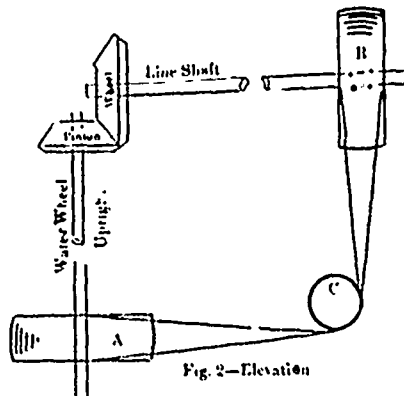


Fig. 2—Elevation

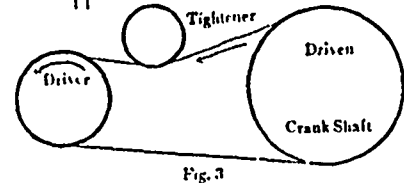


Fig. 3

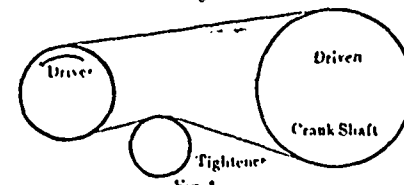


Fig. 4

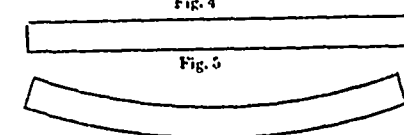


Fig. 5

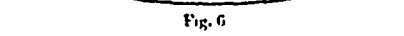


Fig. 6

your belt from the factory made in the shape of Fig. 6. Send them a sketch of the proposed transmission, giving diameters and face of pulleys, their distance apart, hand or disposition, and any first-class belting works will make a belt upon which they will give a guarantee, the same as upon the usual belt. The belt, in all cases, of course, being good short-lap leather, than which no other sort should be used for true economy.

On high heads, when the turbines run at a high speed, the best way to get rid of gears is to use horizontal turbines, but when, on account of the extra cost, the horizontal arrangement is not desirable, we never hesitate to use a quarter-twist. For wheels under moderate heads and moderate speeds, we believe there is nothing better than a good pair of cog gears, and likewise nothing worse than a bad pair of cog gears.

Cog gears break, and it is a matter of time to get new ones, but if the gears are got heavy enough in the first place, and the shaft mounted in good, heavy, cast iron head blocks, so that they can never get out of their proper relations, the danger of breakage is very remote. The great trouble with gears in the past has been that they were not true; for, being made from wooden patterns, these patterns soon get out of truth, and the gears made from them are the same. The advent of machine molded gearings has had the result of giving us stronger, quieter and better gears, so that if the mill owner is not

afraid of buying a few extra pounds of cast iron, he can get gears that will wear for years, because the machine molded gears are as true as cut gears.—W. H. Ridgway in *Milling Engineer*

Correspondents' Opinions.

SOME OPINIONS ON MECHANICAL AND OTHER MATTERS.

LISTOWEL, Sept. 3rd, 1888.

Editor MECHANICAL AND MILLING NEWS.

DEAR SIR,—Please find enclosed the sum of one dollar to renew my subscription for another year. I am well pleased with your paper, in which I find articles of interest to me that are not to be found in any other Canadian paper. The mechanical part is well gotten up, the type large and clear, and the cuts clean; altogether it is a credit to Canadian skill and workmanship. Your correspondents on mechanical subjects are well posted and capable writers. An article in your May number on "Cheap Engines," by "Automatic Cut-Off," was well put and to the point, and could not fail to interest and benefit many in the choosing of an engine to drive their mills and factories.

Success in business is largely dependent on the kind of engine a man gets. Many a firm has been ruined by badly designed and constructed engines. There are a number of engines in our busy town, and a few notes of one of them may be of interest to mill and factory owners. It is called a Wheelock Automatic Cut-Off with a condensor, and drives a three hundred and fifty barrel flour mill owned by Hay Bros., who do a large trade, and who have made a name for themselves in the short time they have been engaged in the business. This engine is a beautiful piece of workmanship, and is well kept by a skillful and capable engineer. Everything is clean and neat. The boiler-house floor is bricked; the engine-house floor has a rug to walk on; the walls are hung with pictures, and flowers and plants flourish there.

The engine is fifteen inch bore, 44 inch stroke, makes 80 revolutions per minute, and has been running now over two years.

About one year ago a test was made to see what could be done with a given quantity of wood. It was done at a time when wheat was scarce and the mill only running two or three days in the week. A pile of wood was measured which contained nine cords of a poor quality of black ash and hemlock mixed, costing one dollar per cord. This quantity ran the mill seven days eleven hours per day, and ground seventy barrels per day. Six days out of the seven steam was raised from cold water. This you see is a very cheap rate at which to make flour by steam. Another test was made this summer, with about the same result. This engine has not cost one dollar for repairs since it started, and to all appearances is as good as when new.

Hoping you will excuse me for taking up so much of your valuable space, and wishing the MECHANICAL AND MILLING NEWS much success, I remain,

Yours truly,

ADAM AUSTIN.

PERSONAL.

Mr. Thos. McDonald, of Mitchell, will remove to Woodstock, to attend to his large milling business there.

Mr. Thos. Tucker, of Regina, has been appointed engineer at the Assiniboia Roller Mills, Moosomin, N. W. T.

Mr. James Massie, who has long been connected with the grain trade, has been recommended for the position of Grain Inspector at Winnipeg.

Mr. Aaron Smith, the father of Mr. Geo. T. Smith, is the owner of a large farm in Dakota. At over 70 this old gentleman is hale and hearty.

James Morrison, of S. C. Kanady & Co., 18 Wellington street east, Toronto, Ont., was in the city during the week, and shook up the hardwood dealers a little on the birch trade.—Chicago *Northwestern Lumberman*.

Mr. J. D. Russell, of the Pioneer oatmeal mill at Portage la Prairie, Man., was appointed assistant commissioner on provincial exhibits to the Industrial Exhibition at Toronto, and other leading Expositions throughout Ontario.

Mr. John Knight, for about two years the popular manager of the mills of the Tavistock Milling Co., is about to remove to Streetsville to take charge of a 300 barrel mill recently built there by Wm. & J. G. Greev, of Toronto. Mr. J. M. Jacques will take Mr. Knight's place in the Tavistock mill.

Our valued western correspondent writes from Winnipeg that he is just recovering from a severe attack of typhoid fever, and is not feeling equal to the task of contributing his usual budget of western news this month. He has our best wishes, and we feel we may add those of our readers for his speedy convalescence.

Mr. Knoll, who owns and operates a 60 barrel mill at Port Colborne, gave the MECHANICAL AND MILLING NEWS a call while paying his first visit to Toronto and its big Industrial Exhibition. He expressed surprise at the stirring energetic character of Toronto's citizens, and the wonderful development to which this city has attained. As compared with Buffalo, which he visits quite frequently, he thinks Toronto shows to great advantage.

MILLSTONE MILLING IN CITIES.

It is surprising says the Millstone, that millstone mills can flourish, or rather exist in locations where the competition of the roller or larger mills is strong. In most of the large cities of the West, there will be found millstone mills which are running along side by side with their roller mill neighbors. It is true in this city. They have rolls with which to clean the bran, a centrifugal or two for rebolting, but the primary reduction is made on the millstone, and altogether there is an air of the old style milling. We can see clearly enough that in a section where there are no roller mills, that millstone reductions would be all right and proper, but it is a mystery as to their continued existence under the conditions of which we speak. As a general thing mills erected in this way do not clean their wheat as well as the roller establishment, their separating machinery is insignificant, and many things bear evidence to a cramped condition. Still they live and breathe. We are not undertaking to explain this matter, but are simply mentioning it as a fact. The millstone reduction in itself requires the very best of separating devices in order to do even fair work in a comparative work. Now the outfit is originally very unsatisfactory and would not pass in a roller mill. Can it be that the roller mills are neglecting their opportunities, are not working up to the limits of possibilities; that they are careless in their reductions, or that their separations are unsystematic, or their business methods neglectful? Do they neglect to crush out the millstone mills?

Don't pull the two extremes too far apart. Don't aim to make too much high-grade flour, for that means too much very "low-grade" that must go at a loss. The American idea is that the most profitable flour to mill is a good straight grade. It may not equal the finest Hungarian product in quality, but it sells for nearly as much and leaves far less unprofitable stuff verging on bran and fodder.—Milling World.

The Ogilvie Milling Co. have shipped twenty-five car loads of new wheat from their Morden, Man., elevator.

LUMBER PRICES.

Table of lumber prices including categories like CAR ON CARGO LOTS, MONTREAL PRICES, and various types of lumber such as Pine, Spruce, and Hemlock.

Table of lumber prices including categories like ST. JOHN, N. B., NEW YORK PRICES, and various types of lumber such as Pine, Spruce, and Hemlock.

Table of lumber prices including categories like HEMLOCK, BUFFALO AND TONAWANDA PRICES, and various types of lumber such as Pine, Spruce, and Hemlock.

MILLERS' AND MANUFACTURERS' INSURANCE COMPANY. HEAD OFFICE, 24 Church Street, Toronto. JAMES GOLDIE, Guelph, President. W. H. HOWLAND, Toronto, Vice-President.

TIMEWELL & SON, Designers, Plans and Specifications prepared for all class of buildings. Tenders obtained, and buildings superintended in any part of the province. KEYNOLDS & KELLOND, Solicitors of Patents, and Experts in Patent and Trade Mark Causes.

mind that tenders will not be considered unless made strictly in accordance with the printed forms and be accompanied by a letter stating that the persons or persons tendering have carefully examined the locality and the nature of the material found in the trial pits.

contracted for, and will be returned in case of non-acceptance of tender. The Department does not bind itself to accept the lowest or any tender. By order, A. GOBEIL, Secretary.

HUGH SCOTT, Managing Director. DOUGLAS SUTTON, Secretary. GEO. HANSON, Inspector. OBJECTS. To prevent by all possible means the occurrence of avoidable fires.

SEALED TENDERS addressed to the undersigned and endorsed "Tenders for the Sault Ste. Marie Canal," will be received at this office until the arrival of the eastern and western mails on TUESDAY, the 23rd day of October next.

SEALED TENDERS addressed to the undersigned, and endorsed "Tender for Post Office, Goderich, Ont.," will be received at this office until Monday, 15th October, 1888 for the several works required in the erection of Post Office, &c., at Goderich, Ont.

SEALED TENDERS addressed to the undersigned, and endorsed "Tenders for Chaudiere Bridge," will be received at this office until Friday, the 5th day of October next, for replacing the present roadway of the Suspension Bridge across the Ottawa, at the city of Ottawa.

THE BAG AND HESSIAN FACTORY OF CANADA.

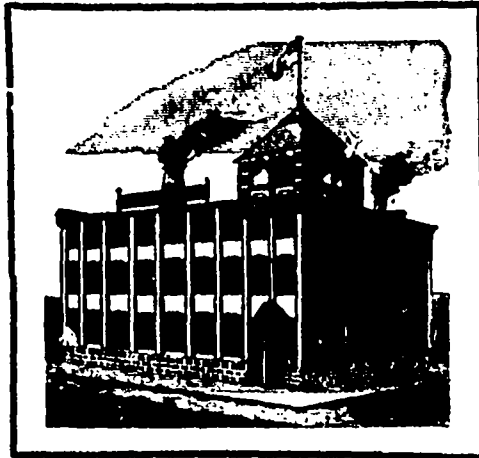
BAGS

Of every quality and size.

THE
OLDEST, MOST COMPLETE AND BEST EQUIPPED

Bag Factory in the Dominion.

WE MAKE **THIRTY THOUSAND BAGS**
EVERY DAY



A special Feature is the
MACHINERY FOR MANUFACTURING HESSIAN CLOTH.
Every quality and every width can be
supplied same day as ordered.

BAG PRINTING IN COLOURS

We are now printing 5,000 to 10,000 Bags daily, and are turning out the **BEST WORK** in the country, at the **LOWEST PRICES.**

WRITE FOR SAMPLES OF OUR
BAG PRINTING IN COLOURS.

The CANADA JUTE COMPANY, Limited,

TORONTO AGENTS: MESSRS. STARK BROTHERS,
62 Front Street East, TORONTO.

15, 17, 19 and 21 St. Martin St. - MONTREAL.



ROBIN & SADLER

Manufacturers of

Leather

Belting

2518, 2520 and 2522
Notre Dame St.

MONTREAL.



ALL OUR
BELTING
MADE WITH
SHORTLAPS
AND CUT FROM
THE PORTION
OF THE HIDE AS
SHOWN WITHIN
SOLID WHITE LINES

ROBIN & SADLER

Manufacturers of

Leather

Belting

129 Bay St.

TORONTO.

—|All Sizes Kept in Stock, and Orders Filled Promptly.|—

DEALERS IN

COTTON AND RUBBER BELTING,

LACE LEATHER, BELT HOOKS AND MILL SUPPLIES.

TWINES

— Of Every Description —

FOR

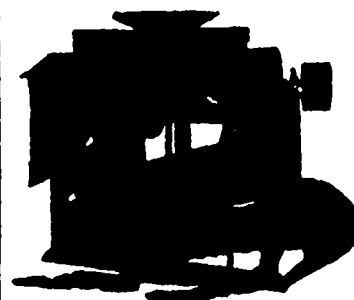
MILLERS AND GRAIN ELEVATORS.

Watt, Drysdale & Co.

16 JORDAN ST. - TORONTO.

WRITE FOR SAMPLES AND PRICES.

LIDLAW'S BARLEY CLEANER



The above machine is unsurpassed for thoroughly cleaning wheat, oats, barley and other grain. One of these machines recently put into Mr. Walter Thomson's mill at Seaforth, Ont., is doing most satisfactory work. Read the following testimonials:

Toronto, April 14th, 1888.

MESSRS. A. LAIDLAW & CO., Parkdale.

Gentlemen,—Your favor received, and with regard to the Barley Cleaners you are manufacturing, we have much pleasure in testifying to their general excellence. To the best of our knowledge they have given the greatest possible satisfaction in every case, both to ourselves and to others who have had occasion to make use of them.

Yours truly,
W. D. MATTHEWS & CO.

Port Erie, Jan. 16th, 1888.

MESSRS. A. LAIDLAW & CO., Parkdale.

Dear Sirs,—We are more than pleased with the Barley Cleaner you put in our elevator. We would not part with it for three times its cost; in fact, could not do without it. We can safely recommend it to any one requiring a cleaner, and feel certain it will give entire satisfaction.

Faithfully yours,

B. & E. BAXTER.

IT WILL PAY MILLERS, OWNERS OF ELEVATORS, ETC., TO EXAMINE THE MERITS OF THIS MACHINE.

Send for circular and testimonials,

A. LAIDLAW & CO., - PARKDALE, ONT.

IMPORTANT TO STEAM USERS.

THE PREVENTION OF **BOILER EXPLOSIONS**

AND OTHER ACCIDENTS TO STEAM BOILERS.

When were your Boilers last inspected? Are they in safe working order?
Are they giving the greatest power at the least cost?

The Boiler Inspection & Insurance Company of Canada.
Head Office, - TORONTO.

MILLERS!

HAVE YOU SEEN THAT FLOUR BARREL?

NO HOOPS TO FALL OFF! NO STAVES TO DROP OUT!
NO NAILING TO DO! HEADS INSTANTLY PUT IN!

Finest and strongest barrel for shipping purposes ever made.

— BUILT BY —

BRANT MANUFACTURING CO.

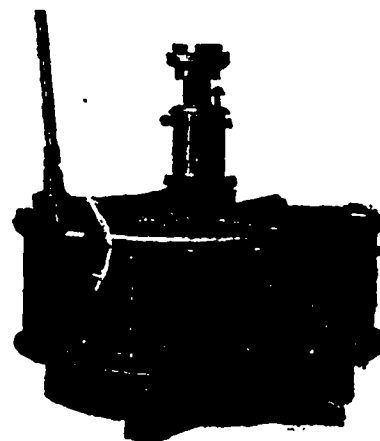
BRANTFORD, - - - ONTARIO.

