

DOMINION MECHANICAL & MILLING NEWS

DEVOTED ESPECIALLY TO THE INTERESTS OF OWNERS AND OPERATORS OF

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

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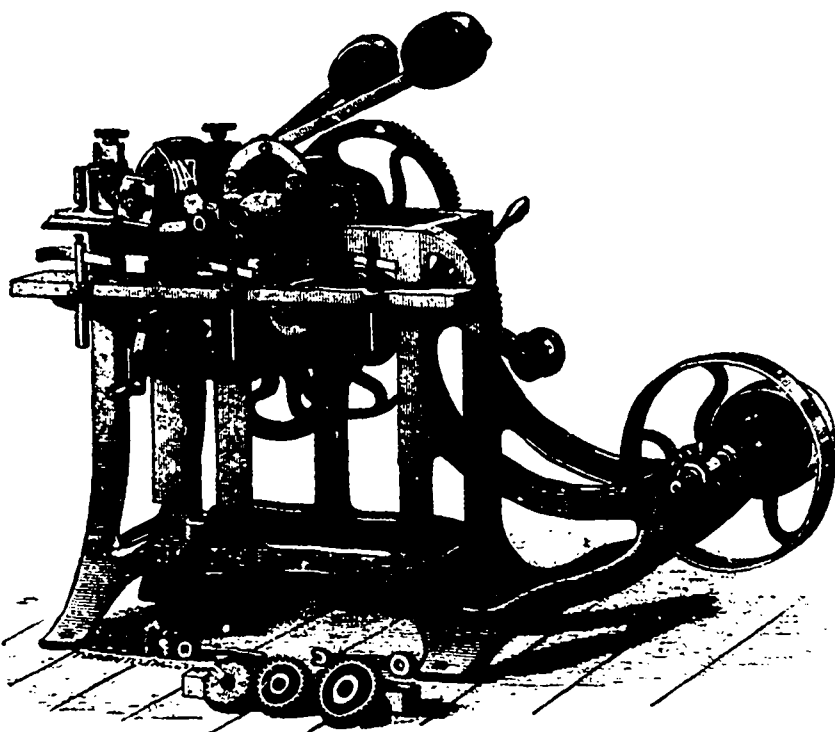
NEW IMPROVED SIX INCH MOULDER.

WE present on this page an illustration of an improved six inch moulder or sticker, in the construction of which some new features have been introduced. The frame is so constructed as to give solidity to the working parts, and good long belts. The table is raised and lowered by a handle in front and drops 15 inches, which will be found convenient for sticking bases or other wide stuff. The head is brass, slotted on all four sides, so that any kind of bits or knives can be used. The mandrel is of steel, running in boxes lined with babbit. The frame which carries the head is moved across the table by means of a screw, enabling the operator to adjust all the parts from the front of the machine. The feed rolls form a new departure in moulding machines, there being only one shaft across the machine, and the rolls are geared close to the inside of the frame nearest to the table. The rolls are carried in yokes and weighted in the centre, insuring a parallel lift at all times. The roll in the table is geared with expansion gear, giving good strong feed when the table is at the lowest point, as well as on thinner stock. The machine has four changes of feed for working hard or soft wood. The hood or top pressure bar in front of head can be thrown over, giving free access to the head for changing or setting cutters, etc. The pressure behind the head is adjustable to any kind of stock, either bevel or square. Driving pulleys, 8½ inches diameter by 3¼ inches face. Speed, 850 revolutions per minute. The manufacturers are Messrs. Goldie & McCulloch, Galt, Ont.

MANITOBA VS. DAKOTA.

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.—MECHANICAL AND MILLING NEWS. "Naturally the frost did more damage in Dakota than in Manitoba, for one very plain reason, namely, that there was more wheat in Dakota than in Manitoba to be frozen. On equal areas in the two sections there was about four times as much wheat in Dakota as in Manitoba. You acknowledge a damage of from 20 to 30 per cent. in Manitoba and you will be forced to acknowledge a still greater loss when the truth can no longer be concealed. Therefore it does not by any manner of means follow that, because a frost in August found four or five times as much wheat in Dakota to freeze as it found in Manitoba, "the Canadian Northwest is to be preferred to the Northwestern States." Nor do we believe it probable that the Manitoba wheat is any better or brings any better price than the Dakota wheat, which the British millers unanimously agree in pronouncing 'the best wheat grown in the world.' Tell the truth about your frost. The concealment can do nothing but harm. In one breath you say the frost has done only a trifling damage, and in the next you urge the Manitoba farmers to diversify their crops and so make themselves comparatively independent of the early frosts. But don't try to exalt Manitoba at the expense of Dakota. The facts and achievements in the two sections

are all in favor of Dakota.—*Milling World*. Our contemporary appears not to have caught our meaning in the quoted extract. Perhaps we did not make it sufficiently clear. We desired to express the opinion that the proportion of loss, comparing acre with acre of wheat land on either side of the boundary, was greater in Dakota and Minnesota than in Manitoba. Is our contemporary prepared to prove the contrary? Furthermore, our estimate of 20 to 30 per cent. of loss on the Manitoba crop, thus far at least, appears not to have been below the mark. As to the relative quality and value of Manitoba and Dakota wheat, we refer our contemporary and our readers to the Liverpool market quotations. No. 1 hard Manitoba wheat there holds first position. Our contemporary's boast that "the facts and



NEW IMPROVED SIX INCH MOULDER.

achievements in the two sections are all in favor of Dakota," is rather off-set by the statement found in another of its columns, that "the frost, smut, blight and bugs (that) wiped out 30,000,000 to 50,000,000 bushels of wheat in Dakota and Minnesota." All of which goes to show that the "facts and achievements" concerning the Northwestern States are not of such an encouraging character that the immigrant should long to reside there.

SHORT SYSTEM MILLING.

MAKING flour is a very practical business, with which there is but little beauty, poetry or sentiment connected; none in fact, except in whatever portion the writers on the subject may see proper to enshrine it. It matters not whether the method employed or treated be on the gradual or short-system plan, the details, the practice itself, are cold and dry, and that thought brings the writer to consideration of the detailed practical workings of the short system, or at least a part of it. As has been stated, the short system of flour-making differs materially from the gradual-reduction system in the number of breaks made on the wheat. In this country the number of breaks in accepted and established gradual-reduction methods ranged from six to eight, with an upward tendency, prior to two years ago. One well-known American milling engineer had previously predicted that ten breaks would ultimately be the

standard. Whether he still adheres to that view or not is unknown; the presumption is he is willing to accept six. In order to arrive at a fair conclusion as to the reason why so many breaks were used and more advocated, we will have time to consider the effect of the system on the flour.