Write for information and price.

CHARLES BARBER,

MEAFORD, - ONTARIO,
MANUFACTURER OF

**TURBINE
WATER WHEELS,**



All sizes. Durable, economical, free working parts, tight gates, easily adjusted, all parts duplicate, prices low. Twenty years' successful experience. Satisfaction guaranteed. Also complete SAW MILL OUTFITS. SAW CARRIAGES a specialty. The SET-TER DOG, tapers either end, sets and throws back without leaving his stand. Rope or rack feed works, shafting, gearing, pulleys, pumping machinery, &c. Write for and state full particulars.

Latest Canadian Patents.

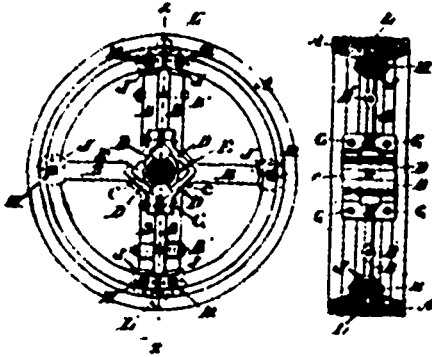
Belt Fastener.

No. 20,481. Robert Cuthbert, Hamilton, Ont., dated 10th July, 1888.

Claim. In the belt fastener, the combination of a metallic concave bar having at each end a carved head and a belt, substantially as and for the purpose herebefore set forth.

Sectional Pulley.

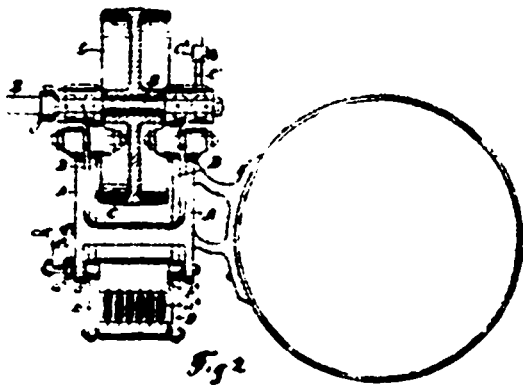
No. 20,455. Atwater I. Brackett, Kingston, Ont., and Gardner I. Eames, Racine, Wis., U. S., dated 8th July, 1888.



Claim.—1st. A sectional pulley having a divided hub C provided with raised bearings D, as set forth. 2nd. A sectional pulley having a divided hub C, and arms B integrally cast with each section, said arms provided with points K and secured to rim A of the pulley by bolts M, as set forth. 3rd. A pulley having a sectional rim secured to radial arms enlarged at their ends, and having points K, said sections having dirks L, at the joint, as set forth. 4th. A sectional pulley consisting of a divided rim A secured to arms B by bolts M, and arms cast integrally with a half hub C, and said half hubs secured together by bolts G, as set forth. 5th. The combination, in a sectional pulley having a divided hub provided with bearings B, of the removable and interchangeable bushings E, as set forth.

Grooved Pulley.

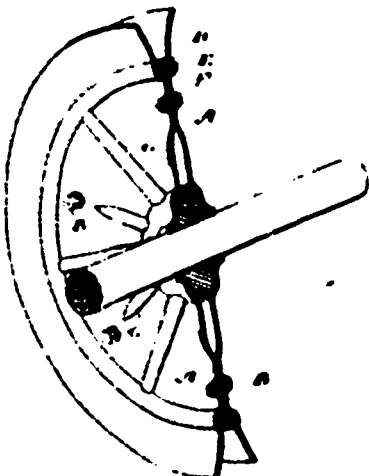
No. 20,463. Walter H. Avors, York, Ontario, dated 6th July, 1888.



Claim.—1st. The combination, with a grooved pulley, of a rubber ring encircling the said pulley at the bottom of its groove, substantially as and for the purpose specified. 2nd. A grooved pulley having a recess formed around it at the bottom of its groove, in combination with a rubber ring E inserted in the said recess, substantially as and for the purpose specified. 3rd. A grooved pulley having a recess formed around it at the bottom of its groove, in combination with a rubber ring E inserted in the said recess, the said ring being filled with a core of rope or other slightly compressible material, substantially as and for the purpose specified. 4th. A pulley composed of two steel sheets A bolted or riveted together, and having a solid metal hub C, and a groove formed around its periphery by outwardly flaring the steel sheets A, in combination with a rubber ring E inserted in the recess formed in the bottom of the groove D, substantially as and for the purpose specified.

Mechanism for Drivng Machinery.

No. 20,470. Abel Kleinstover and H. S. Van Tuyl, Petrolia, Ont., dated 7th July, 1888.

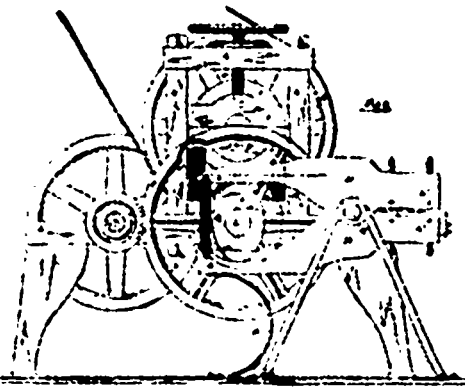


Claim.—1st. The regulation of the admission of steam to the engine by the driven machine, as and for the purpose set forth. 2nd. The swinging frame B, bracket A, coupling rod shaft E, tension pulley C, belt D and pulley F, in combination with the upright G, matched regulating bar G, lever G, slide G and set screw G, as and for the purpose set forth. 3rd. A bracket A, secured to the boiler for supporting this mechanism, as set forth. 4th. The

swinging frame B, bracket A, tension pulley C, belt D and pulley F in combination with the tightener pulley G, flexible band G, springs G, spool G, ratchet G and dog G, as and for the purpose set forth. 5th. The coupling rod shaft E and coupling S, in combination with the tubular coupling rod G, substantially as and for the purpose set forth. 6th. A coupling rod formed tubular, as and for the purpose set forth. 7th. A coupling formed hollow and square for a short distance on its interior face, as and for the purpose set forth. 8th. The combination of the coupling S and bar T, with the tubular coupling rods G, G, substantially as and for the purpose set forth. 9th. The coupling S, formed with the shoulders G, spring G, shoulder G and shaft G, as and for the purpose set forth. 10. The combination of the shaft G, bevelled gear wheels N, N and N, brackets V and bearings W, W, W, in combination with the bevelled pinions Y, Y, Y, and R, toothed wheel Z, Z, cog pinion Z and shafts H, H, H, N and O, as and for the purpose set forth.

Working Tapers on Metals.

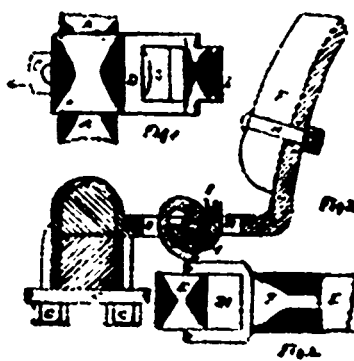
No. 20,287. John B. Armstrong, Guelph, Ont., dated 6th June, 1888.



Claim.—1st. The production of tapers on the ends of metal bars by the process of compressing or squeezing the edges of the bars when heated, and then rolling out the tapers on the heated bars after the edge has been so shaped, the process of shaping the edge and rolling the taper being performed in two compressing jaws and rolling out the taper between rolls suitably shaped and adjustable as to each other, substantially as specified. 2nd. In a rolling machine, an upper roll C, driven independently of the lower roll B suitably geared, the rolling surface of which is driven at a slightly lower rate of speed than that of the upper roll, substantially as specified. 3rd. In a rolling machine, the combination, with compressing levers H, of adjustable compressing bits h, in the jaws thereof, the compressing levers being operated by an elliptical cam L, rigidly attached to, and adapted to partake of, the motion of the lower roll B, substantially as specified. 4th. In a rolling machine, the combination, with the compressing levers H, carrying adjustable compressing bits a, and sealed adjusting wedges b, in the jaws thereof, of the springs I and K, and the elliptical cam L, rigidly attached to, and adapted to partake of the motion of, the lower segmental roll B, driven by the geared wheel F, substantially as specified. 5th. The upper roll C operated by the fly-wheel pulley E, in combination with standards N, screw G, spring G and movable journals D, D, substantially as specified.

Shill of Shaft Coupler.

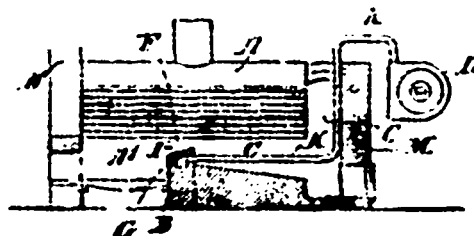
No. 20,311. Charles R. Jones, Hawley, Que., dated 6th June, 1888.



Claim.—1st. The combination of the couplers or shackles D and D, with the axle tree A and B, substantially as and for the purposes herebefore set forth. 2nd. The combination of the couplers or shackles E and E, with the shaft F, substantially as and for the purposes herebefore set forth. 3rd. The combination, with the couplers or shackles D and E, with the rawhide H, substantially as and for the purpose herebefore set forth.

Smoke Consuming Furnace.

No. 20,373. Alexander Kerr and George H. Kendall, Montreal, Que., dated 19th June, 1888.



Claim.—1st. The combination, with a furnace, of the fire-bridge provided with a channel and perforated coping as described, with a blowing apparatus and pipe connecting the blowing apparatus with the said channel in the fire-bridge, the said pipe being situated in the combustion chamber, so that the air passing through it will be highly heated before arriving in the said channel, the whole substantially as described. 2nd. The combination of the

boiler A, furnace A, fire-bridge B having channel G and perforated coping G, with blower L, and pipe K, having a coil as described and arranged to pass through the combustion chamber C, whereby the air passing from the blower is heated before passing into the channel G, the whole substantially as described.

TRADE WITH SOUTH AMERICA.

UNITED States Consul Bacon supplies some interesting figures suggestive of the possibilities of trade between the United States and South America, which, as pointed out elsewhere, should have their value for Canadian manufacturers:

"First.—What does this trade amount to annually, in what does it consist, and what nations command it? It amounts annually (exports and imports) in round numbers to \$700,200,000. The countries south of the United States, consisting of the empire of Brazil, four European colonies, and fifteen republics, consist of over 40,000,000 people, and have an aggregate area of over 8,500,000 square miles; a population almost equal, and an area double that of the United States. They are with few exceptions (Chili, the Argentine Confederation, Uruguay, a part of Paraguay, and the lower southern part of Brazil) within the tropical region, the tropic of Capricorn passing through San Paulo, which renders them in climate, production, supply and demand, the reverse of the United States. Their principal products are sugar, coffee, cocoa, fibrous plants, hard-woods, cochineal, dye-stuffs, and immense herds and flocks, furnishing countless hides and quantities of wool, all of which are greatly needed by the United States, and in return for which they should receive the innumerable articles manufactured from cotton, iron, and other hard metals, agricultural and mechanical implements, shoes, hats, watches, and, as they have no factories of their own worth the name, the countless articles formed and fashioned in the United States by the skill and invention peculiar to that country, and also wheat, corn, flour, bacon, tobacco, kerosene oil, etc.

"This commercial reciprocity of trade, made so by the laws of nature, and so much needed between these tropical or quasi-tropical countries of South America, Mexico and Central America, and the United States should, it seems, flow naturally between the two countries, and be monopolized by the latter. On the contrary, strange to say, the reverse appears; commercial statistics in fact showing that only about one-fifth of the annual trade of these countries (as stated above, \$700,000,000) is controlled by the United States—indeed, of that which is important, the supplied imports to these countries, amounting annually to over \$350,000,000, the United States supplies but little over one-seventh."

GRAY'S TELAUTOGRAPH.

THE Telautograph, as its name indicates, is an instrument which writes at a distance; the medium being electricity. The number of instruments heretofore produced for this purpose is considerable, but none of them appear to have achieved commercial success. The fame of Prof. Gray offers some assurance that the instrument which he has elaborated with such care and completeness will avoid the difficulties which have defeated others.

The foundation principle appears to be this: Two electrical currents are employed. At the transmitting end each circuit terminates in a series of contact points arranged in a circle and a delicate circuit closer is arranged to sweep over said contact points alternately closing and opening the circuit. Operating straps from these closers meet at right angles and are there connected with the writing stylus near its point. The circuit closers have delicate retracting springs. It is easy to see that every movement of the stylus will cause the circuit closer to move over the contacts in one direction or the other and at diverse speeds according to the changes of direction of such motion, thus sending the preponderance of current over one circuit or the other. At the receiving end this fluctuating preponderance similarly excites magnets and thereby actuates mechanism which reproduces the movements of the stylus.

The estimated cut at the Chaudiere this season is divided up as follows: The E. R. Eddy Manufacturing Company, 90,000,000 feet; J. R. Booth & Co., 75,000,000; Hurdman Bros., 70,000,000; Parley & Patten, 60,000,000; Brownson & West, 55,000,000; Herce & Co., 55,000,000; Conroy & Co., 50,000,000. In addition to this, Gilmore & Co., at their Gaitanum mills will cut 50,000,000 feet, and W. C. Edwards & Co., at Rockland, 40,000,000. Hurdman Bros. have increased their cut from 40,000,000 to 70,000,000 this season. As compared with last season J. R. Booth & Co. will increase their output 15,000,000 feet; the E. R. Eddy Manufacturing Company, 30,000,000; Parley & Patten, 10,000,000; Herce & Co., 10,000,000; Conroy & Co., 15,000,000, while Brownson & West will stand at about the same figures.



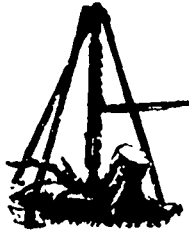
CHAMPION FIRE & BURGLAR PROOF SAFES.

WARRANTED THE STRONGEST AND BEST.

Prices 30 per cent. lower than any Safe made in the Dominion of as good finish. Send for circular and prices.

CHAMPION STUMP AND STONE EXTRACTOR.

Over 2400 in use and 6 years' trial have proved this to be the machine for clearing land. Send for circular of either of the above to the inventor and manufacturer, S. S. KIMBALL, P.O. Box 945, Salesroom 577 Craig St., MONTREAL.



MACHINE KNIVES

Of every description, for Planing, Moulding, Stone Cutting. SEND FOR PRICE LIST.

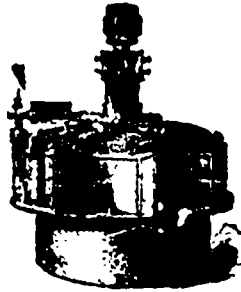
Beaudry's Upright Cushioned

POWER HAMMER

Simple, Practical, Low-priced, Entirely New Design.

—SEND FOR PRICES—
MILLER BROS. & MITCHELL.
(Sole Makers for Canada) - MONTREAL.

Can be seen at Permanent Exhibition, Toronto.



"NEW AMERICAN" WATER WHEEL

Perferred by mill experts as the VERY BEST.

Was selected for driving the large Keewatin Mill.

Will grind with Rolls over 2 bbls. tabled H. P.

E. P. CAVE, ROLLER MILL BUILDER THISTLETON, ONT., writes: "She is a daisy," and "I will not fail to recommend it to any one in want of a Water Wheel."

WM. KENNEDY & SONS, OWEN SOUND, ONT.
Manufacturers for Patents in Canada.

J. B. DUTTON'S

Patent Automatic Grain, Flour and Feed Scale.

Accurate and Reliable at all times. Will guarantee them to weigh as accurate as a Fairbanks or Howe Scale. Machines sent on 30 days' trial, subject to above guarantee. We make Scales ranging in capacity from 50 to 10,000 bushels per hour. Please send for circular and price list.

J. B. DUTTON, - Detroit, Mich.

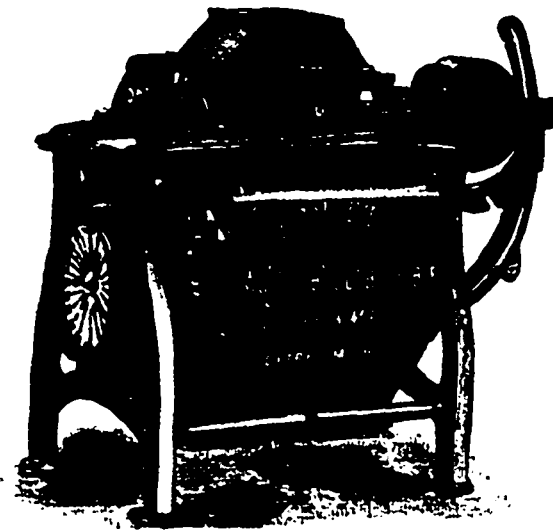
J. B. DUTTON, City.

DETROIT, MICH., Dec. 16, 1887.

DEAR SIR, - After a thorough test of your Automatic Scale placed in our Malt House on Oct. 16, 1887, we can say that it is a perfect success in weighing and registering grain. We weigh both Barley and Malt alternately. Malt being such a very difficult product to weigh through an automatic scale owing to many roots, we had doubts of the scale handling it successfully, but are pleased to state that it gives us first-class service in every respect, so much so, that we have discarded a Fairbank's Hopper Scale and use the Automatic in preference.

Yours very truly,

THE HOWARD & NORTHWOOD MALTING CO.
(Signed) Per Wm. Northwood, Sec.



To Mill Owners and Manufacturers.

USE

Phoenix :- Belt :- Oil,

THE ONLY PERFECT BELT DRESSING.

TO BE HAD ONLY OF

F. E. DIXON & CO,

— MANUFACTURERS OF —

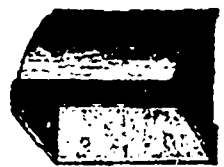
PAT. LAP-JOINT LEATHER BELTING STAR RIVET

Send for Price List and Circulars and our latest Pamphlet on Belting.

70 King St. E., Toronto.

FAVORITE

MILL BUCKETS



Manufacturer and Dealer,

JOHN RADIGAN,

68 Mary Street,

HAMILTON, ONT.

SEND FOR PRICES.

TORONTO BAG WORKS

JUTE AND COTTON BAGS

Manufactured in all sizes and qualities

NEW FACTORY ON BAY STREET now in full operation

THE ONLY FACTORY IN CANADA PRINTING JUTE AND COTTON BAGS IN THEIR OWN PREMISES.

ORIGINAL DESIGNS for Brands prepared FREE OF COST.

Send for Price List and Pamphlet, giving full information,

DICK, RIDOUT & CO., Proprietors,

11 & 13 FRONT STREET EAST,

TORONTO.



PUBLISHED MONTHLY,

BY

CHAS. H. MORTIMER,

Office, 31 King Street West,

TORONTO, - - ONTARIO.

ADVERTISEMENTS.

Advertising rates sent promptly upon application. Orders for advertising should reach this office not later than the 25th day of the month immediately preceding our date of issue.

Changes in advertisements will be made whenever desired, without cost to the advertiser, but to insure proper compliance with the instructions of the advertiser, requests for change should reach this office as early as the 22nd day of the month.

Special advertisements under the headings "For Sale," "For Rent," &c., if not exceeding five lines, 50 cents for one insertion, or 75 cents for two insertions. If over five lines, 10 cents per line extra. Cash must accompany all orders for advertisements of this class.

SUBSCRIPTIONS.

The DOMINION MECHANICAL AND MILLING NEWS will be mailed to subscribers in the Dominion, or in the United States, post free, for \$1.00 per annum, 50 cents for six months. Subscriptions must be paid strictly in advance.

The price of subscription may be remitted by currency, in registered letter, or by postal order payable to C. H. Mortimer. Money sent in unregistered letters must be at sender's risk. The sending of the paper may be considered as evidence that we received the money.

Subscriptions from all foreign countries, embraced in the General Postal Union will be accepted at \$1.25 per annum.

Subscribers may have the mailing address changed as often as desirable. When ordering change, always give the old as well as the new address. Failure upon the part of subscribers to receive their papers promptly and regularly should be notified at once to this office.

EDITOR'S ANNOUNCEMENTS.

Correspondence is invited upon all topics pertinent to the mechanical and milling industries.

This paper is in no manner identified with, or controlled by, any manufacturing or mill-furnishing business, nor will a bestowal or refusal of patronage influence its course in any degree. It seeks recognition and support from all who are interested in the material advancement of the Dominion as a manufacturing country, and will aim to faithfully record this advancement month by month.

Readers of the "MECHANICAL AND MILLING NEWS" will confer a favor upon the publisher and derive material benefit themselves by mentioning this paper when opening correspondence with advertisers. Drop us a postal card when you have written to an advertiser, give us his name, and then we will put you in the way of getting the benefit. Don't forget this.

THE editor of the New York *Lumber Trade Journal* will please accept our thanks for a copy of Gard's Log Book, a valuable little work which should find a place in the pocket of every lumberman.

THE standards of Manitoba wheat were lowered recently to correspond with those in operation at Duluth. We observe that the Minnesota State Warehouse Company have further reduced the grades in that State. We trust our Manitoba friends have no desire to continue to follow the example of the Northwestern States in this matter.

THE MECHANICAL AND MILLING NEWS is deeply indebted to the Canadian and American press for many notices of a commendatory character regarding our Exhibition Number for 1888. We beg to assure our journalistic brethren that we fully appreciate their kindly words of encouragement, and in turn wish them one and all long life and prosperity.

AN important decision was recently given by the United States Commissioner of Patents. It was held that "a patent must be refused—at least until the applicant practically demonstrates the operativeness of his device. In the opinion of the Commissioner, "invention consists in more than the work of the imagination, and the patent system was never designed to protect the chimerical schemes of visionaries."

THE Newfoundland delegates who were to visit Ottawa to confer with representatives of the Dominion concerning the annexation of Newfoundland to Canada, have not put in an appearance, and the whole scheme is said to have fallen through. We are sincerely glad to learn that such is the case. No advantage could result to the Dominion from taking Newfoundland into the Confederation. We have a vast unpeopled territory in the Northwest to settle and make productive before taking any steps to increase our territorial possessions, and as a matter of consequence, our expenditures.

NEW BRUNSWICK intends going into the Exhibition business next year. Already, it is said, preliminary arrangements are being made for holding an extensive exhibition at St. John. We see no reason why the enterprise should not succeed. If railway rates are made low enough, a number of our Ontario manufacturers will doubtless make it a point to be on hand with their productions, and an opportunity will be afforded the people of the east and west to become better acquainted.

THE millers of Canada, who are ever on the lookout for anything new pertaining to their business will not fail to notice the statements contained in the two page announcement of the Cochrane Roller Mill Supply Co., of Hamilton, which appears in another part of this paper. This company, which controls the right to manufacture the Cochrane patent roller mill, is now in a position to fill all orders. As regards the merits of the Cochrane mill, we need only refer the reader to the mass of testimony submitted by Canadian millers who have had an opportunity of testing it.

AN exchange chronicles the fact that "the other day the cylinder of the second hand engine in Birge & Lynett's new saw mill at Shiloh flew in all directions, completely demolishing the engine, but fortunately no one was injured. The firm seem to have a peck of troubles." In this brief paragraph we find the text for a lengthy sermon to purchasers of second hand steam engines and boilers, but we refrain. We have come to the conclusion that the man who tries to economize by buying worn-out second hand steam plant, as a general thing can only be made to realize his shortsightedness by an occurrence such as the one chronicled above. Such men always have their "peck of troubles"—and in most instances they have just what they deserve.

UNITED STATES trade journals are reproaching the Government of that country for squandering hundreds of thousands of dollars in public works of questionable utility except from a political standpoint, while refusing or neglecting to assist to open channels of communication with South America, where a valuable market awaits the manufacturers of the North. What the United States apparently needs more than anything else for this purpose is a commercial fleet of their own, in order that they may be able to trade direct with South America, instead of being dependent as at present on the ships of foreign nations. In the matter of ships Canada is in a much better position than the United States, and should use this legitimate advantage to her own profit. Lumber and agricultural implements are in special demand in South America, and these our manufacturers should be in as good position as the Americans to supply. Our Government and manufacturers should bear in mind that the advantage will lie with those who are first in the field.

THE electric light industry has in the past four or five years developed into one of great magnitude, the actual proportions of which on this continent are properly realized only by those who have studied the matter closely. America is far in advance of England, there being in England only about twenty central lighting stations as compared with 1,000 in the United States. It is estimated that in connection with these 1,000 stations there are burning 150,000 arc and 1,250,000 incandescent lights. The incandescent system of lighting is said to be growing more rapidly than the arc system. In Canada the electric light has rapidly sprung into favor. Not only are our cities illuminated by it, but our country towns, the streets of which a few years ago were wrapped in total darkness, or but feebly illuminated by means of coal oil lamps, are now ablaze with electricity. The change is indeed a marvellous one, and the rapidity with which it has been brought about is not its least surprising feature.

THE owners of coasting lumber vessels have become alarmed lest the success attending the Lig Joggins raft scheme should kill their business. They will accordingly petition the Government to prohibit by law any further experiments of the kind. They base their request upon the dangers to ocean navigation which would result from the wrecking of timber rafts. The *Lumber World* supplies another substantial reason why the Governments of the United States and Canada should legislate against a continuance of the rafting business. Our contemporary says:—"As the Joggins raft escaped the payment of heavy duties on imported material under the plea that the raft was to be a "ship," and as that plea seems to have been merely a thin pre-

tense, it is very probable that the Canadian laws will be altered to suit the case, and that the laws will not allow the elements to have another opportunity to wreck a Junbo raft. By all means let both American and Canadian laws be so amended that virtual smuggling can not be carried on openly under the noses and before the open eyes of the two communities. Let the laws be made to cover all possible technicalities in all possible cases."

ALL sorts of opinions have been expressed during the last few weeks regarding the amount of damage which the wheat crop in the Northwest has sustained by frost. The estimated percentage of loss has varied from 10 to 50 per cent. A Toronto newspaper accused certain grain dealers in this city of having circulated exaggerated reports concerning the damage done in the Northwest for the purpose of increasing their profits. The efforts made to substantiate this charge, however, were in our opinion not successful. On the contrary, the reports which have reached us from private and reliable sources, tend to substantiate the statements of the dealers in question. The evidence may now be considered to be nearly all in, and the result fixes the percentage of loss on this year's wheat crop in the Northwest at from 25 to 30 per cent. It is a cause of sincere regret to every Canadian that so much of the magnificent Northwest crop should have fallen a prey to the enemy of the prairie farmer, early frosts. There is notwithstanding much consolation in the fact, that owing to the abundance of the yield, and the firmness of the market, the Northwest will have as much wheat for export as last year, and at an advance of 25 per cent. in price. It is impossible, however, that such a fortuitous combination of circumstances should recur every year, and the farmers of the Northwest must seek out some method of overcoming this one difficulty imposed upon them by a climate which in many respects, is one of the finest in the world. The damage from early frosts has been very much greater in Dakota and some of the other Northwestern States than in our Canadian Northwest. As a field for immigration, therefore, Manitoba and the Canadian Northwest is to be preferred to the Northwestern States, especially when it is considered that the proportion of Manitoba grain saved is of superior quality and brings a better price than that grown in the States.

NOVA SCOTIA TIMBER LANDS.

THE successful arrival of the great raft of Spruce logs from Nova Scotia at the port of New York will, no doubt, give increased value to the lands situated on the shores of the Bay of Fundy, the timber from which can be delivered cheaply at the seaboard in such position as will admit of the construction of similar rafts. From \$1 to \$2 per acre has been about the value of ordinary Nova Scotia timber lands, which were prized merely for the wood which grew upon them.

The Spruce which grows in Nova Scotia is of a very strong and lasting character. It is Black Spruce, and for all purposes where strength and durability are concerned, is much superior to the White Spruce of the Upper Saint John. Nova Scotia Hemlock, which is an abundant wood and of which little has yet been exported, is of an excellent quality. This is especially true of the long, clean, and smooth White Hemlocks which are found growing near the banks of the river there. I have seen such trees in that province holding their size as well as any Spruce which I have ever seen, and attaining an equal height in proportion to the diameter at base.

That part of Nova Scotia which is productive of timber has commonly a soil of little value for farming purposes, being often but a mass of small boulders which have from time to time, in prehistoric ages, been carried down from the granite belt which, running in a north-easterly direction, extends the whole length of that province, forming a sort of backbone upon which the ancient gold bearing states of Nova Scotia, which cover an estimated area of 3,000 square miles, rest. The little soil which covers these states is ordinarily poor, and fire has destroyed much of the timber which grew upon this district, which had been remarkable for the quantity of wood which covered it.

Should the transportation of spruce logs from the provinces to the United States become a permanent business, there is no reason why the excellent hemlock of Nova Scotia should not be transported there in the same way. The same will apply to pulp wood of any kind. Hardwoods of various kinds and of excellent quality are found in great abundance in various parts of Nova Scotia contiguous to the sea, and there is also no reason why rafts of Spruce should not have a proportion of hardwood built up in them, so that the greater specific gravity of the latter wood should be counterbalanced by that of the much lighter Spruce.

PAGE

MISSING

PAGE

MISSING



THE CROP REPORTER.

W eyes wide open, and ears extended,
He dashed his way through the busy throng,
And proudly stepped on the west bound train,
Lynx-eyed was he, and with figures strong,
For he was a Crop Reporter.

And on he sped o'er prairies wide,
While he slept in Pullman's Palace car,
And slept and snored through all the ride,
Till the Conductor shouted, "Here we are!"
To this Crop Reporter.

And to the sun-browned farmers
Who met him at the train,
He spake in eager accents,
To learn the promise of their grain,
For he was a Crop Reporter.

"How is it with your labour?
How fares it with your fields?
Not of yourself alone, but tell me of your neighbour,
What is the outlook in your town, and of the promised yields?
For I am a Crop Reporter."

And quick they gathered round him,
Those sun-burned sons of toil,
And rehearsed in mournful measure
The well-worn tale of a stubborn soil,
For this verdant Crop Reporter.

"Oh! woe is surely our unhappy lot,
Of misfortune and toil we've had enough,
"Too wet, too dry, too cold, too hot."
With this and other kindred stuff,
They filled the Crop Reporter.

He drank it in, the poor sweet thing,
And they filled him to the brim,
And the little job was neatly done,
And they flattered, praised, and petted him,
For he was a Crop Reporter.

And back to the bustling city,
As fast as the train could bear him,
To the leading Bull, on the Board of Trade,
With a tale that sure would scare 'em,
There came this Crop Reporter.

And thus this costly expert spake
To the man who paid his hire,
Who had sent him forth in the blizzard's wake,
And in the path of the cyclone dire,
This lynx-eyed Crop Reporter.

"I have travelled far o'er hill and dale,
"Such wreck and ruin has met my sight;
"The crops are withered everywhere;
"The fields are smitten with a blight,"
Thus said the Crop Reporter.

And he gasped for breath as he shrieked the doom
Of the wild and reckless shorts,
And a deathly pallor spread o'er his truthful face,
And his voice sunk to spasmodic snorts,
And thus collapsed the Crop Reporter.

And they carried him out into the air,
And they thought he was really ill,
And they laid him down in the country fair,
And there he is lying, lying still,
For he is a Crop Reporter.