The gradual-reduction system was and is injurious to the color of the break-flour on account of the many treatments of the bran with corrugated rolls and wire scalpings. Each treatment or reduction wore off a part of the bran in the form of a fine floury powder that became inseparably mixed with the flour made at the same time. The supposed remedy for the evil was by many thought to be to reduce the quantity of break-flour by increasing the number of breaks and also the

middlings output. The method of handling middlings was well understood; they could be thoroughly purified and cleaned and made into first-class flour. While it may have been possible to reduce the break-flour output by increasing the number of wheat-breaks, it is quite evident the break-flour would have been in poorer condition on account of the decreased quantity of flour and increased quantity of dirt occasioned by the extra breaks and actions on the bran, and would therefore have required a larger amount of the middlings-flour to bring it up in color, consequently nothing would have been gained in favor of the entire flour output, while there was a chance for a loss in color and condition. Clear-headed men not interested in the advancement of the flour-mill-machinery-making interest could easily discern the drift of the matter and concluded the direction was wrong. Logic suggested the idea that if white and clear break-flour, which ought always to be the whitest product of the mill, can not be made by the gradual-reduction method, then why can it not be made by reversing the method? That view of the situation was all the more logical because it was

well-known that the middlings could be just as well taken care of and just as good flour made of them without reference to the quantity. A small quantity of middlings could be just as well purified, as well treated in every way and converted into just as good flour as a large quantity could.

The query then very naturally presented itself, why not reduce the number of breaks and mill to make more break-flour and fewer middlings? By doing that the quantity of fine bran-dirt would be largely reduced actually, and still more relatively. That is to say, a smaller quantity of dirt would be distributed through a larger quantity of break-flour, which would leave it much whiter than before, while the middlings-flour would remain substantially the same in color and condition, thus greatly improving the whole product. That was the germ-thought of the short-system, and whether it originally occurred as a thought or an accidental experience, it matters nothing. On that logic it was based, and on that rock founded. To make the system effective, to make it fully realize the anticipation of its projectors, new reducing or grinding conditions had to be introduced. Among them the wheat was required to be exceedingly well cleaned, a matter considered of not so much importance in gradual-reduction milling, although it should have been. Also the wheat required to be even tempered; if too dry and harsh and brittle, artificial means for toughening and tempering it were demanded.

Also different surfaces were required for grinding, and a greater differential in the speeds of the grinding surfaces was found necessary. Those necessities were not all discovered at once; but once started in the right direction, as is always the case, necessity became the mother of invention.

As has been said, the wheat must be first considered and put in proper shape for good flour-making, both as to temper and condition of cleanliness. The tempering is done either by wetting, steaming or heating. In high and dry climates the wheat must be dampened by either steam or water or both. In moist climates heat only is required in cold or during dry spells of weather. The rolls for the first and main break must be corrugated eighteen to the inch, and made very dull; and the differential must be as one to five; or run the slow roll, it nine inches in diameter, 100 revolutions per minute and the fast roll 500. Those speeds can be somewhat exceeded if output demands, but it is better not much to exceed that speed. Nine-inch rolls should always be used for the breaks. With the dull corrugations and wide differentials, we do not cut, but draw out the bran in wide flakes and at the same time granulate the flour. In that way the flour is separated from the bran clear and in good condition. From the roll it goes to a scalper covered with number 24 or 26 wire. The wire is fine and presents but little scouring action further to wear the bran, as is the case with the early breaks in a gradual-reduction mill. By the action of the rolls the bran has been mostly relieved from its load of flour and is, therefore, very light and floats lightly in the scalper.

The finer portions, that do so much to injure the break-flour in gradual-reduction mills, that may have been detached from the bran by the action of the roll, in a large measure cling to it, because of their natural affinity, and further because there is not severity enough in the action of the scalper to separate them, and float out of the tail of the scalper along with the coarse bran. The product of the first scalper, less the tailing, passes into another scalper covered with number nine silk at the head and numbers two to four silk at the tail. All the flour product, with the very fine middlings, is sifted through the number nine silk; the medium middlings through the coarse cloth at the tail of the reel; and the coarse or germ middlings passes out over the tail of the reel. That is the initial step in short-system milling, and there the whitest flour is made, whiter than any other product in any system of milling, the same kind of wheat being used in all.—*Leffel's Mechanical News.*

LUMBER FREIGHTS.

An Injustice Affecting Ontario Lumbermen, which should be Righted.

MEMBERS of the Ontario Lumbermen's Association, whose headquarters are in this city, are loudly complaining of the treatment which they are receiving at the hands of the Grand Trunk and Canadian Pacific Railway Companies in the matter of freights. A representative of the MECHANICAL AND MILLING NEWS recently set out to investigate the matter, and was not long in finding out that these complaints are well founded. The injustice of which the lumbermen complain arises out of the fact that a correct system of shipping lumber is not in vogue on the railways. While lumber is bought and sold by foot measurement, the freight charges upon it are supposed to be based upon its weight. This being the case, it is at once apparent that facilities should be provided by the railway companies for ascertaining the exact weight of every cargo at the point of shipment, and again at the point of destination. Instead of adopting a system of this kind, the railway companies shipping clerk at the point of shipment, when a car of lumber is to be shipped, walks out and looks at it, guesses that its weight will be about so much, and proceeds to make out his shipping bill accordingly. These shipping clerks are said to have the peculiar faculty of always estimating high, so that when the consignee gets his lumber and compares it with his shipping bill, he invariably finds himself charged with three, five and sometimes eight hundred pounds more freight than he actually received. In this way, it is said, the nominal freight rate of \$1 per thousand feet, is increased by about twenty-five per cent., while the profits of the lumbermen are reduced in the same proportion.

There is another matter which calls for change in the interest of shippers. When a freight car is turned out new from the manufacturer's hands, and previous to being placed on the road, it is weighed, and the tare stamped upon it. Notwithstanding the fact that this car, from exposure to the weather, becomes in course of time water-soaked and greatly increased in weight, its weight is forever calculated as being in accordance with the

figures stamped upon it when new. The increased weight over and above that amount continues to be charged as freight to every unfortunate shipper who may use the car throughout the whole of its future existence. In winter, should a car be side-tracked for a day or two, and loaded up with snow and ice, so much the better for the railway, and so much the worse for the shipper, as such weight must be paid for as freight. Sometimes it happens that a box car in which a cargo of lumber is shipped has previously been used for shipping live stock, and contains several hundred pounds of manure. This also is carried to and fro as freight, and charged accordingly. It will thus be seen that a large proportion of the lumberman's profits must go to pay unjust freight charges.