—Daily Business, Chicago

Roger S. Peas, of Minneapolis, will submit a proposition to the Port Arthur Council for aid in erecting extensive flouring mills there.

It has been estimated that Ontario will have 15,000,000 bushels of grain more than last year, and the value of grain will be much greater.

The Council of Belle River, Ont., has passed a by-law offering a bonus of \$1,000 to anyone who will erect a good flouring mill in that village.

We know of a miller who wants to rent a 50 barrel roller mill. Any one having such a mill for rent can obtain particulars at the office of this paper.

The Assiniboine Roller Mills at Moosomin, has had a spur track built connecting it with the C. P. R. main line, at a cost of one thousand dollars.

Mr. J. L. Spink, proprietor of the Spink Mills, Pickering, Ont., has built a new flume, put a new roof on his mill and made sundry other improvements.

Messrs. J. Martyn & Co., Aviston, Ont., have been placing some new machinery in their flour mill. They have also leased the grain elevator at Oil City.

Mr. N. Boswell, of Wyoming, Ont., has re-commenced operations in his Eureka oatmeal mill. Mr. Wallace, of London, Ont., has been re-engaged as head miller.

W. H. Hill, of the firm of Hill, Simpson & Co., has purchased from the Lambton Loan and Investment Co., the St. Clair grist mill, which has been idle for a long time.

The proprietors of the great Pillsbury mills at Minneapolis, have just divided up with their employees the profits of the last year's business amounting to about \$40,000.

Messrs. Smith & Brigham, the new proprietors of the Moosomin, N. W. T., mill, are putting in a new boiler and engine, and effecting other improvements calculated to ensure its successful operation.

The Northwest Farmer remarks upon the curious fact that in the new Manitoba wheat standards, no notice whatever is taken of color as a test of quality, although this is one of the first things a practical buyer thinks of.

The Secretary of the Winnipeg Grain Exchange has been instructed to write to the managers of the C. P. R., asking that the special privileges granted to owners of elevators located on the company's lines be done away with.

The cost of carrying a bushel of wheat from Chicago to New York in 1870 was: by lake and canal, 17.10 cent; by lake and rail, 22 cents; all rail, 33.3 cents. In 1887, by lake and canal, 8.21 cents; by lake and rail, 12 cents; all rail, 16.3 cents.

The mills owned by Harris & Co., of London, and operated by W. H. Summerfeldt & Son, at Port Ryerse, Ont., were destroyed by fire Sept. 27th. Messrs. Summerfeldt & Son will lose about \$2,500. The amount of insurance on building and plant is not known.

Mr. W. S. B. Lawrie, of the firm of Wm. & J. G. Greey, Toronto, was recently in the Northwest, and after inspecting thousands of acres of wheat, gives it as his opinion that the loss on account of frost will not exceed ten or fifteen per cent. on the value of the crop.

It is reported that Halifax has never been so short of flour as it is at present. All the imports have been anticipated and in most cases, placed before the freight notices reached the consignees. Quite a number of orders for shipment have had to be curtailed, only sufficient flour being available to ship portions of orders.

There is said to be 10 per cent. less flour in this year's English wheat than there was in the fine crop of last year, when 62 to 66 lb. per bushel wheat was a common thing. Millers will find this year's damp and unconditional wheat very difficult to work, and will consequently for some months to come have to depend more than usual upon foreign.

A grain-cleaning cylinder has been patented by Mr. Wm. P. Clifford, Ottumwa, Iowa. It consists of an upper and lower section, the former being of shorter radius, and forming longitudinal inlet and discharge openings, in combination with a heater, and other novel features, whereby the grain can be subjected to any required amount of cleaning.

At the annual meeting of shareholders of the Lake of the Woods Milling Company, held recently at Montreal, the capital stock was increased to \$500,000. The old Board of directors were re-elected, with Alexander Mitchell president, and John Mather vice-president. Tenders are being asked for six or seven elevators of 25,000 bushels capacity, and two of 40,000 bushels.

A few days since, says the Annapolis Spectator, the large milling establishment owned by S. P. Chute, of Berwick, became a total loss by fire. Besides two large buildings, Mr. Chute has lost two sets of carding machinery, one wool picker, three run of grist mill stones and smutter, shingle machine, two placers, cider mill, several circular saws and box machinery, and about 500 cases for the Aylesford canning factory. Mr. Chute's loss is estimated at about \$4,000; insured for \$400.

Thos. Bengough, Toronto, in an account of a recent visit to Glenora, Ont., one of the most picturesque spots in Ontario, writes as follows to the Canadian Advertiser: "The spot where we stood was in front of the stone mill at Glenora, five miles north-east of Huron, on the shore of the Bay of Quinte. The 'old stone mills' belonged to Sir John Macdonald's father over half a century ago, but no remnants remain of the old original buildings. The present mills are of stone, with all modern improvements. The proprietor is Mr. J. C. Wilson, who has resided there since 1847. The old flour mill and a turbine water wheel factory are run by the most wonderful water power in the country,—a turbine wheel only six inches in diameter, supplied from the lake 180 feet above. The gate of the power wheel is open only a half an inch, and yet turns the whole machinery of the mill. The wheel makes 2,400 revolutions per minute."

As compared with the corresponding period of 1887 there has

been a decline of 65 per cent. in the total quantity of American and Canadian grain shipped from Montreal from Jan. 1st last to date. Shipments of wheat via this route fell during the period indicated from 6,927,892 bus. to 1,644,798 bus. or 76 per cent. as compared with 1887. Shipments of peas dropped from 1,618,215 to 353,487 bus. or 78 per cent., while there have been no exports of oats and barley to record. On the other hand corn exports increased from 595,757 to 1,358,905 bus. or 128 per cent. Total grain shipments via the St. Lawrence route to date have only reached 3,357,128 bus. against 9,651,490 up to the corresponding date of 1887.

"The mill will never grind again with the water that is passed." Suppose it won't, my children, says the Chicago Tribune,—what of it? The mill will grind just as well with the water that is coming; and there is plenty of it on the way. Don't waste any sighs on the water that has done its duty, and is bubbling merrily on its way to rejoin the great waters. Don't drop any useless tears in the mill-tail. Go above the watergate if you must weep, and let your tears fall where they will do some good. Keep your eye on the dam, the mill race and machinery, my children. See that the wheel is kept free from obstructions, the mill itself in thorough repair and good working order, and then grind away hopefully and contentedly. What have you to do with the water that is passed? You may never be able to buy another package of peanuts, my children, with the identical nickel that you paid out for the one you are littering my floor with now, but what of that? Another nickel will do just as well, and the peanuts will taste as good while you are eating them. And yet, my children, is it true that the mill will never, never grind again with the water that is past? How do you know that some of that water, turned into vapor and condensed again into water, may not fall in the shape of rain into the stream that feeds your thundering old mill and help it to grind again? A great deal of the sentimental poetry of the period, my children, is only about eight carats fine when you come to test it.



The new Canadian Pacific elevator at Ft. William will have a 1,000 h. p. driving plant.

A number of the citizens of Winnipeg propose to construct a water power on the Assiniboine river.

An addition 166x34 feet, two stories high, will be made to the Wm. Hamilton Manufacturing Co.'s works at Peterborough, Ont.

An effort is being made at Quebec to erect and operate blast furnaces at St. Paul's Bay to work up the deposits of iron sand which are said to abound there.

The failure is announced of Bissett Bros., foundrymen and machinists, of Quebec. Liabilities, \$18,000; \$10,000 secured, and \$4,000 stock and book debts.

The two foundries, Bricker & Co., and Merner & Co., of Waterloo, and the Elmira foundry, have been amalgamated under the style, name and firm "The Waterloo Manufacturing Co."

At midnight on Sept. 25th fire destroyed a saw mill, machine and carpenter shop on Garden Island, near Kingston. Loss between \$15,000 and \$20,000; no insurance. The names of the owners have not come to hand.

The Seaforth foundry, owned and worked by Mr. Thos. Hendry, was completely destroyed by fire together, with most of the contents, on the morning of the 6th of September. The total loss is estimated at \$7,000 on which there is only \$1,500 insurance.

Messrs. Charles A. Schieren & Co., Boston, Mass. have patented and are about to manufacture a perforated belt, the object of which is to prevent air cushions in belts run at high speed. The perforations are made in a uniform manner and at equal distances apart over the entire surface of the belt, thus ensuring equal tension, and leaving the tensile strength uninjured. It is claimed that these belts run smoother, steadier and with less noise than the ordinary kind.

On opening a boiler much trouble is often experienced from the tearing of the manhole gaskets; this may be avoided by putting a little white lead on the face of the gasket that rests on the manhole plate and by chalking heavily the other face of the gasket, as also the part of the manhole frame with which it comes into contact. On subsequently opening the boiler the gasket will generally be found to adhere firmly to the plate, and to separate from the frame without tearing.

Judge Hodgett in a United States Court has rendered an important decision (in Gottfried v. Brewing Co., Fed. rep., 322) affecting the rights of those using patented machinery consisting of several parts with a patent covering the whole. He held that when a patent covers several parts of a complex mechanism, some of which wear out sooner than others, the owner has a right to replace those worn out from time to time without further payment for patent right. But that if in a complex mechanism a patent covers only part, the rest being unpatented, each renewal of the patented portion must pay patent right.

The Toronto Stationary Engineers' Association has decided to form a special school of instruction in practical engineering for its members. We wish the movement success.

Messrs. Klock Bros., of Klock's mills, on the Upper Ottawa, have purchased from Hon. J. G. Ross, of Quebec, 88 square miles of timber limits adjoining their limits on the Venue river. The price paid is said to have been \$50,000.

It is reported that not a stick of square white pine remains unsold in the hands of lumbermen at Quebec, Canada, all that is in port and all of this year's cut that is to arrive having passed into the hands of shippers—a condition of things never known at that market before.

Kanaranzi, Ont., wants a flour mill.

A 50,000 bushel elevator is being erected at Millarney, Man.

Ogilvie & Co. are about to erect an elevator at Port Arthur.

It is proposed to erect a large grain elevator at Lindsay, Ont.

The Winnipeg Grain Exchange is about to organize a Call Loan.

Mr. J. C. Shook, of Corbetton, Ont., is about to put up an elevator.

An elevator will be built at Medicine Hat, in the Northwest Territory.

An elevator of 325,000 bushels capacity is to be built at the mill at Kewatin.

Mr. E. W. H. Snider's mills, at St. Jacob's, Ont., have been closed down for repairs.

The Birtle Milling Co., of Birtle, Man., has been incorporated with a capital of \$15,000.

Mr. Leith's flouring mill at Coulson, Ont., has been rented by Mr. Joseph Fowler for a term of years.

Elevators are to be built at Ste. Jean Baptiste and St. Joseph, on the line of the Red River Valley railway.

A meeting will be held in this city, Oct. 1st, to select standards of grain for the season now about to open.

The Portage Milling Co. will erect two elevators, one at Burnside and the other probably at Griswold, Man.

The mills at Doon, Ont., formerly carried on by Snyder Bros., have been rented to Mr. Wisner, who is now running them.

THE MILLERS' VERDICT!

A REVOLUTION IN MILLING!

THE "COCHRANE" ONE BELT DRIVE CONTINUOUS TRAIN OF ROLLS

AN UNPARALLELED SUCCESS!

Less Power, with

Increased Output,

Less Attention,

More Middlings

NO SLIPPING BELTS •• STOCK IS MORE GRANULAR •• LESS EXPENSIVE TO KEEP UP

==READ==

WHAT ONE OF THE BEST MILLING FIRMS IN EASTERN
ONTARIO SAYS,

==AFTER==

FIFTEEN MONTHS

==TRIAL==

VALANCEY E. FULLER, ESQ.,
President COCHRANE MANUFACTURING CO.
HAMILTON, ONT.

PETERBOROUGH MILLS, ROLLER PROCESS.
— OFFICE OF —
Meldrum, Davidson & Co.,
Merchant Millers.

PETERBOROUGH, Sept. 20th, 1888.

Dear Sir, In reply to yours asking a report of how we were satisfied with the Cochrane Rolls placed in our mill by your firm, we would say that, after fifteen months trial, running night and day, we feel that we cannot speak too highly of them, either for light driving or in their operating on the grain in such a way as to get the very best results, financially or otherwise.

As you are aware, we have same roll surface and number of rolls as our former belted mill. Saving in power in Cochrane Mill, fully ONE THIRD, or an INCREASE IN OUTPUT, using same power, of FROM FORTY TO FIFTY BARRELS PER DAY. This has been clearly substantiated. Its advantage does not stop here, but through the uniformity in speed of both grinding rolls and feed rolls, together with the fact that there are no belts or anything else to put the rolls out of train, the WHOLE STOCK IS MORE GRANULAR and a much LARGER PERCENTAGE OF "MIDDINGS" is the result, which means a LARGER PERCENTAGE OF FIRST PATENT FLOUR. Any practical miller cannot help but be satisfied of this by examining into the merits of the two mills.

It is a MUCH LESS EXPENSIVE mill to keep up, from the fact that there are neither belts nor gears to keep up and repair, except the main driving belt and a pair of gears at the head end.

We are satisfied the mill HAS ADDED LARGELY TO OUR PROFITS since putting it in— which is the best recommendation we can offer—and consider that Mr. W. F. Cochrane deserves the thanks of the milling public for giving a new idea of such practical value to millers. Hoping you may be as successful as you deserve,

We are, yours truly,

MELDRUM, DAVIDSON & CO.

READ what one of the most successful millers of Western Ontario repeats:

The W. F. COCHRANE ROLLER MILL SUPPLY CO. [Limited.]
DUNDAS ONT.

INGERSOLL, Ont., 30th Sept., 1888.

Dear Sir, Yours to hand and noted. You ask what I think of my W. F. Cochrane Mill. I beg to say I know it is a grand success as to power, and also to uniformity of grind, fully all you could for it. My millers think they have a mill about fifty years ahead of the best. I cannot see how it could be any better. You can invite any one to come here and see a seven inch belt driving four-teen pairs of 24 inch rolls, and as close as a belt can be and stay on the pulleys. I am satisfied I could drive it with a four inch belt and make two hundred barrels of flour in twenty-four hours. We will take great pleasure in showing any one the mill that would like to see it at any time.

Yours respectfully,

WM. PARTLO.

Their verdict is supported by that of V. Denne, Newmarket, as it will be by all Millers who keep up with the times and order a Train of Cochrane Rolls from the sole licensees and manufacturers,

The W. F. Cochrane Roller Mill Supply Co. (Limited.)

ALSO MAKERS OF ALL CLASSES OF CHILLED ROLLS AND CALLENDERS USED IN GRAIN MILLS, RUBBER FACTORIES, PAPER MILLS, ROLLING MILLS.

VALANCEY E. FULLER, President; C. M. COUNSELL, Vice-President; Directors: W. F. COCHRANE, ROBT. THOMPSON, J. M. GIBSON, M.P.P., F. S. MALLOCH, of Hamilton; CHARLES RIORDAN, of Toronto.

EYE OPENERS

PETERBORO'

MELDRUM, DAVIDSON & CO.

Discarded their Rolls, have used Cochrane Rolls for 15 months, and have ordered another train for
225 BARRELS IN 24 HOURS.

PETERBORO'

THE DIXON ESTATE, from the successful operation of the Cochrane Rolls in the Meldrum Mills, to retain their tenant, had to cast aside their old rolls and have had shipped to them a train for
225 BARRELS PER 24 HOURS.

INGERSOLL

W. PARTLO

Discarded his Rolls and has put in a train of Rolls to make
200 BARRELS PER 24 HOURS.

INGERSOLL

JAMES SMITH,

unable to compete with Mr. Partlo's Cochrane Rolls, has had shipped to him a train to make
75 BARRELS.