The Ontario Lumbermen's Association have appointed deputations to interview the traffic managers of the railroads, with the object of having the present objectionable system superseded by a more equitable one, but thus far nothing has been accomplished in that direction. The Association will meet shortly to further consider the matter, and before approaching the railway authorities on the subject again, will endeavor to ascertain what system prevails on United States railroads. It should be the object of the railroad companies to facilitate commerce, instead of placing hindrances in its way, as in the present instance. We trust that when the matter again comes before them, they will inaugurate a system that shall be just and equitable.

THE ELECTRIC TRANSMISSION OF POWER.

LET us study this electric transmission a little in detail, said Prof. Ayrton in a recent lecture at Bath, England. I pull this handle, and the bell at the other end of the room rings; but in this case there is no visible motion of anything between the handle and the bell. Whether I ring the bell by pulling the wire, or by sending an air puff, or by generating an electric current by the exertion of my hand, the work necessary for ringing the bell is done by my hand, exactly as if I took up a hand bell and rang it. In each of the three cases I put in the power at one end of the arrangement, and it produces its effect at the other. In the electric transmission how does this power travel? Well, we do not know. It may go through the wires, or through the space outside them. But although we are really quite in the dark as to the mechanism by means of which the electric power is transmitted, one thing we do know from experience, and that is this: given any arrangement of familiar electrical combinations, then we can foretell the result.

Our knowledge of electrical action in this respect resembles our knowledge of gravitation action. The only thing quite certain about the *reason* why a body falls to the ground is that we do not know it; and yet astronomical phenomena can be predicted with marvellous accuracy. I mention the analogy, since some people fancy because the answer to that oft-repeated question, "what is electricity?" not only cannot be given exactly, but can only be guessed at in the haziest way, even by the most able, that, therefore all electric action is haphazard. As well might the determinations of a ship's latitude at sea be regarded as a mere game of chance, because we have not even a mental picture of the ropes that pull the earth and sun together.

This power of producing an action at a distance of many yards, or it may be many miles, by the aid of electricity without the visible motion of any substance in the intervening space is by no means new. It is the essence of the electric telegraph, and electric transmission of power was employed by Gauss and Weber when they sent the first electric message. I am transmitting power electrically whether I now work this small model needle telegraph instrument, or whether I turn this handle and set in motion that little electric fan.

But until about ten years ago the facility that electricity gave for producing signals almost simultaneously at a great distance was the main thing thought of. The electric power consumed for sending the telegraph messages was so small, the amount of power lost *en route* comparatively so valueless, that the telegraph engineer had no need to trouble himself with those considerations that govern us to-day when we are transmitting power large enough to work a factory or an electric tramway. Although there are as many as 22,560 galvanic cells at the Central Telegraph Office, London, which cost some thousands annually to keep in order, what is that compared with the salaries of all the 3,088 superintendents, assistants, telegraph clerks, messengers, and the maintenance of the 1,150 telegraph lines that start from the Central Office?

In all the last three of the systems of my list some form of power, such as flowing water or the potential energy stored up in coal, wood, zinc or other fuel was

initially to be utilized, this power is given to some form of air, water, or electric pump, which transfers the air power to the air, water or electricity, by which it is conveyed to the other end of the system. There it is reconverted into useful mechanical power by means of an air, water or electro motor.

You will observe that I class together air, water and electricity; but that I do not mean to imply that electricity is a fluid, although in many respects it acts like a fluid, like a fluid of very little mass, however, or, odd as it may seem, like a fluid moving extremely slowly; for electricity goes round sharp corners with perfect ease and without any of the phenomena of momentum possessed by rushing water. But what I particularly wish to impress on you by classing air, water and electricity together is that electricity is not, as some people seem to think, a something that can be burnt or in some way used up and so work got out of it. Electricity is no more a source of power than a bell wire is; electricity is a marvellously convenient agent for conveying a push or a pull to a great distance, but it is not by the using up of electricity that electric lights burn or that electro motors revolve. It is by the electricity losing pressure, exactly as water loses head when turning the miller's wheel as it flows down hill, that work is done electrically.

This model shows in a rough symbolical way what takes place in the transmission of power whether by air, water or electricity.

The working stuff, whichever of the three it may be, is first raised in pressure and endowed with energy, symbolized by this ball being raised in the model from its original position to a higher one; it then gradually loses pressure as it proceeds along the tube or wire which conveys it to the other end of the system, the loss of pressure being accompanied by its giving up power to the tube or wire and heating it. This is shown in the model by the ball gradually falling in its course. At the other end there is a great drop of pressure corresponding with a great transference of power from the working stuff to the motor, and finally it comes back along the return pipe or wire, losing, as it returns, all that remains of the pressure given to it initially by the pump. The ball has, in fact, come back to its original level.

The problem of economically transmitting power by air, water or electricity is the problem of causing one or other of these working stuffs, air, water or electricity to economically perform the cycle I have described.

In each of the four stages of the process (1) transference of power to the working substance at the pump, (2) conveyance of power to the distant place, (3) transference of power from the working substance to the motor at the distant place, (4) bringing back the working substance, there is loss of power, and the efficiency of the arrangement depends on the amount of these four losses. The losses may be shortly called (1) loss at pump, (2 and 4), loss on the road, (3) loss at the motor.

MOTIVE POWER OF THE FUTURE.

SEVEN years ago, writes a foreign correspondent of the *American Manufacturer*, Sir Frederick Bramwell prophesied at the York meeting of the Association that unless some substantive improvement were made in the steam engine (of which improvement they had as yet no notion) its days for small powers were numbered, and that those who attended the centenary of the British Association, in 1931, would see the present steam engines in museums treated as things of antiquarian interest. After the seven years which have elapsed since the York meeting, and now speaking as president of the Bath meeting, Sir Frederick sees no reason to withdraw that prophesy. The working of the heat engines without the intervention of the vapor of water by the combustion of the gases arising from coal, or from coal and from water, is not now merely an established fact, but a recognized and undoubted commercially economical means of obtaining motive power. Looking at the wonderful petroleum industry and at the multifarious products which were obtained from the crude material, was it, asked Sir Frederick, too much to say that there was a future for motor engines worked by the vapor of some of the more highly volatile of these products—true vapor—not a gas, but a condensable body capable of being worked over and over again? Was he wrong in predicting that the heat engine of the future would probably be independent of the vapor of water? And, further, in these days of electrical advancement, was it too much to hope for the direct production of electricity from the combustion of fuel?

Mr. James Findlay, ex-M. P. for North Renfrew, who proposed some time ago selling his timber limits on the Ottawa River by auction, has withdrawn the sale.