NEWMARKET

V. DENNE, convinced that he could not afford to run his old Rolls when he could with the "Cochrane" one belt mill, with the same power, number and size of rolls, increase his output 50 per cent., has now in operation a
200 BARREL MILL from us.

GARVILLE

THOMAS COOK, alive to the importance of economy in milling, and saving of power, has had shipped to him a "Cochrane" train of Rolls to make
50 BARRELS IN 24 HOURS.

BEAVERTON

DOBSON & CAMPBELL

Have had shipped to them one of the neatest little trains made by us.

DELEWARE

JOHN ACKLAND

Would not be satisfied with any other than the "Cochrane" train of Rolls, and he will soon be happy, having ordered a train through R. Whitelaw, of Woodstock.

BLOOMFIELD

M. B. BURR

Has fallen into line and has ordered from us, through Messrs. Runciman Bros., a train to make
75 BARRELS IN 24 HOURS.

WHO WILL BE NEXT?

THE "COCHRANE" ONE BELT DRIVE CONTINUOUS TRAIN OF ROLLS IS AN ESTABLISHED SUCCESS.

Beware of Infringements!

While it is not our intention to pursue a "Dog in the Manger Policy," but will supply all millers who wish to adopt this system, our train of Rolls, whether they purchase from us direct or through other Mill Furnishers or Mill-wrights, inasmuch as we are the owners of all Patents in Canada and England covering the One Belt Drive Continuous Train of Rolls, we will protect our rights to the utmost limit the law allows.

MILLERS cannot afford to run the old style Roll of Mills, therefore

ORDER THE "COCHRANE" ROLL.

Either from your mill furnisher or

The W. F. Cochrane Roller Mill Supply Co.
DUNDAS, - ONTARIO.

THE HAGGENMACHER FLOUR DRESSER.

EUROPEAN millers are interested in the patent sorter and dresser invented in January, 1887, by Carl Haggenmacher, of Buda-Pesth. This machine has been erroneously called a "scalper," but it is really a dresser. At the recent convention of the National Association of British and Irish millers, Mr. Stringer, of Manchester, England, read a paper on the Haggenmacher dresser, in which he made strong claims for the machine. He said that there are 150 of these dressers in successful operation. He had studied it carefully in operation at Buda-Pesth. The capacity is "simply enormous." The material traveled very rapidly through the machine, and by the arrangement of laths the material before it leaves the sieves will travel over 120 feet of silk surface; that is, a particle of flour before it escapes undressed over the tail of the machine will have to travel a continuous distance of 120 feet, and not only so, but all the time being in close contact with the silk, and in the position and subjected to the rotary motion. If they placed a particle of the material at the head of the 120-foot run it would have gone out over the tail, if not small enough to go through the meshes, in a quarter of a minute. There were two sieves capable of taking any weight of material; and if they would imagine that on the two sieves there were twenty pounds of material, ten pounds on each, that would be discharged wholly every quarter of a minute. There are 240 quarter-minutes in an hour; and if they would assume some given quantity, they would see how immense was the capacity of the machine and thin the space the stuff must occupy on the silk.

Being asked to describe the machine, Mr. Stringer said that it is simply and solely a rotary machine with the addition of the simplest possible arrangement of laths. A lath was fixed longitudinally along the silk, and from that longitudinal lath there are little cross-laths, projecting $1\frac{1}{2}$ or 2 inches. The long laths, with the little ones attached to them, were placed at equal distances, or any distance that might be desired, longitudinally along the silk. Any number might be used. In practice eight of them were placed along a 4-foot width of silk. The action of the rotary machine simply made the material go up and down the sieve, nothing more. The wonder was that the millers themselves, who had been bothering their heads, some till they had grown gray, over the rotary machines, did not think of this expedient for making the material travel, it was so simple. They had been always in trouble and difficulty about dusting some of the material and they had put it on one machine after another until they thought they had reached the limit of dressing the material in one mill, and then they gave it up. Carl Haggenmacher yut on his laths, and the stuff walked up and down from head to tail, and back again as often as might be necessary, or he could start in the middle of the sieve, and it would go round, like an army round the walls of Troy. Start the material and the rotary motion did the rest. The laths were a fixture. Let any man make a longitudinal lath with little cross-laths, put them on a sieve and get the rotary motion, and he would see the material walk up and down, it could not go anywhere else. Haggenmacher did not reason it out. He invented the whole thing; he did not even know that there was such a thing as a rotary scalper running in England; he invented the whole thing anew, and the easiest thing of the whole for him to invent was the laths as a means of making the stuff travel. In fact he spent nearly the whole time in inventing and patenting the manner of driving the machine, until at last he arrived at the conclusion that our forefathers and all of us have arrived at, that the old way is the best.

Replying to a question whether the Haggenmacher machine could successfully treat both hard and soft wheats, both American spring and English, and also mixtures, Mr. Stringer said that he could only answer as to what he knew of his own knowledge. He did not know whether the machine would do English wheat or not. Every hearer was as capable of judging of that as he was. If they would imagine what an ordinary sieve 8 feet long would do and multiply it by 16, or even by 32, if necessary, and then imagine that all the time those laths were continually tossing the material about, and that the silk kept absolutely clean, they could form their own opinion as to whether or not it would dress any given material. If 120 feet or 200 feet were not enough they could run it for 400 feet; they might keep it on as long as they liked. In fact there was an unlimited power of dressing in the machines. They had taken care, in all the machines that were being put up, to give sufficient surface. He could state what they had actually been doing with the machine at Buda-Pesth. On one occasion he took two sacks of break meal flour from hard wheat, and if it dressed that he thought it would probably dress English flours. He ran the two sacks

for a quarter of an hour through a 14 or 15 silk, and it dressed it to perfection. He then took some low-grade flours—you have to go to Hungary to see low-grade flours—and redressed them with the same machine. They were so bad that if you threw them on the wall they would stick there. They were full of grease and had been ground in stones until every bit of life had been ground out of them. They were not dressed so rapidly as the other sample, but far better than they would have been in a centrifugal. He said to Haggenmacher one day: "Your machine is all very well for hard wheats, but you do not know our English wheat." "Well," he replied, "send over some and we will try it." They accordingly sent over some middlings from a Peterborough mill. Mr. Stringer did not see the trial, but he understood that Haggenmacher found no difficulty whatever in dressing them. On another occasion in order to test the machine on the product from damp wheat, he took a large watering-pot and thoroughly watered two tons of wheat pouring on the water until it ran away from the heap in streams. He came a few hours afterwards and watered it again, until Haggenmacher cried, "You'll wash it out of the place." They then put this damp wheat on the stones and had it ground down, and Haggenmacher's machine dressed it as easily as it had dressed the other. In fact, if they asked Haggenmacher what it would dress, he would say, "Any thing!" Well, he was the inventor of the machine. He (the speaker) did not answer for its dressing any thing. He did not answer for its dressing English what, but he believed it would. With regard to the wear of the silk, if those who were asking about that knew the action of the rotary sieve as compared with the reel, they could not possibly think it would wear out like the reel. The reason why the reel burst was principally because of the big weight on it, but the silk here could not be weighed heavily if the stuff was only a quarter to half an inch thick, as he proved it to be with a big feed running. The speed and the severity of the dressing were perfectly under control.

When asked whether the Haggenmacher sieve would be a practical substitute for the centrifugals as well as the reels, and whether it would take care of the flakes of pure material that are always to be found in the tailings, Mr. Stringer said that he was not aware that flattened material must be necessarily produced by roller grinding. He had done it, but he did it no more. The aim was not to flatten, but slightly to disintegrate, allowing the impure material to pass through unaltered. The difficulty was to get the machinery to do it. The right thing was not to form flakes, but if they were formed, no one taking a flake of flour between his fingers could imagine that they were going to make a centrifugal weighing a ton to break it up. One could break up the flakes much easier and at much less cost than by a centrifugal, and there would be no need to retain the centrifugal merely for that purpose. He was sure that if they had any difficulty with the machine on the score mentioned, they would get over it; but they would not use a ton-weight centrifugal to do it. Pass the feed between two little brushes half an inch wide, and that would give ample pressure to break up the flakes. There were details in the machine which he had not gone into, and there was a very simple way of breaking up the flakes with it. If the feed was loaded with flakes and a little Indian corn thrown in with it, the grains would run round with the feed, and by their weight grind out the flakes, as it were. They could put in what they liked, a paving-stone if they would, but the least thing was all that was required.

In reply to certain questions Mr. Stringer said he believed the Haggenmacher dresser would take the place of the centrifugal on any material that was at all impure. There was no intention whatever of asking any client to displace his centrifugal on his pure material; he did not think the benefit to be gained in quality would be worth the change. If they were putting up a new mill they might recommend the Haggenmacher dresser because of the saving in space, power and cost. If the material was pure, a centrifugal would do all that was required, but very few of the products of a roller mill were pure, and they expected that the scope of the new machine would be extended as they got experience. At present, they only intended using it where there was an amount of impure material on semolinas, middlings and tailings, and these it would dress very well indeed.

An English journal states that timber rafts on the Rhine are often fully as large and valuable as the monster American log raft, so much discussed of late. For instance, last month a raft went down the Rhine from Mayence to Holland which was 725 ft. long and 170 ft. broad. It carried a crew of 120 hands, housed in some dozen huts along the raft, and the timber was worth \$20,000.



The Manitoba Milling Co. has ordered a Cyclone dust collector from Inglis & Hunter.

G. S. Baldwin, Aurora, has placed his order with Inglis & Hunter for two Silver Creek flour bolts.

Inglis & Hunter are furnishing Purdy, Massel & Co., 53 Adelaide street, with a steel boiler, 48x12.

John Band, of Thorold, Ont., has ordered a Cyclone dust collector for purifier from Inglis & Hunter.

Wm. Kennedy & Son, Owen Sound, have placed an order with Inglis & Hunter for a steel boiler, 52x12.

Inglis & Hunter have an order from J. C. Wilson & Co., Montreal, for a 60 h. p. Corliss engine and boiler.

The Dominion Brewing Co., Toronto, have placed an order with Inglis & Hunter for two boilers of 60 h. p. each.

Inglis & Hunter are furnishing Runciman Bros. with five "Cyclones" for the Otonabee Mills, Peterboro', Ont.

Hunt Bros., of London, Ont., have ordered a Cyclone dust collector for purifier from Inglis & Hunter, of this city.

The Dominion Safety Boiler Co., Montreal, have placed their order with Inglis & Hunter for seven boilers, 100 h. p. each.

Wm. Jelly, of Shelburne, Ont., has placed his order with Inglis & Hunter for one steel boiler 60 inches in diameter and 14 feet long.

S. Jonasson, Winnipeg, has placed his order with Inglis & Hunter, of this city, for a pair of engines and boilers for the steamer "Aurora."

Campbell, Stevens & Co., of Chatham, Ont., have placed an order with Inglis & Hunter for eight Cyclone Dust Collectors for their purifiers and wheat cleaners.

Hay & Patton have about completed the changes in their mill at New Lowell, Ont. The equipment of the mill was furnished by Inglis & Hunter, of this city.

Messrs. Inglis & Hunter are building a 400 h. p. compound condensing engine, with boiler, &c., for the C. P. R. company's large new elevator at Fort William, Ont.

R. S. Williams & Sons, piano manufacturers, Toronto, have placed an order for a 65 h. p. Corliss engine and boiler for their new factory at Oshawa, with Inglis & Hunter, Toronto.

Messrs. Bingham & Webber, Toronto, make a specialty of printing manufacturers' fine catalogues. The attention of manufacturers is called to their advertisement appearing in this paper.

W. Bensley, of Warkworth, Ont., has placed his order with Inglis & Hunter for rolls, Silver Creek flour bolts, Richmond grain cleaner and all necessary supplies to change his mill to the short system.

We lately had the pleasure of inspecting exceedingly handsome catalogues printed by Messrs. Bingham & Webber, this city, for the Smart Manufacturing Co., Brockville; the Dominion Organ Co., Bowmanville, and the Toronto Silver Plate Co.

Robert Davies, Dominion Brewery, Toronto, has ordered from Inglis & Hunter one No. 6 Richmond elevator separator for cleaning barley, with a capacity of 1,000 bushels per hour, also Avery steel elevator buckets and Caldwell conveyor for his new elevator.

Messrs. Wm. & J. G. Greey, of the Toronto Millfurnishing Works, seldom neglect to supply some new information to the milling fraternity through the medium of this journal each month, but for once they find themselves so pressed with business as to be compelled to leave over a change of advertisement until next month.

Sells Bros., of Frankford, Ont., finding that they had to improve their mill to keep up with the times, decided on adopting the short system, and have placed their order with Inglis & Hunter to change their rolls to "Case" frame, and will throw out all the Hexagon reels and replace them with Silver Creek flour bolts.

The Ottawa Journal states that the Emery Lumber Company, of Bay City, Mich., turned out about 15,008,000 feet of saw-logs from its limits on the French River, in Ontario. In that year it also constructed a monster boat with a capacity of 3,000,000 feet of logs, the object being to convey the logs cut on the Canadian limits to the extensive saw mills at Bay City. After these 15,000,000 logs were ready for shipment the Canadian Government placed a duty of \$2 a standard on all logs exported from Canada to the United States. The company could not ship the logs, which after lying a short time on the shores of the lake were sawn at Midland into lumber. This summer the Shepherd & Morse Lumber Company purchased the entire stock, and is now shipping it through Canada and the United States in bond for Buenos Ayres, South America, and Sidney, Australia.

The Lumber World says:—The legislature of the Province of Quebec, Canada, has abandoned the policy of maintaining timber reserves and passed an act permitting settlers to locate on any land that is adapted to cultivation. The lumbermen, who have leased these forest reserves from the Government at high prices, with the understanding that the reserves were not to be thrown open to settlers until all timber over twelve inches at the butt was cut off, are indignant at the action of the legislature. The new law lets in settlers, but provides that, when a settler locates, he can cut within two and a half years clear only ten acres for his own use, while the lumberman holding the lease may cut the lumber from the lot taken or located. This provision will tend to rush the Quebec lumber to the markets, as the lumbermen will consider that even low prices will be better than no prices for them. The thirty-month limit will make the Quebec choppers and loggers busy, if not prosperous.

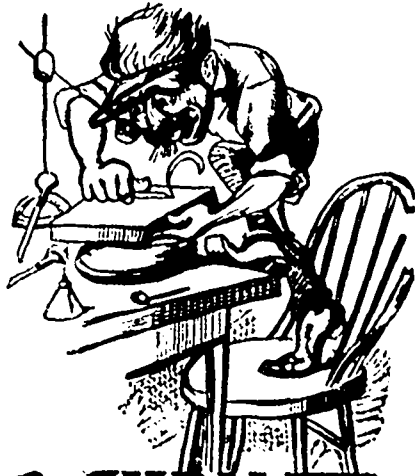
LONDON MACHINE TOOL CO.,

LONDON, - ONTARIO,

MANUFACTURERS OF

Machinist-:-and-:-Brass-:-Finishers'-:-Tools.

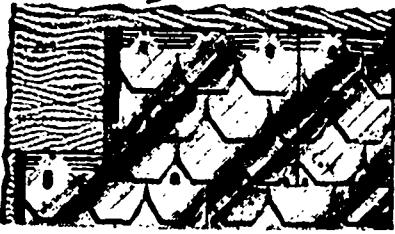
L. A. MORRISON, with A. R. WILLIAMS, General Agents, TORONTO, ONT.



W. J. KRAMER

FINE *
WOOD ENGRAVERS
21 MELINDA ST TORONTO

Metallic Shingles and Siding



Fire and Storm Proof.

SEND FOR CIRCULAR.

METALLIC ROOFING CO.,

TORONTO, ONT.

THE "DANDY."



Time saved and profanity sensibly diminished in every mill, store and barn where the "DANDY" PATENT HAGHOLDER goes into use. Suits any kind of bag, without bother of adjusting. It will last a lifetime and only costs 75 cents. Sold through agents. Sample (free by express or mail) on receipt of price.



C. W. ALLEN & CO.

"World" Building.

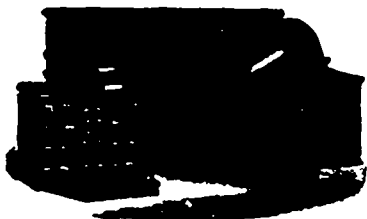
MELINDA ST. - TORONTO

WHOLESALE AGENTS—For the Province of Quebec, Wm. Ewing & Co., seed merchants, Montreal; for the Northwest, J. H. Ashdown, Winnipeg; for the Maritime Provinces, H. F. Coombs, St. John, N. B.

W. Stahlschmidt & Co.

MANUFACTURERS OF

Office, § School,



Church and Lodge

FURNITURE

Preston, - Ontario.

SEND FOR CATALOGUE.

GEO. F. BOSTWICK,

Representative.

24 Front Street West, - Toronto

MACHINERY

FOR SALE.

LIST of Water Wheels for sale by H. W. PETRIE, Brantford and Toronto.

- ONE 60 inch Tyler.
- ONE 60 inch Scaler.
- ONE 48 inch Scaler.
- ONE 48 inch Lefell.
- ONE 48 inch Tyler, in Scroll case.
- ONE 45 inch improved Turbine Water Wheel.
- ONE pair of Sampson Turbine Wheels 42 inch, run together.
- ONE 42 inch Sampson Turbine.
- TWO 40 inch Lefells.
- ONE 32 inch Scaler.
- ONE 35 inch Lefell.
- ONE 33 inch Little Giant
- ONE 30 1/2 inch Lefell.
- ONE 30 inch Burnham.
- ONE 26 inch Lefell.
- ONE 24 inch Lefell.
- ONE 20 inch Lefell.
- ONE 17 1/2 inch Lefell.
- ONE 15 inch Archmedian in Globe Case.
- ONE 13 1/2 inch Lefell.
- ONE 12 inch Little Giant.
- ONE Water wheel Govern. r. Galt make.

FULL particulars regarding any of the above wheels sent on application. Address, H. W. PETRIE, Brantford.

JOSEPH HALL MACHINE WORKS,

Oshawa.

- Circular Saw Tables; Wood Turning Lathes; Morticing Lathes.
- Car Morticing Machine; Wood Benches; Wood Shapers.
- Large Surface and General Purpose Wood Planing Machines.
- Graining Machines; Tenoning Machines; Sand Belt Machine.
- Swing Sawing Machine; Testing Machines for Threshing Machines.
- Horizontal Boring Machines; Upright Boring Machines; Facing Machines.
- Iron Turning Lathes; Iron Column Drilling Machines.
- Iron Punching Machine; Punching and Shearing Machine.
- Key Seat Cutting Machines; Cutting and Shearing Machines.
- 22 Spindle Gang Drilling Machines; Power Shears.
- Large Iron Shaper, English make; Milling Machine.
- Schlenker Patent Bolt Cutting Machine.
- No. 6 Northey Steam Pump; Large heavy Tumbling Barrels.
- Steam Heater, 51 x 72 inches.
- Bradley Cushioned Trip Hammer; Iron Boring Lathe.
- Foundry 3-Legged Drop, 35 ft. high, 1200 pound Drop; 37 inch Gear Wheel.
- Steel Boiler, 68 x 168 inches.
- Horizontal Engine, Cylinder 18 x 36.
- Turret Head, Brown & Sharpe, Mill Screw Machine.
- Lefell Water Wheels; Portable Engines.
- Fairbanks Platform Scales; Steam Pipe and Fittings.
- Fire Extinguishers; Sand Blast for sharpening or cleaning Files.
- Belling; Shafting; Hangers; Pulleys; Couplings.
- Wrought Iron Heater for glue and Wood Circular Saws.

Joseph Hall Machine Works, Oshawa.
John Livingstone, Trustee.

ROSCOE B. WHEELER

PROCURER

PATENTS

FINNEY & WHEELER

Prosecute and Defend Patent Causes in U.S. Courts. PATENT BUSINESS EXCLUSIVELY. Opinions given on Questions of Infringement. Fees reasonable. Hand Book Free. ROOMS 9, 10, 11 No. 94 GRISWOLD ST., opp. P. O. DETROIT, MICH.

SMITH'S Mercantile and Land Reporting Agency.

BANKERS—DOMINION BANK.

General Solicitor, JNO. LEYS, Esq., Barrister, Toronto.

Secretary—JOHN SMILKY, M.A.

MANAGER—WILLIAM SMITH.

General Offices—18 Court St., Toronto, Ont. Telegraph Address—Agency, Toronto.

Having for its special objects the furnishing to subscribers of reliable information on the financial standing of otherwise of tradesmen and others, the collection of outstanding accounts, and the procuring of the most reliable information from independent sources of the value and condition of landed and other properties in any part of Canada and the United States with correspondents in Great Britain and other parts of Europe.

Our method of procuring for our subscribers the most reliable information is through Solicitors of the highest standing, and from other equally reliable sources in the several localities indicated, who are under contract with us to supply the necessary information promptly.

The Landed Enquiry Department of this Agency, the only institution of the kind known, is valuable to Solicitors, Loan, Investment, and Insurance Companies, Estate Agents, and others, preventing fraudulent land transactions resulting from misrepresentations.

The Department for the collection of outstanding accounts is conducted on an entire change of the system usually followed by Collecting Agencies, viz.: Subscribers may have their collections paid either direct to themselves, or to the offices of the Agency, in which latter case remittances will be deposited to an account provided for that purpose, and immediately remitted to the parties to whom it is due, and will not be applied to any other purpose.

Another important feature in connection with this Department is, that subscribers depositing accounts for collection will, if requested, be furnished with a Form of Script, on which will be entered the name of each debtor, the amount owing, and a full report of the prospects of collection, and provided that the receipts thereof be paid to bearer only, thus enabling subscribers to realize on their outstanding accounts.

The Agency will forward at least once in three months, or oftener if desired, a report and statement of all accounts in hand.

NOTE.—The offices of the Agency are open to the Solicitors and subscribers for reference to our numerous maps, atlases, directories, and correspondence, and for the transaction of business with their clients and customers when in Toronto.

W. SMITH, Manager.

R. J. McAUPLAN, MILLWRIGHT,

63 Marion Street, - Parkdale, Ont.

Plans for Flour Mills, long or short system, also for grain elevators, carefully prepared.

Correspondence solicited.

TO ADVERTISERS!

For a check for \$20 we will print a ten-line advertisement in One Million issues of leading American Newspapers and complete the work within ten days. This is at the rate of only one-fifth of a cent a line, for 1,000 circulation! The advertisement will appear in but a single issue of any paper, and consequently will be placed before One Million different newspaper purchasers; of Five Million readers, as it is true, as is sometimes stated, that every newspaper is looked at by five persons on an average. Ten lines will accommodate about 75 words. Address with copy of Ad. and check, or send 20 cents for Book of 25 pages. GEO. P. BOWELL & CO., 10 Broome St., New York.

We have just issued a new edition of our Book called "Newspaper Advertising." It has 200 pages, and among its contents may be named the following Lists and Catalogues of Newspapers:— DAILY NEWSPAPERS IN NEW YORK CITY, with their Advertising Rates. DAILY NEWSPAPERS IN CITIES HAVING MORE than 100,000 population, omitting all but the best. DAILY NEWSPAPERS IN CITIES HAVING MORE than 50,000 population, omitting all but the best. A SMALL LIST OF NEWSPAPERS IN which to advertise every section of the country; being a choice selection made up with great care, guided by long experience.

ONE NEWSPAPER IN A STATE. The best one for an advertiser to use if he will use but one. BARGAINS IN ADVERTISING IN DAILY News papers in many principal cities and towns, a List which offers peculiar inducements to some advertisers.

LARGEST CIRCULATION. A complete list of all American papers issuing regularly more than 25,000 copies.

THE BEST LIST OF LOCAL NEWSPAPERS, covering every town of over 5,000 population and every important county seat.

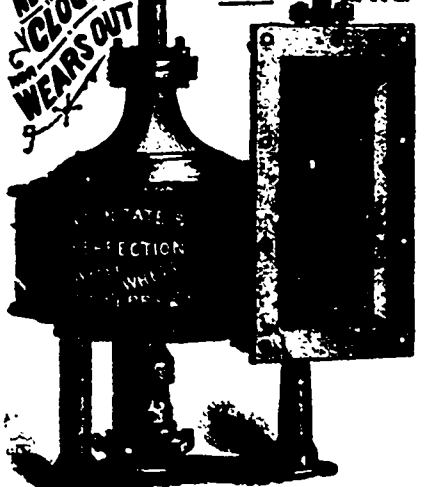
SELECT LIST OF LOCAL NEWSPAPERS, in which advertisements are inserted at half price.

612 VILLAGE NEWS PAPERS, in which advertisements are inserted for \$2.15 a line and appear in the whole lot—one-half of all the American Weeklies. Book sent to any address for THIRTY CENTS.



THE ONLY PERFECT WATER WHEEL.

SEND FOR FULL OR PART CIRCULARS AT THE GATE



KAY ELECTRIC CO.

MANUFACTURERS OF

ELECTRIC MACHINES

Of All Kinds.

Arc and Incandescent DYNAMOS and LAMPS.

ELECTRIC MOTORS, PLATING MACHINES, ANNUNCIATORS, CALL BELLS, MEDICAL BATTERIES, ETC.

Cor. Bay & McNab Sts., HAMILTON, - ONTARIO.

Send for circulars and price list.

Victoria Wire Mills.

ESTABLISHED 1859.



Perforated Sheet Metals,

Steel and Iron Wire Cloth, WIRE GUARDS FOR MILL WINDOWS, ETC.

B. Greening & Co., HAMILTON, ONT.

Send for Catalogue, mentioning your requirements.

SHORT SYSTEM MILLING EXPLAINED IN DETAIL.

MANY people honestly enquire, says R. James Abernathy, in the *Merchant Miller and Manufacturer*, what is short system milling? What does it mean, and wherein does it differ from other, and especially the elongated system?

Many more who are at heart opposed to the innovation, and in favor of perpetuating the burden imposed by the Hungarian imitators in this country, put the same question—not so much for information—for that they are not anxious, but rather for the purpose of confusing the public mind in relation to the matter.

There are some most excellent reasons for the enquiry because many real, genuine and honest supporters of the short system, ambitious to be especially identified with the advancement of that method of milling, have called it by various names, such as the "reformed system," "medium system," the "short-break system," etc., etc. All are aiming at the same general result of simplifying and reducing the cost of milling plants, but working under different names.

Simply expressed it means that—

Details differ somewhat, but no more than in other methods, the chief end, though, is the same with all. It can, however, be truthfully said that when more than three reductions on wheat are used, the short system limit has been passed, and must be styled either an elongated or a mongrel mill.

The elongated or gradual reduction system of milling, from the great number of reductions made on the wheat; so also does the short system derive its name. Very few elongated experts would be willing to recognize a four-break as a general reduction mill; neither are short system experts willing to accept it as a short system mill; hence it must be a mongrel.

A short system mill is one that does not make more than three breaks on wheat, and may have but one break, of which there are already a number of such small custom mills, which assume substantially the same relation to the largest merchant mills as formerly, before gradual reduction milling was thought of.

The custom mill of old was less elaborate than the merchant mill, and did not contain as much machinery, but with a good miller and a good joint of good wheat a very nice and satisfactory flour could always be depended upon by the expectant customer. He might have carried home a little more flour in his bran than the merchant miller would have permitted, but he did not care, as the richer the bran the more beef and pork it would make when fed to cattle and hogs. That is what the grist customer must expect with one break mills. His flour will be good enough in quality, and whatever he may lose in quantity, he must figure to get back by an increase in product of beef and pork, or increased muscular force to his team of horses, mules or oxen. There might be a question as to whether it was at all times profitable to feed flour in any shape, to stock, but it would have to be solved by the customer and grist mill owner. Careful milling would reduce the waste to a minimum even with a one break mill, and there are certainly many small country mills, especially in the older States, the business of which at its very best would not warrant any more elaborate or expensive system than that which is so highly recommended by the one-break wing of the short system family. There are two classes belonging to the three-break division of the short system movement. One of them demands a first or wheat splitting and crease dirt removing break, the theory being that there lies hidden in the crease of the wheat berry a quantity of dirt that must be removed before clear and white flour can be made. Some of the elongated experts also adhere to the same theory and use wheat-splitting operations for the purpose of getting rid of the dirt. However, so far as is known to the writer, no substantial benefit has ever been traced directly to the crease dirt removing device, no matter what it may have been. On the contrary, some millers have claimed that injury resulted from that kind of device, which seems probable for the reason that the exposed flour in broken wheat necessarily becomes impregnated with dirt while rolling around in the scalping reel with the scourings which the break machine has rubbed off the wheat. After flour has mingled with dirt it is very difficult to separate it again. After the crease dirt removing operation is completed, the wheat, on the second break, is reduced very low, and is finished on the third break or the bran rolls. Beyond the crease dirt removing devices, the methods of that class of the three break divisions are more in harmony with the observations and practice of the writer than the other. The second class using three breaks will, with the view of making middlings, that being the tail end of the imitated Hungarian System, be the last to slip through the

hands, after which the imitation will have entirely disappeared.

These are of course some of the most substantial business reasons why the tail end idea of Hungarian methods should be still adhered to by sound and practical business men. The Hungarians and their American imitators have been very active and energetic workers in the years that have gone by, and had, therefore, created a very strong public sentiment in favor of their method, or rather of the flour made by that method. There was a time when a great deal of money was made by that kind of milling on both continents, but happily for the best interest of the milling industry, has gone by, and it is not likely to ever return for the reason that the fashion is again changing and a much finer and more evenly granulated flour is gradually taking the place of the coarse and irregularly granulated flour, made by both the genuine and imitation Hungarian methods. Still, while as said, the fashion is changing, and coarse flour is gradually being replaced by fine, there is yet a fair sized public sentiment in favor of the coarse stuff, and therefore, those catering to that sentiment are obliged to mill with the view of making coarse middlings flour, *etc.* the business reasons for a three-break system based on the middlings making plan of milling. Men in business avocations are not as a rule makers of public opinion, but caterers to it, and so long as there is a demand for that kind of flour there will be a faction of short system adherents prepared to build and operate mills for that purpose, and that is correct, too. When the fashion changes absolutely then they will change to suit the fashion. The people who advocate and operate the middlings making end of the short system took kindly to the principles of short system milling and adapted themselves to it at once, and they will take just as kindly to fine and evenly granulated flour making when the time comes for them to do it.

While the three-breaks middlings short system method is the most complicated of all, it has, nevertheless, greatly simplified and reduced the cost of milling plants as compared to the elongated methods in vogue a little more than two years ago. So much so, that one of the mill furnishing journals recently hypothecated the shortest kind of an elongated system, a fine break mill, to compare with a three break middlings making system, so as to make as fair a comparative showing for the elongated system as it was possible to do. It is needless to say if the house owning the journal referred to, builds five break elongated mills, they have come to it very recently, and is an evidence that they too are on the down grade from their lofty perch on the pinnacle of the high mast of elongated mill building to the lowly, more simple and common sense plan of mill building and flour making.

The writer is opposed to the middlings making theory in milling as being of foreign birth and lacking true American instincts, and therefore, belongs to the two-break school of short system advocates. But even though he did not and was a believer in the middlings making theory, he would still adhere to two breaks, because with corrugations and differential to suit from 80 to 84 per cent. of middlings can be made, which is more than any three break or elongated mill makes. The two break short system mill is not for middlings but for flour. The ultimate object of all is for flour, but the difference is we get right down to business from the start, but the others get at it in a round-about way on the principle that the longest way around is the nearest way home in sleighing time. It is a harmless deception practiced by the mill building business, only as said they are catering to a partially existing sentiment and are obliged to do it.