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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. Please do not send cheques on local banks unless 25 cents is added for cost of discount. Money sent in unregistered letters must be at senders' risk. The sending of the paper may be considered as evidence that we received the money.

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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.

EVERY thing goes to show that the St. Clair flats canal is in Canadian territory, and this fact affords a good and substantial reason for the belief that the United States will see the advisability of going out of the retaliation business.

THE importance of the subject of devising means for the protection of our pine forests from the ravages of fire, is forcibly demonstrated by the fact that in the Muskoka and Petewawa districts, last year, it is estimated that 200,000,000 feet of timber, board measure, was destroyed from that cause.

CANADA is not doing so badly in the matter of increasing her population. The immigration figures show that while the population of the United States is in round numbers twelve times that of Canada, the number of immigrants who go to the United States in preference to Canada is in the proportion of about three to one.

THE millers of France have an Association numbering upwards of 2,000 members. The annual convention of this flourishing Association took place last month in Paris. It was characterized by a very large attendance, and an interesting and hearty discussion of matters affecting the welfare of the millers. What a contrast to the milling associations and conventions of this country and the United States!

A CONVENTION of Boiler Inspectors and Examiners of Engineers is to be held at Pittsburg, Pa., on the 20th of the present month. The purpose of the convention is the discussion of the inspection service and laws, for the better protection of life and property, and also to arrange for a uniform system of inspection throughout the country where there is an inspection service, and to endeavor to extend the service to cover the entire country, and to stop the sale of old and worthless boilers that have been condemned by inspectors and are then sold to ignorant and inexperienced persons throughout the country where there is no inspection service. These are most worthy objects, and we trust that some, if not all of them, will shortly be realized.

IN the face of the fact that a couple of Ontario towns have lost fifteen or twenty thousand dollars lately by the failure of manufacturing concerns which they had heavily bonused, we hear of other towns which are experimenting along the same line. Should they experience similar results, they will deserve little sympathy. The idea that prosperity can be secured by bonusing manufacturing, has over and over again proved a fallacy, and it is about time that prosperity should be looked for in some other and more profitable direction.

SINCE the publication of the October number of this journal, one of our subscribers has been made the victim of one of the most diabolical crimes ever perpetrated in this country. We refer to Mr. Cherry, the Galt miller, whose little daughter died from the effects of poison contained in some chocolate candies sent to the family through the mails. In extending our sympathy to Mr. Cherry and his family, we desire to express the hope that nothing will be left undone to bring the perpetrator of this fiendish outrage to justice.

IN view of the frequent accidents to men employed in the lumber camps, the inadequacy of the means at hand for the relief of the sufferers, and the great distances which such persons have to be transported to obtain proper hospital treatment, the suggestion has been made that one or more hospitals should be established in proximity to the principal lumbering regions, where the unfortunate victims of accidents could receive proper treatment. It would be a humane act on the part of some of our millionaire lumbermen to donate an amount sufficient to establish institutions of this kind.

CONSIDERING the comparatively small proportion of cases in which business partnerships prove to be mutually satisfactory to those entering into them, it is surprising with what readiness some men form such compacts with persons whose characteristics they know little about. How often we see advertisements of persons with five, ten or twenty thousand dollars to invest, who want to enter into partnership with some one having an equal amount of money. In many instances such partnerships are formed on very short acquaintance, and it is not surprising that so frequently unsatisfactory results follow. A mesalliance in business, as in matrimony, is very apt to wreck the fortunes of all parties concerned. Such alliances are much more easily made than unmade, as many have discovered to their cost, and therefore there comes in the necessity for greater caution in their formation.

CERTAIN patriotic exchanges are highly indignant over the announcement that the managers of a fair at Toronto, Canada, in response to demands made by some patriotic Canadians, refused to allow the flag of the United States to be displayed over the booths and exhibits. Our exchanges should not get too hot. The Toronto fair is a private concern, owned and managed for private profit by capitalists, and if they did not wish to have the hateful Yankee flag displayed, they had the right to object. It was surely no insult to have the Stars and Stripes banished from Toronto. It was a small matter, in a small country, by small men, and as the smallness was symmetrical and well distributed, there is small reason for the Yankees to raise a row. Don't call out the Navy!"—Buffalo Milling World.

The advice contained in the last sentence of the funny paragraph we have quoted, is undoubtedly the funniest of all, in view of the well-known fact that the United States hasn't got a navy to call out.

A GREAT deal of interest is being manifested by the people of Winnipeg in the scheme for utilizing the water power of the Assiniboine river, as outlined in the MECHANICAL AND MILLING NEWS recently. A Committee of the Board of Trade has been appointed to watch the development of the scheme, in the interests of the commerce of the city. The Knights of Labor are urging the city to carry out the enterprise, instead of giving it into the hands of speculators. They have figured out that by using the Assiniboine water power to produce the electric light and operate the water works, the Council could save the ratepayers \$6,000 per year, and have a surplus of 5,000 horse power to rent for manufacturing purposes, the annual revenue from which it is expected would not be less than \$50,000. If such results can be obtained from an expenditure of \$300,000, not taking into account the indirect benefits which the city must derive from the establishment of manufacturing, the City Council should not hesitate to carry out the enterprise.

THE Montreal Trade Review quotes the opinion of a "prominent miller" to the effect that not more than twenty-five per cent. of the wheat in Manitoba and the Northwest is fit for making good flour. The

"prominent miller" does well to hide his identity, and thus save himself from becoming the butt of ridicule for the milling and grain-trading fraternity. We are much surprised that a supposed authority on trade matters, such as our Montreal contemporary, should print an unfounded, and, in some degree, damaging statement, without disputing its reliability, or giving the name of its author. From information to hand, we have no hesitation in affixing the brand of falsehood to "prominent miller's" statement. If he will substitute "seventy-five" for twenty-five per cent., he will come much nearer the truth. The fact that Manitoba wheat brings the top price on the Liverpool market to-day, is itself a sufficient refutation of the *canard* in question. Our English friends are not likely to show such a preference for wheat that won't make good flour. We strongly protest against the circulation of statements of this kind by people calling themselves Canadians. Such work may safely be left to American publishers, who are interested in trying to frighten immigration away from Canada, in order that it may find its way into the United States.