Viewing the situation from a standpoint of reason, I can see no possible advantage in making flour in a roundabout way, unless it can be demonstrated that such a process adds to the flour bread making qualities, which it does not possess inherently, and so far as is known, no one sets up such a claim. It however, can be demonstrated that a finely and evenly granulated flour will make bread of greater vitality than the coarse and uneven flour will. That being true, is so much in favor of the two break get-right-down-to-business way of making flour. We know the color is all right, know that it cannot be excelled by any other method of milling. Then why is it not the proper way to do it in all respects? What is the use in whipping the devil around the stump when you can walk right up to him, plant one between his eyes and lay him out stiff, stark and cold?

Can any elongated expert answer that? The two-break mill requires a smaller line of machinery all the way through than a three-break middlings making mill, and by comparison an elongated expert could not make so favorable a showing for his system even though he selected the shortest elongated mill allowed by the code

to make the comparison with. The two-break method appeals directly to the common sense and intelligence of any unprejudiced mind.

LEVELING WATER POWERS.

WE have known men who were contemplating the building of a mill, or milldam, or canal, to go many miles to get a millwright to level the site, or to lend them a spirit level, and give them some instruction to enable them to level and determine the amount of head that could be had, or the height of dam, bank or building. Now such levels can be taken from the surface of still water more accurately than by any spirit level and by the following process: Take two poles of sufficient length to reach from the bottom of the water to the height of the required line of level, measure these poles or laths from the upper end down to the length intended to stand above the water, and make a plain notch or mark upon both sticks at this point, by laying both together, to insure perfect equality of height. These may be marked in feet and inches, for convenience in showing, or in varying the line of. Now point or sharpen the lower end of the poles, and stick them down through the water into the earth at the level surface of the water, taking care to have them stand plumb, and in the right lines, and at convenient distance apart; then sight across the top of these two and set a third, and fourth, or any number required to run the line of level to the desired point, ranging the tops accurately by the first two; and tops of these poles will show a water level so many feet above that of the water from which it is taken.

If the poles are all measured from the top end, and marked, each one will show at a glance the relative height of the ground on which it stands, whether above or below that of the water. Another advantage in having them measured and marked is that when running the line of level downstream, it can be dropped (lowered) to any of the marks below, whenever the height of poles becomes inconvenient, the number of feet dropped each time being noted and counted in the final result. It will be easily seen that when the line becomes inconveniently low, as in running it up stream, it may be raised in the same way, the amount of rise above the original line being accounted for. It is obvious that by shifting the position of one or both of these poles in the water, the line of level may be run in any other direction, and equally so, that as the poles from which the level is taken may be any number of feet apart, or as many rods, not exceeding the range of accurate vision, a more exact level is obtained in this way than can be taken by an ordinary spirit level.

SIMPLE TESTS FOR WATER.

BOILER-USERS who desire simple tests for the water they are using will find the following compilation of tests both useful and valuable:

Test for Hard or Soft Water.—Dissolve a small piece of good soap in alcohol. Let a few drops of the solution fall into a glass of the water. If it turns milky, it is hard water; if it remains clear it is soft water.

Test for Earthy Matters or Alkali.—Take litmus-paper dipped in vinegar, and if on immersion the paper returns to its true shade, the water does not contain earthy matter or alkali. If a few drops of syrup be added to a water containing an earthy matter, it will turn green.

Test for Carbonic Acid.—Take equal parts of water and clear lime water. If combined or free carbonic acid is present, a precipitate is seen, to which if a few drops of muriatic acid be added, effervescence commences.

Test for Magnesia.—Boil the water to a twentieth part of its weight and then drop a few grains of neutral carbonate of ammonia into a glass of it, and a few drops of phosphate of soda. If magnesia is present it will fall to the bottom.

Test for Iron.—Boil a little nut-gall and add to the water. If it turns gray or slate-black, iron is present. Second: Dissolve a little prussiate of potash, and if iron is present it will turn blue.

Test for Lime.—Into a glass of water put two drops of oxalic acid blow upon it. If it gets milky lime is present.

Test for Acid.—Take a piece of litmus paper. If it turns red there must be acid. If it precipitates on adding lime-water, it is carbonic acid. If a blue sugar paper is turned red, it is a mineral acid.

Test for Copper.—If present it will turn a bright polished steel a copper color. Second: A few drops of ammonia will turn it blue if copper is present.

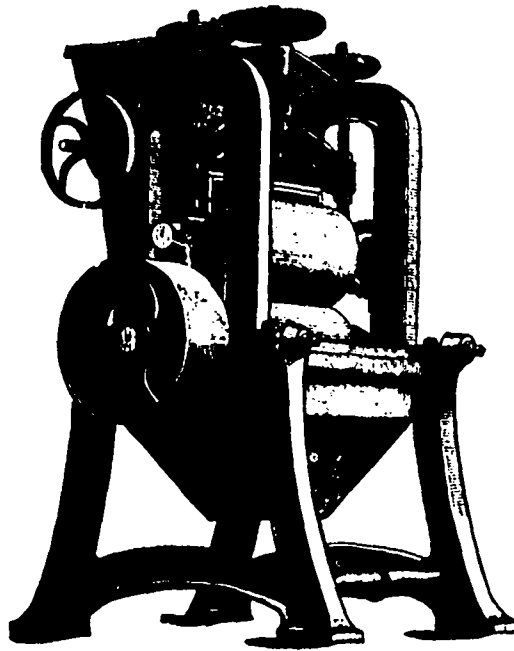
Messrs. Hutton & Carr, of Wingham, Ont., instead of rebuilding their flour mills, recently destroyed by fire, will overhaul and renovate the Upper Town mill, putting in the roller process.

JONES' -:- SHORT -:- SYSTEM

THE LATEST AND BEST

FOR MERCHANT AND CUSTOM MILLS.

JONES' SHORT SYSTEM FOR CUSTOM MILLS.



In our Short System of milling we are using new and improved methods of bolting and purifying which are our own inventions.

Our Purifier and Aspirator combined is the best machine we know of for the proper handling of middlings.

The middlings are graded before the blast is applied to them, each grade treated separately on the same machine.

Our Bolting and Scalping Reels are round, running at a slow motion, the cloth being covered the whole length of the reel, no matter how slow the bolt is fed. This we consider one of the most important points in the manufacture of flour.

Old style reels can be changed to this same principle, producing the same results.

Millers who desire to improve their flour would do well to look into the merits of these machines before purchasing.

Is the simplest and best in the market. The results are equal to any long system, and the cost less. Grist can be ground as brought in if desired, and can be handled as conveniently as if ground in mill stones. One Roller Disc machine, two corrugated rolls, one smooth roll one stone roll, one bran duster, two flour-dressers and one purifier, with proper cleaning machinery and elevators, is all the machinery necessary in this system to make a straight grade of flour equal to the straight grades made in any long system.

CAPACITY—50 Barrels per Day from Fall Wheat.

A STONE ROLL FOR PURIFIED MIDLINGS.

There is nothing better than our Stone Roll for purified middlings or middlings that are fine and soft. On this class of work one machine will do the work of two sets of 9 x 24 iron rolls, and do it better. It is by the use of this roll on middlings in our system that we produce flour that when made into bread will retain its moisture much longer than flour made entirely on iron rolls. By the use of this roll in stock above mentioned, all objections to roller flour which arises from lack of moisture in the bread will be removed, and the sweet and pleasant taste will be preserved.

For further particulars, apply to **JAMES JONES & SON,**
THOROLD, ONT.

UNEXCELLED!

UNEQUALED!

UNRIVALED!

THE HERCULES Automatic Wheat Scourer and Separator

**THE ONLY WHEAT SCOURER
EVER AWARDED A GOLD MEDAL.**

**THE ONLY AUTOMATIC WHEAT SCOURER
EVER INVENTED.**

THE ONLY WHEAT SCOURER
That Needs No Attention Whatever.

THE HANDSOMEST AND MOST DURABLE MACHINE ON THE MARKET.

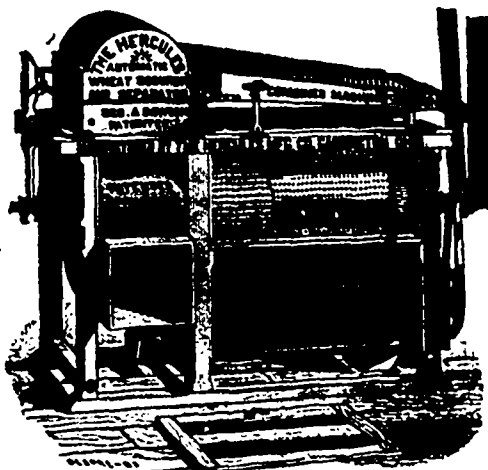
DUSTLESS

THE HERCULES

— HAS THE —
MAGNETIC ATTACHMENT

— FOR REMOVING —
METALLIC SUBSTANCES.

NO EXTRA CHARGE FOR SAME.



FIREPROOF

THE HERCULES

— IS —
WARRANTED

*To Improve the Color of the Flour
in any Mill.*

IT WILL REMOVE
FOUR TIMES MORE FUZZ

THAN
ANY OTHER WHEAT SCOURER

WE ARE NOW READY, AFTER EXHAUSTIVE TESTS, TO PLACE UPON THE MARKET.
**THE HERCULES DUSTLESS RECEIVING SEPARATOR,
THE HERCULES AUTOMATIC BUCKWHEAT SCOURER,
THE HERCULES AUTOMATIC CORN SCOURER.**

SATISFACTION GIVEN OR NO PAY.

Write for Circulars, Prices and Guarantee on all the above machines. Address

THE HERCULES MFG. COMPANY,
PETROLIA - ONTARIO.

**T
H
E
H
E
R
C
U
L
E
S**



W. H. Carpenter, Fort William, is offering his saw mill for sale.

Mr. D. Miller has purchased Robinson's shingle mill at Washago, Ont.

Bowlby, Malcolm & Co., saw mill operators, Laurencetown, N. S., have assigned.

Mr. Craighead's shingle mill at Midland, Ont., was burned on the 7th September.

A new saw mill is being constructed for Dimsmore & Sons at the Union coal mines, B. C.

Some of the saw mills in the vicinity of Orillia are already shutting down for the winter.

A saw 50 feet in length with 480 teeth is being put into the new Keene mills at Penetanguishene.

Messrs. J. & J. Kerr's planing mill at Petrolia was totally destroyed by fire a few nights ago.

Prominent Michigan lumbermen are exploring the timber limits to the north of Calgary, N. W. T.

The saw mill owners at Vancouver, B. C., recently advanced the price of the principal kinds of lumber.

W. A. Hungerford's mill at Glen Lewis, Ont., was destroyed by fire recently. Loss \$2,700; no insurance.

It is feared that owing to the low water in the Severn River many of the mills will have to shut down.

Messrs. John Ross & Co., of Quebec, will offer for sale at Ottawa on Oct. 3rd, 720 square miles of timber limits.

W. H. Thistle & Co., Pembroke, Ont., have put in a large steam pump in connection with their large saw mill there.

Band saws 60 feet in length have taken the place of circulars in Edwards & Co.'s large saw mills at Rockland, Ottawa Co.

F. W. Beckman's lumber mill at Beaver Bank, N. S., was destroyed by fire recently, together with a large quantity of lumber.

The Royal City Planing Mills Co., of New Westminster, B. C., have an order from Sir John Lester Kaye for 2,000,000 feet of lumber.

Mr. H. White, of Pembroke, Ont., has sold his 50 square miles of limits on the Ronlogue, to Messrs. Conroy & Thompson for \$36,000.

Mr. Wm. Orr, of Shelburne, Ont., is calling for tenders for a new saw mill to be erected on the site of the mill recently destroyed by fire.

Ottawa advices state that active preparations for logging have begun, and several firms have crews already cutting for next spring's drive.

W. J. Keely's saw mill on the Nottawasaga river, Townline, between Vespra and Fios, was burned recently, and all the stock, being the whole year's cut consumed.

The shipment of deals to Europe from New Brunswick during the first seven months of the year amounted to 114,000,000 feet, against 82,000,000 same date last year.

The first mill on the west coast of Vancouver Island will be erected by A. Broder & Co., of Morrisburg, Ont., who have purchased a large tract of timber land on Albern Canal, B. C.

Ottawa lumber yards are overcrowded and the mills will probably have to cease operations much earlier than usual owing to the impossibility of getting ships to export the lumber to Great Britain.

Difficulty is being experienced in getting down the log drives on the Upper Ottawa. There is danger that the drives may have to winter over at the Long Sault, in which case many mills would be short of stocks.

The valuable steam saw mill at Black Brook, on the Cape North road, C. B., was destroyed by fire on the morning of Sept. 19th. The machinery is completely ruined, together with twenty thousand feet of lumber.

A jam of logs sufficient to make from twelve to fifteen million feet of lumber, has occurred at Grand Falls, N. B., and resist all attempts to move it. The owners will probably have to wait for the assistance of the spring freshets.

About one third more lumber was imported into the British market from Canada during the past six months of 1888, than during the same period last year. The value of the imports this year is £408,150. The only country whose exports exceed ours is Russia.

The effects of the disastrous Central Bank failure are still observable. The failure of the Michael's Bay Lumber Co., a week or so ago, was due to its dealings with the Central Bank. The company has obtained an extension of time in which to wipe out its liability.

A British Columbia paper says: This is the veritable land of the giants of the forest, and one of the first things that strikes strangers is the enormous size of the trees. But in spite of their exclamations of wonder very few of them really comprehend how large the trees really are. A stick of timber was cut the other day at the Hastings Mill which was 106 feet long and 24 inches square. There were sawed out of the log 12,000 feet of cedar lumber weighing 30 tons.

The amount of sawn lumber shipped from Ottawa this season is estimated as follows:—J. H. Booth, 30,000,000 feet; Perley & Batter, 10,000,000 feet; E. B. Eddy, 20,000,000 feet; Hamilton Bros, 15,000,000 feet, and other firms about 8,000,000 feet. Several millions of feet will be cut yet before the end of the season.

The *Northwestern Lumberman* says:—A democratic government official is reported to have gone to Ontario to investigate the effect which the passage of the Mills bill would have upon lumber and timber prices in Canada, and to have come out strongly against the bill. He lately labored in the house to explain the situation. He was convinced that the expected passage of the bill had boomed lumber limits immensely, and quoted a newspaper statement that R. Hardman & Co., Ottawa, had given an option to the L. B. Eddy Manufacturing Company of their Mississippi limits at \$325,000, which would be a profit of \$75,000 for holding them three years. A refusal was given for six weeks to allow for the passage of the bill. If it did not pass, then the limits, inferentially, would not be desired. Other option had been offered at largely advanced prices, in anticipation of a great benefit, leading to the conclusion that the free lumber clause would not cheapen lumber to the consumer, as the advocates of the measure supposed.

A STEAM WATER-WHEEL.