THE fact has been revealed that Mr. Erastus Wiman, who has been engineering the Commercial Union agitation in Canada, is also in the confidence of certain United States legislators who are seeking to bring about political union between Canada and the Republic. We suspected that this was the case from the very first, and more than once expressed an opinion to that effect. We do not find fault with Mr. Wiman or the newspapers in Canada which support him, for openly advocating the union of Canada with the United States, but because they sought to pull the wool over the eyes of the Canadian people by persuading them that Commercial Union would tend to maintain our separate existence rather than to draw us into the Republic. The folly of such reasoning was apparent to the thinking mind, notwithstanding, many were seemingly led away by it. The accidental exposure by Mr. Wiman of the proposals for union which were being discussed at Washington, opened the eyes of many who before appeared not to see clearly the real object in view. While we do not believe that any considerable number of Canadians are desirous of selling themselves and their country for \$300,000,000, or any other sum, we prefer that any overtures made to us with that object, should be above board, and in the shape of a straight business transaction, rather than under cover of "Commercial Union," or any such delusive scheme. There are not wanting evidences that Canadians are becoming impressed with the greatness and value of the heritage comprised within the boundaries of the Dominion. They are also learning the lesson of self-reliance. Just in proportion as these feelings are fostered and developed, will we be certain to attain to an exalted position as a nation, wielding the influence and commanding the respect which is our due.

AFTER some years of low prices and dragging markets, the wheat and flour trade has suddenly taken on unexpected life and vigor. Prices have gone up to a point far beyond the anticipations of even the most sanguine "bull." A number of Canadian grain dealers are reported to have made fortunes as the result of the suddenly increased value of their stocks. While not many millers, probably, have been fortunate in the same degree, some, who had considerable quantities of wheat on hand previous to the rise, have realized a snug profit on their output. Apart from such instances, it is doubtful whether the present inflation in values will benefit the millers. A great many persons are just now asking themselves and their acquaintances the question: "What is the cause of the remarkable change which has taken place in values within the last few weeks?" The answer does not come readily. As a matter of fact, the present condition of the market is not due to any one cause, but is the result of the operation of a multiplicity of causes. The excessive rains, which damaged so largely the English crop, and which it was thought had destroyed it entirely, were probably the first of the influences at work tending to stiffen prices. The reports of serious damage by frosts to the crops in Minnesota and Dakota, and in lesser degree in our Canadian Northwest, pointed to a diminished supply, and sent prices up. Following this came the news of the wheat corner which Hutchinson engineered so successfully in his own interest in Chicago, and the effects of which were felt from end to end of this continent, as well as in Europe. Another circumstance which at present has an important bearing upon prices in the Eastern Provinces of Canada, is the lateness of the harvest. Farmers in Ontario, but especially in the Northwest, are compelled

Manitoba suffered severely. This will authenticate the statements that Dakota and Minnesota, south of Manitoba, suffered more severely than this province.

As stated, it is difficult to estimate the amount of damage from the frost in Manitoba. As far as can be learned, however, it is likely that not far from one-half the entire crop has been more or less injured. A great portion of this, however, has only been slightly reduced in quality, and will still make first-rate milling wheat. In the Territory of Assiniboia, from the Manitoba boundary westward to Moose Jaw, a first-class crop of wheat has been secured. A portion of this region suffered from drought in recent years, but the present year has brought an exception, and the fine crop secured will go far to make up the shortage on account of the damage in Manitoba. Taking, therefore, the wheat from the territories, over a large district which had little or no wheat in previous years, and we conclude that the total crop of wheat this year for the prairie country will not be greatly less than the actual (not the boom) crop of last year, or say 10,000,000 bushels of milling wheat, against 12,000,000 bushels last year. The proportion of wheat available for export will not be so great as last year, as allowance must be made for the increased population and the very much larger acreage which will be sown next spring. The amount of new land prepared for crop this year has been very great, and next year's crops will show a remarkable expansion in area. The high prices ruling for wheat will no doubt induce farmers to sow their increased acreage mainly to wheat, and the grain required to seed this will be considerable. Therefore, though the total wheat crop of Manitoba and the territories will not be very much under last year, the reduction in the exportable surplus, as compared with last year, will be considerably in excess of the proportion of reduction in the actual yield. I do not therefore look for an export in excess of 7,000,000 bushels, including flour equivalent to wheat. Exports of wheat and flour last year were equal to about 10,000,000 bushels.

The high prices obtained this year for wheat will more than offset the damage from frost. Last year's crop was disposed of at from 40 to 65 cents per bushel, according to quality. This year good wheat has brought from \$1 to \$1.15 per bushel so far. The quality of the wheat this year, where not damaged by frost, is higher than last year, and will grade a larger percentage of No. 1 hard on the same basis of grades as used last year. For sound wheat, the prices obtained this year (if outside markets keep up for the balance of the season), will be nearly double what they were last year, that is, one bushel of wheat will be equal in value to nearly two bushels last year. This will be for the undamaged portion of the crop. Now, as to the damaged portion, a great deal of this will bring far better prices than the best wheat did last year. A great deal of the frozen wheat is so slightly injured that it will bring nearly as good a price as sound grain, and from 90 cents to \$1 and over has already been paid for damaged grain. Badly damaged samples, but not too bad for milling, bring from 60 cents upward, so that with the exception of that portion of the crop which is unfit for milling, all the wheat will bring from ten to fifty cents per bushel more than last year. Some fields of wheat which were considered hardly worth cutting after the frost, have been sold at from 60 to 65 cents per bushel, or equal to the top prices obtained last year. But whilst the country as a whole will make more out of this year's crop than was realized from last year's crop, the few individuals who had their crops entirely destroyed, will suffer severely.

The railway situation here is still a matter of interest. The Northern Pacific is completed into Winnipeg, and is now running regular trains into the city. The road, however, will receive little of the grain carrying trade of the country this year, from the fact that it does not reach any of the important grain markets. Morris and Emerson are the only points reached by the Northern Pacific that will give the road any grain trade. All the grain marketed at Winnipeg is required for local use. Until the road gets branches constructed throughout the country, it will be able to do very little in the direction of moving the grain. The Portage branch, under construction, would open up a portion of the province, but it is very doubtful if this branch can be completed and opened this year. It is therefore certain that all the Manitoba wheat which goes out of the country by the Northern Pacific, will not amount to much, at least for this crop. Manitoba wheat going by the Northern Pacific would also have to be bonded, and placed in special elevators at Duluth, and this will also act as a hindrance to shipping by the United States line. Therefore, for another year at least, wheat will continue to move out via Port Arthur, or by all rail over the C. P. railway. The C. P. R. Co. have issued a new tariff on

wheat recently, which gives a reduction in freight rates of three cents per 100 pounds from Winnipeg to Port Arthur. Stations close to Winnipeg are also given the same reduction in rates, but points further west are only given from one to two cents reduction under last year's rates, and west of Brandon the rates are the same as last year. The rate on wheat from Winnipeg to Port Arthur is now 21 cents per 100 pounds. The Northern Pacific is giving the same rate to Duluth, but a lower tariff is shortly expected to the latter point. The rate to Minneapolis is the same as to Duluth and Port Arthur. No wheat, however, will go to Minneapolis, unless it is to pass through there all rail in bond, via Chicago to Eastern Canada. Minneapolis millers are anxious to buy wheat in Manitoba, but as prices are as high there as they are in Minnesota and Dakota in proportion to the freight rates, they cannot buy here and pay the duty. The Minneapolis millers have been endeavoring to get the duty removed so they could buy wheat in Manitoba, and with that object in view, they succeeded in passing a resolution through the late convention of the United States National Millers' Association, calling upon Congress to remove the duty upon wheat imported into the United States.

The fixing of standards for grading this year's wheat crop has been a matter of considerable interest here. This is a matter upon which our local grain men feel a little "touchy." The rejection at Toronto of the samples sent from Manitoba, from which to select standards, on the ground of their being too low, somewhat complicated matters. Though the undamaged portion of our crop is of a higher quality than last year, yet the crop as a whole is of a lower quality. According to last year's standards, all frozen grain, no matter how slightly, would have to grade as rejected. Duluth grades allow a portion of frozen wheat in all grades, and our grain men decided it would be in the interests of our producers and dealers to allow a portion of frozen wheat in the different Manitoba grades, with the exception of extra Manitoba and No. 1 Manitoba hard. This it is understood did not meet with the views of the eastern representatives, and consequently no decision was arrived at. The decision of the Minister of Interior to allow the Winnipeg and Port Arthur inspectors and three members of the Winnipeg Board of Grain Examiners to fix the standards, will, of course, put the matter entirely into the hands of the western grain interest to select standards independent of the eastern boards. The decision of the Minister has given general satisfaction here.

BOLTING METHODS.

THE development of bolting methods has been upon a par with the development of the methods of reduction. Reduction has been regarded as the general broad principle which underlies recent progress in milling. Reduction is a detail as is also the bolting methods. The root of the milling idea is based upon purification. Not purification in the ordinary sense which merely means the care of the middlings, but the purification of flour. The principle has its origin primarily in the purification of wheat which is followed by the reduction machinery which liberates the impurities which are finally separated or not by reels and purifiers which follow. The smooth rolls are positive purifiers, in that they render separable from the flour and middlings particles and impurities which would not otherwise be removed. In this connection it may be well to say that the scratch rolls which received such great attention and support at one time, did not succeed for the reason that they had the tendency of defeating the purification idea. Stock was sent to them which had material in it that was injurious to the flour, but which was rendered inseparable from the flour itself after having passed through the scratch rolls. The scratch rolls were introduced to make up for the lack of smooth roll capacity. They were supposed to be machines which would handle large volumes of stock and reduce it. It was a short way of disposing of a large volume of stock. Its only element of success was to be found in the fact that it was short, and not in the quality of its product.

As one of the details of milling and one neglected we will take up bolting methods in order to consider in the space of a few numbers the bolting system of the present, and to suggest certain elements which may be of value to those interested. We will consider bolting methods as that part of a milling process which has to do with the purifying processes of the mill. If a bolting system is at all worthy it leads directly and at all times to the purification of the flour.

The earlier bolting system, which had its origin in the earlier days of milling had in mind not particularly the process of purification, but in truth entirely neglected it. It was simply the separation of the coarse from the fine

product. The coarse material remained with the stock until all the fine material was taken out. Thus if there were two reels in which the separation was made the chop from the buhrs was poured into the top and passed through both reels in order that the coarser or bran portion could be taken out at the tail end of the last reel. This is exactly the reverse of the process at the present time. The bran is removed before the other separations are made, next the coarser middlings and finally the finer, only so much of the middlings stock is retained in the chop as is necessary to make the chop bolt. This coarser stock is undesirable for the reason that it whips the impurities through the flour reels. Now that the centrifugal and other rebolting reels have come into use it is less necessary that any part of this coarser material be retained with the flour stock while it is being bolted. The introduction of the centrifugal is chiefly valuable on account of its utility in separating the impurities from soft stock. Such separations may be made more exact where the material is soft than when it contains a larger portion of impurities.

The theory of this will be explained later. The natural quality of all bolting apparatus which is now generally in use is to disturb and disintegrate the stock. We have emphasized this fact in the past by recalling the fact that there is not a reel made but that would be a good wheat scouring machine with very few changes. Any reel clothed with material which would resist the pounding and falling action of the wheat would have the effect of scouring.

In the last month's *Millstone* we mentioned the change in one of the best known mills in this country wherein the break scalpers were adapted for wheat scouring by simply allowing the wheat to pass through them successfully. The round reels with internal cylinders are less severe in their action, have less of the scouring quality than any other form now in general use. The centrifugal is most severe while the hexagonal reel stands in between. The Morse elevator bolt is a type of its own and its relation to other reels in point of severity is questionable though it would appear that it is quite as gentle in its action as any. As we see it in the near future there will be a revolution in bolting methods, or to speak more exactly, in bolting machinery. Machines which will scour wheat are not the proper ones on which to bolt flour stock. The tumbling, rolling, falling action of stock in a hexagonal reel is typical of all that is disturbing and disintegrating in its qualities. The centrifugal reel is an extreme of severity. Its principle of action is exactly that of a wheat scourer with internal revolving beaters. The round reel without the internal cylinders of course is less severe than the hexagonal reel in that it gives more of a rolling and less of a falling action to the stock; the internal cylinder in that mitigates the fall of the stock. The machinery which we mention is all that we have at the present time, that is, in general use. The bolting machinery which is to come and which in limited sections has passed the experimental stage is constructed on the hand sieve principle, and is ideal in theory, such bolting has the quality of making the separation with a minimum of disturbance and disintegration of the stock. It moves along smoothly and easily over the sieve without agitation, with the impure stock moving along the top. The flow of stock on the sieves is capable of easy regulation so that it is covered at all times from head to tail. The difficulty with sieves in the past has been purely mechanical. The excellence of the theory has been generally recognized. Now that the mechanical difficulties appear to have been worked out it is not difficult to see that a change will come about in the near future in the substitution of sieve bolting for reel bolting. Of our own knowledge we are not able to certify that the sieve bolting machinery is in an advanced state of perfection at the present time. Whether that be true or not it is apparent that bolting machinery which is so severe in its action, so pronounced in its antagonism to the underlying principles of purification in milling, cannot stand as the universal bolting machinery for all time to come. There is something better ahead of us. It will be the sieve in one form or another. The sieve idea will predominate. The principles of separation in the classification of the stock will remain, no doubt, about the same, but the machinery of bolting must eventually change.—
The Millstone.