THE efficiency of water turbines has been brought to such a very high degree of perfection that it is not to be wondered at that inventors should turn their attention to this machine, with the hope that this efficiency may be obtained by the use of steam as well as water. Although no practical success has yet rewarded their efforts, we must say that the engine we describe seems to be a step in the right direction, although not yet carried as far as is possible. The use of steam in a turbine is certainly a material departure from the practice of the day, which is to obtain work from steam by means of variations in its pressure, and does not consider the velocity of the steam at all in the problem. The reasoning of those who have experimented with steam turbines has been this. The water has pressure due to its head, and so has the steam head, due to its pressure, and if a turbine were placed to oppose the flow of steam, the force of the steam would be given up to the wheel. A turbine was to be used of such character that when the steam left the wheel the velocity of the steam shall be reduced to the utmost extent. This was using steam by reaction, instead of by pressure. This is not new, however, because as long ago as 130 years before Christ, Hero of Alexandria, built a steam engine upon this principle, but this invention is the more remarkable when we consider that within a few years, practically, this same engine has been introduced and sold as an economical steam engine. We refer to the Avery engine, which was proved to be as economical as a slide valve engine, and yet was almost identical with that invented by Hero over 2000 years ago. But while steam has "head," due to its pressure, it is lacking in the other property of water, weight, consequently the velocity of its flow is something enormous compared with that of water, and herein lies the whole difficulty. The power of a steam turbine depends upon its speed, and as this is, in the most successful one on the market, between 15,000 and 18,000 revolutions per minute, its utility for ordinary purposes, it will be readily seen, is very slight, since by the time its speed was reduced to that in ordinary use its power would be materially impaired by friction. So, gradually, these steam turbines have been abandoned except one lately designed in England, but which is only recommended for running dynamos. The parallel-flow type of wheel was the one adopted, and forty-five of these wheels lie on each side of the central steam inlet and are mounted on a single shaft. The steam as it passes through each turbine gives up pressure and enlarges its volume four per cent. less blade area than that of its neighbor. The steam enters as 70 pounds pressure, passes through the first turbine, and is reduced about three pounds in pressure, and so through each of the forty-five, being reduced in pressure in each until it exhausts at 15 pounds absolute. This engine is reported to have an efficiency of 72 per cent. of the total mechanical energy of the steam, but as its speed is 18,000 revolutions per minute its value is limited despite its efficiency.

The practical failure, then of these engines lies in the fact that steam does not have weight enough to be used for work. The next step, then, it to give the steam weight in some way. We have the pressure, now density is wanted, and in the engine referred to this is done by adding water to the steam. In this way the speed of turbine can be reduced. The steam will flow at a rate due to its pressure, but if it was one-half water, the pressure of the steam would be utilized, but the flow of the combined steam and water would be only one-half as fast as the steam alone, and if we could add water until no steam was present the flow would be of a velocity equal to water alone of, for instance, 120 feet head, and one turbine would give as much power but at a greatly reduced speed. What was desired was to give weight to the steam and this could be done by having very wet steam, or use dry steam, and set a body of water in motion, as is done in the injector. The steam

gives up its energy to the water and the water has not only this energy but a greater density than steam in converting this energy into work. In this case, then, we have what was missing to run a turbine with steam as the prime motive agent. To repeat, then, in the pressure of the steam we have what corresponds to the height of the fall which supplies the water for power and in the water we have the weight. The pressure in the boiler is capable of moving a certain amount, and the heavier the weight of the liquid moved the slower will be its velocity due to the force applied. No more power can be obtained from the steam than it contains, and the object of adding water, or giving weight to the steam, is simply to reduce the speed in the use of an engine of this character.

This engine does not represent the perfection to which the principle can be carried, but only proves the possibility of such. An engine of this description can be designed and mounted upon the shaft of a dynamo and take up no more room than an ordinary pulley, and run at very high speed, and what is equally important without the slightest variation in speed, which in the ordinary engine produces the flicker so much condemned in electric lighting. The action of the engine referred to is as follows: Steam enters from the boiler at a convenient pressure through the pipe, and thence into an ejector, which is of such character as will allow a large volume of water to enter it. The steam coming in contact with the cold water in the ejector is condensed, but though it has changed its outward form the motion of its particles is retained, but in a less degree in proportion to the difference in density between the steam and the form it assumes. The steam then is condensed but gives up its motion to the water which passes onward, through a small turbine, driving it exactly as though it was water under a certain head. The water, it will be remembered, is under pressure, but after it passes through the wheel the energy has been given up to the wheel, re-evaporation takes place and the steam enters a separator where the water is eliminated. The steam passes out of the top of the separator through the exhaust pipe, while the water returns through the drip to be used over again in the ejector. The more entrained water there is in the steam the better, because in passing through the turbine so many times some of the water must necessarily be carried off in the exhaust, and the entrained water supplies the deficiency which might otherwise have to be supplied from other sources. Once the circuit is filled but little water is necessary to keep it so, as it will be noted that it is being used over and over again. The machine, while it has demonstrated its practicability, is really yet in an experimental stage, as the goal the inventors have undertaken to reach is that of reducing the speed still further, at least to one-tenth the speed it is run by water, and so bring it down to a very ordinary speed with high efficiency, or to retain the speed of the wheel due to the velocity of the water, but to greatly reduce the space the engine occupies, so that, for instance, it can be placed on a dynamo in the cab of a locomotive and take up a space hardly appreciable to generate electricity for lighting the train or for the head light. We will, of course, keep our readers fully posted as to the progress made from time on this machine.—*Boston Journal of Commerce.*

CARE IN SELECTING STOCK.

A great many mill owners are not near so cautious as they should be in the selection of stock for making flour. Many of them, not being practical millers, do not understand the importance of it and consequently frequently place their millers in very awkward positions. If a miller is making a run with hard dry wheat, for instance, and without warning or previous preparation the wheat is changed to a soft and damp variety, he is in a muddle before he knows it. If a proprietor is taking in wheat in small lots of different varieties and conditions and dumps them altogether in one main bin, trouble is sure to ensue. The miller does not live who can do even and satisfactory work under such conditions. Different kinds and conditions of wheat should be kept separate when received, and if it be found necessary to mix before grinding do it afterwards in a systematic way, under the guidance and supervision of the miller, who ought to be the best judge how such things should be done and, if not, is not the man for the place.—*Modern Miller.*

The *Winnipeg Commercial* has entered upon the seventh year of its existence, and having weathered the hardest times in the history of the Northwest, sees a long and prosperous career ahead. The *Commercial* is an ably conducted journal, and has our best wishes for success.

THE "CASE" SHORT SYSTEM OF MILLING.

INGLIS & HUNTER,

Sole Licensed Manufacturers of the following list of FLOUR MILL MACHINERY:

The "Case" Celebrated Roller Mill, with Vibratory Feed.

The "Case" Cornmeal System.

The "Case" Inter-Elevator Bolt as applied to the Hexagon Reel.

"Aug Heine" Silver Creek Flour Bolt.

"Aug Heine" Silver Creek Centrifugal.

"Morse" Cyclone Dust Collector, for all purposes.

We caution millers and others to look out for infringements on the above class of machinery, as we are fully protected by broad patents on all these machines.

We are now prepared to give special attention to changing HEXAGON REELS TO THE "CASE" INTER-ELEVATING SYSTEM reducing the number of breaks, increasing the capacity, and dispensing with a large amount of machinery, thereby producing much better results in every respect, with LESS POWER.

MILL FURNISHINGS OF ALL DESCRIPTIONS,

"BODMER" BOLTING CLOTH,

"AVERY" STEEL ELEVATOR BUCKETS,

COTTON, RUBBER AND LEATHER BELTING,

WHEAT CLEANERS AND SEPARATORS.

Sole Agents for the RICHMOND MFG. CO., of Lockport, N. Y., for their

Grain Cleaners and Elevator Separators,

Mill Irons of all descriptions, Corliss Engines, Boilers, Marine Engines and Boilers, Compound, Condensing and High Pressure.

Estimates given for building new and also for changing over old mills to the most approved and advanced method now known.

Correspondence solicited.

ROLLS GROUND AND CORRUGATED.

❖ INGLIS & HUNTER, ❖ ENGINEERS, ETC.

No. 6 Strachan Avenue, - TORONTO.

Hurford Reels and Scalpers are furnished in one, two, and four reel chests, 6 feet, 8 feet, 10 feet, 12 feet and 14 feet lengths.

Are also extensively used to replace six sided reels in old chests, doubling the capacity and greatly improving the quality.

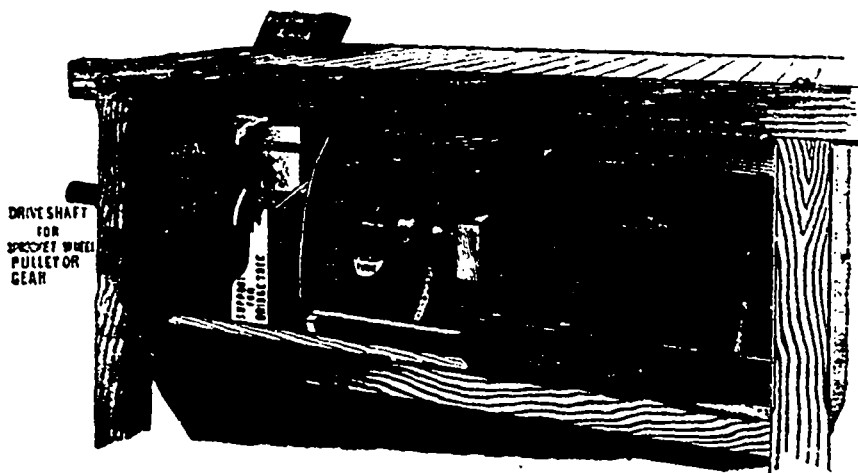
No change of driving gear necessary.

Pillsbury has 30 Hurford Reels doing the work of 60 six sided reels in the "A" mill at Minneapolis.

We contract for mills complete on our improved system of rolls and bolting, and guarantee the same the best in Canada.

THE HURFORD BOLT AND SCALPER

The only Round Reel with inside brush,
and no Round Reel will do satisfactory work without it.



❖ RUNCIMAN BROS. ❖

Mill Builders and Mill Furnishers

— SOLE MANUFACTURERS FOR THE DOMINION OF CANADA OF THE —

HURFORD BOLT

AND AGENTS FOR THE

COCHRANE - ROLLER - MILL.

OFFICES: 20 & 22 MAIN ST. EAST, HAMILTON.

In a recent test of the most approved modern round reels, made at the Galaxy mill in Minneapolis under the exclusive auspices of the proprietors of the mill, the Hurford Reel scored an unqualified victory, showing more than double the capacity and far better results than any of its competitors.

We have made arrangements with the manufacturers of the Cochrane Roller Mill Supply Co. as special agents for the sale of their train roller mills. Parties wishing information as to purchase will do well to write us for prices and other information.

THE GUTTA PERCHA & RUBBER MFG. CO.

OF TORONTO.

Office and Warehouse:
43 YONGE ST., TORONTO, ONT.

Factories:
121 TO 155 WEST LODGE AVE.,
PARKDALE, ONT.

ORIGINAL MANUFACTURERS

PATENT PRESSED AND STRETCHED DOUBLE STRIP RUBBER BELTING

"MONARCH,"

"RED STRIP,"

"LION"

BRANDS OF

RUBBER BELTING.



"MALTESE CROSS,"
(Carbolized Rubber)

"BAKER FABRIC,"
(Cotton Rubber Lined)

"AJAX,"
(Cotton)

BRANDS OF

FIRE HOSE

THE BEST IN THE WORLD.

ALSO MANUFACTURERS OF RUBBER CLOTHING, CARRIAGE CLOTHS, ORGAN CLOTHS, ETC.

— ADDRESS ALL COMMUNICATIONS TO —

THE GUTTA PERCHA & RUBBER MFG. CO. OF TORONTO, - 43 YONGE ST., TORONTO.
THE ONLY RUBBER FACTORY IN ONTARIO.

NORTHEY & CO.'S

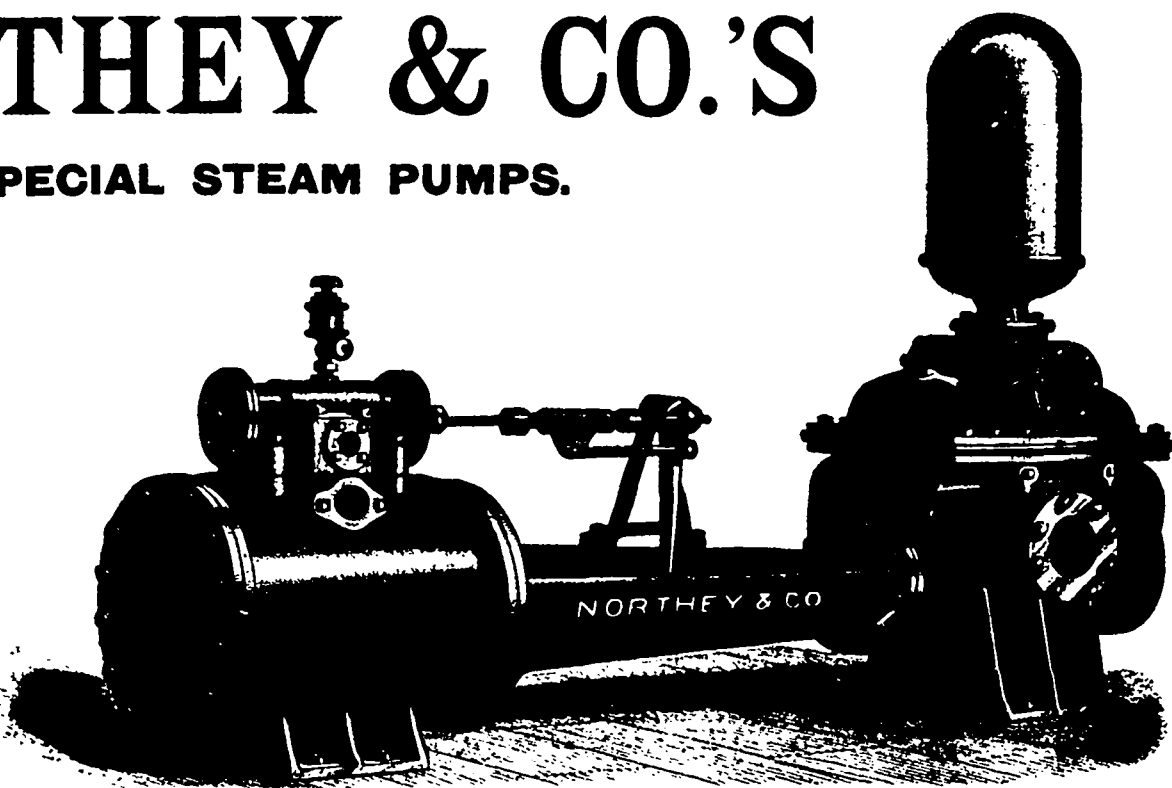
SPECIAL STEAM PUMPS.

PUMPS

FOR
BOILER FEEDING,
FIRE PROTECTION,
WATER SUPPLY,
MINING USE, ETC.
Single and Duplex
STEAM and WATER POWER
PUMPS

For all kinds of service.

These Pumps are of the latest and best design, the result of long and valuable experience in the Canadian pump trade.



Independent
AIR PUMP
Condensers

FOR ATTACHING TO
— High Pressure —

STEAM ENGINES,
MARINE
AND
STATIONARY.

GREAT ECONOMY
In FUEL and POWER
GUARANTEED.

Prices and particulars on application.

NORTHEY & CO., - TORONTO, ONT.

Office and Works: Cor. Front and Parliament Sts.

THE BALL ELECTRIC LIGHT

ELECTRIC LIGHTING APPARATUS
TORONTO

STAR ENGRAVING CO.
177 Adelaide St. Toronto

WOOD ENGRAVING
TORONTO LITHOGRAPHING CO.

J.R. COLLINS
MILLERS BRANDS
STENCILS OF every description
11 KING ST. W. TORONTO

SHAVINGS AND SAWDUST
PRACTICAL FOR PRACTICAL BY A PRACTICAL
BOOK MEN MAN.
treats of the care, operation, designing and construction of wood-working machines. Substantially bound in cloth: 150 pages; illustrated. Price, \$1.50 by mail, postpaid. Address, C. H. MORTIMER, 31 King St. West, Toronto, Ont.

PARKIN & CO.,
GALT FILE WORKS

(ESTABLISHED 1870.)

Manufacturers of all kinds of files and rasps. All descriptions of re-cutting done promptly. Terms and discounts given on application. Address GALT, ONT.