Mr. James Findlay, ex-M. P. for North Renfrew, who proposed some time ago selling his timber limits on the Ottawa River by auction, has withdrawn the sale.

The *London Free Press* says: W. H. Pray, of the Alvinston Stave and Heading Works, recently shipped twenty car loads of orange barrels to Cuba. This amounts to over twenty-five thousand barrels. During the past month forty-five carloads of other cooperage stock has been shipped from this establishment to foreign countries.

THE LUMBER INDUSTRY OF THE OTTAWA VALLEY.

THE following report, dated Feb. 2, 1888, written by United States Consul Hotchkiss, of Ottawa, is an able exposition of the subject on which it treats.

In previous annual reports the fact has been stated that the Ottawa district was a manufacturing and not an agricultural district. The exportations of agricultural products are merely nominal, deserving of little attention through their insignificance. The all-absorbing industry is that of lumber, which is, as a specialty, not equaled in its extent and value at any other point in the Dominion. Such being the situation, my report will be confined mainly to facts and figures which are incident to the prosecution of the lumber business, not only of this district, but of the locality of country known as the Ottawa valley, through which, by means of the Ottawa river, this locality is drained of its forest products, and which river also furnishes the magnificent power to operate the saws which reduce the logs to shapely lumber.

The business of the past year has moved steadily onward. No difficulty has been experienced in readily marketing the output, and at prices fully equal to that of any preceding year. All desirable lots, meaning those lots especially known for their desirable qualifications, either sawed American style, viz: boards and planks, or English style, three-inch "deal," were principally sold before any of the season's logs were sawed. In this connection I may add that probably 50 per cent. of all the stock which will be sawed at Ottawa and vicinity in the season of 1888 is already sold, even while the trees are yet standing in the forests. The yearly output of the Ottawa city lumber mills will approximate 350,000,000 feet. The product of mills tributary to Ottawa and its agency, Grenville, will aggregate 250,000,000 feet, making 600,000,000 feet for the Ottawa valley district.

These aggregate figures, to those unacquainted with lumber, or unaccustomed to lumber figures, will appear enormous; but when I say that these figures, multiplied by three, will not represent the full sum of the yearly requirements of the lumber trade in Chicago alone, their insignificance will be apparent.

A false impression too generally prevails in regard to the importance and the influence on the American lumber markets of the pine lumber produced in Canada, as also the quantity of her available pine and the general quality thereof. In regard to the production of sawed pine lumber of a quality available for the United States market, I firmly believe that the yearly aggregate will not exceed 1,000,000,000 feet. This quantity must be doubled to supply Chicago, and is but a fair supply for the little village of Tonawanda, N. Y., while Buffalo would simply view this quantity with complacency as bidding fair for her one year's necessities.

This quantity, however, must be divided between the United States and England with other foreign markets, while Canada, for her own requirements, must of necessity, reserve a portion. As it is with the United States, alone I have to deal in this report, I have made great efforts to obtain reliable figures, both in feet and values, of the trade of this section with the United States for the calendar year 1887. I have carefully compiled from the 2,875 certificates which have passed through this office for the year a table of the quantity of sawed lumber, with other forest products and the values thereof. Through the kindness and courtesy of the consuls at Prescott and Brockville, I am also enabled to give the amount in feet and value which has been declared through these consulates, which, combined with Ottawa, embrace the total exports of forest products of the Ottawa valley. In my judgment the quantity indicated by the figures is a reasonable approximate to one-half of the amount of sawed pine lumber which is exported from Canada to the United States.

The unprecedented drouth of the past year, during the sawing season and till very late in the fall undoubtedly curtailed the cutting capacities of the mills at Ottawa, specially and to a degree that of all the mills located on the Ottawa river, and which likewise extended to the log supply. The winter opened with a shortage of lumber on the docks for drying, estimated to be fully 50,000,000 feet. This shortage will be shown in the business of 1888, that of 1887 being merely nominally affected thereby.

The important question now so widely agitating the American people, that of free lumber, and I may add free logs—for free lumber to the Canadian should mean free logs to the American—is one on which I may not be expected to venture a personal opinion, but I may be permitted, from the standpoint of a lumberman of over 45 years active experience in the lumber business in Canada and the United States, to review the situation as it appears to exist, and permit others to draw such con-

clusions therefrom as may enlighten them toward reaching a just termination of a complicated question.

I think I am warranted in presupposing that the desired object to be attained in the remission of the duty on lumber is an anticipated benefit to the American consumer at large, both by cheapening the market price now, as well as tending to prolong the existence of the American forests by the substitution of Canadian lumber and logs the only other country which has white pine timber.

Will the remission of the \$2 duty have the desired effect? I think not, and will give my reasons for the conclusion that no appreciable benefit will transpire to the American consumer, and why and how the advantage will accrue to the Canadians. The control of the prices of lumber in the United States is certainly and absolutely in the hands of the timber owners and large mill men. The standing timber is held in large bodies by heavy capitalists, who, owning the mills, can govern the supply of manufactured lumber, and this element of first control is the chief factor in making yearly market values, it being influenced only by the probable demand, present or prospective.

I assert that in the making of prices the American lumbermen have never been controlled or scarcely influenced in any degree by the competition of Canadian pine lumber. I confine my remarks to pine lumber, and have nothing to offer in respect to the spruce and hemlock of the eastern portion of Canada, tributary to the eastern states, or to the lumber of the northwest provinces, tributary to the United States' territories and far western states; but to the white pine sawed lumber, the produces of the middle part of the provinces of Quebec and Ontario, lying between Montreal on the east and Lake Superior on the west, within which bounds is produced the only quantities of white pine lumber worthy of any consideration, and which embraces the Ottawa valley, the chief outlay of this immense district or pine belt lying north of the Ottawa river.

The fact that pine trees are not reproduced enters largely into the question of possibility of control of the timber. The question how, as well as by whom, are the pine forests of the United States and Canada owned and controlled is a factor in determining the future of prices and of the possible advantages to be derived by the proposed legislation.

The manner in which the United States government has disposed of its timbered possessions is well understood, and that individual purchasers have come into possession of them in fee simple as a fixed price per acre; that having thus obtained absolute control and ownership they can and do manage their own business affairs in connection therewith without let or hindrance from the government as grantor, such lands, subsequent to purchase by individuals, being subject only to local and state taxation. The timber thereon is cut at will or left standing, as the necessities or inclinations of the owners may compel or induce.

Turning now to the Canadian timber we find a widely different practice. The forest possessions are not sold by the governments which are the owners. The lands in Quebec are controlled by the provincial government of Quebec, while those in Ontario are controlled by the provincial government of Ontario. The Dominion government owns and controls but a limited area in the northwest. The forest possessions are not sold in fee simple, but are leased for a term of one year, under certain conditions and regulations, the *modus* of doing which is by public auction. Whenever the government map deem it judicious or opportune to dispose of certain areas of timbered lands is gives public notice of the time and place, with a description of the lands to be disposed of, and the privilege of leasing it put up for the highest attainable sum, which sum is to be paid simply as a bonus for the privilege of being the lessee of the lands offered, under conditions of lease or licence which are statutory, and, of course, well understood by the bidders. The chief conditions of the lease, termed a "timber lease," are that the lessee shall (additional to the first "bonus" paid), on the first day of May, pay into the crown land office a certain sum per square mile (640 acres), which sum was originally \$2; then it was advanced to \$2, and is now fixed at \$3. If any trees have been cut on lands covered by the license, such cutting shall be duly reported under oath, and crown dues paid therefor according to the tariff schedule, as given below:

	QUEBEC.	ONTARIO.
Oak and walnut, per cubic foot.	\$0 04	\$0 03
Maple, elm, ash and tamarack, per c. ft.		
Norway and white pine, birch, basswood, cedar and other square timber, per cubic foot.	02	02
Pine saw logs, including culls, each.	22	(*)
Spruce saw logs, 13 1/2 feet long, each.	05 1/2	10
Hemlock saw logs, 13 1/2 feet long, each.	06	10

	QUEBEC.	ONTARIO.
Hardwood saw logs and tamarack, round	22	25
Balsam saw logs, 13 1/2 feet long, each.	05	10
Pine staves, per 1,000.	7 00	7 00
West India staves	2 25	2 25
Cardwood, hard, per cord of 128 feet.	16	20
Cardwood, soft, per cord of 128 feet.	08	12 1/2
Cedar rails, 10 to 12 feet long, per 100.	25	01
Cedar pickets, per 100.	15	01
Cedar or pine shingles, short, per 1,000.	08	01
Cedar or pine shingles, long, per 1,000.	15	01
Cedar telegraph poles, each.	06	01
Cedar fence posts, per foot in length.	00 1/2	01
Cedar hop poles, per 100.	20	01
Rails, other than cedar, per 100.	10	01
Pickets, other than cedar, per 100.	05	01
Railway ties, any number, each.	02	(*)
Hemlock lath wood, per cord.	15	01
Hemlock bark, per cord.	32	30
Birch sticks, 28 feet long, each.	25 to 30c.	1c. per cu. ft.
Knees, according to size, each.	5 to 25c.	(*)
Futtocks, according to size, each.	10 to 35c.	10
Cedar for shingles, per cord.	16	12 1/2
Pine for shingles, per cord.	20	12 1/2
Boom timber, round, spruce, per lineal ft.	00 1/2	01 1/2 cub.
Boom timber, pine or tamarack, per lineal foot.	01	01 1/2 cub.
Small round spruce spars, under 10 feet, per lineal foot.	00 1/2	
Birch, per cord of 128 feet.	30	

ADDITIONAL EXPORT DOMINION CUSTOMS TARIFF.

Pine and Norway saw logs, per 1,000 feet, board measure.	\$2 00
Spruce and hemlock saw logs, per 1,000 feet, board measure.	1 00
Shingle bolts, per cord of 128 feet.	1 50

By the character and sum of the annual land dues (300) and the nature and amount to be paid as timber dues (per tariff), a full appreciation of the position of the lessee will be had, while the lessor, the government, it will be also observed, continues its sole control over the timber. The only right which the lessee possesses is to cut the timber on his licensed lands and annually pay the government its demands, and when promptly paid the continued right to renew the license yearly.

It is likewise the right of the government to change the terms and conditions at will, taking effect after the first of May of the following year. I will refer to the last order making such changes, by which it will be seen how absolute is the government control and their disposition in the premises.

DEPARTMENT OF CROWN LANDS, TORONTO, April 29, 1887.

Public notice is hereby given that, by order in council of 27th instant, the rate of ground rent on timber limits or berths is increased from \$2 to \$3 per square mile per annum; and the dues on square and waving pine timber are increased from 1 1/2 to 2 cents per cubic foot; and the dues on pine saw logs are increased from 75 cents to \$1 per thousand feet, board measure.

The increased ground rent to be payable on licenses to cut timber granted or renewed on and after the first day of May, 1887, and the increased dues on pine timber and pine saw logs to be payable on such pine timber and saw logs as may be cut after the date last above mentioned.

(Signed.) F. B. PARDEE, Commissioner.

It will be observed that this order is dated April 29, to take effect May 1, and that without any prior notification of intention being given. The order means an additional tax upon limit holders varying in its effects upon licenses according to their holdings, but in sums ranging approximately from \$1,000 to \$80,000 individually on the annual dues to be paid on the lands, in addition to which comes the further advance on the timber cut.

I have been thus explicit in describing the systems of the two countries, for to my mind they are the key by which the situation and effect may be safely prejudged in case free lumber becomes a reality.

There is no dispute that the American manufacturer controls the making of prices. In doing this he is not influenced by the Canadian supply in any degree. If the duty of \$2 is removed it will not affect the American price, because it has never been a factor and will still be unfelt. No lower price will prevail in the United States than heretofore, and no different net results will be experienced by the manufacturer. The Canadian, on the contrary, will lay his lumber down in the American market at \$2 less per thousand, and will obtain for it the same as the American does, so that the net result to the Canadian manufacturer will be a clear gain of the \$2 which the American government has remitted. This additional net result to the Canadian manufacturer will, however, be of very brief duration.

Having shown how the governments in Canada continue the control of their lumber lands and their disposition to tax them to the utmost, I am confident that not a May pay-day will pass before a public notice will issue in effect that a further increase in annual and timber dues has been made an order in council, in sums sufficient to absorb the \$2 per thousand into the provincial treasuries.

Some may question the light treatment which I give the production of Canada lumber exported to the United States, but I believe the statement to be sound and reliable that the Canadian sawed pine lumber sent to the

United States for consumption is not sufficient in volume to affect prices by being a factor in any degree.

The following table, showing in feet and value the declared exports of sawed lumber and value only of other forest products for the calendar year ending December 31, 1887, will be proof positive to experienced lumbermen of the soundness of my conclusions. This table embraces the declared exports of pine at the ports of Ottawa, Grenville, Brockville, and Prescott, and is a fully reliable statement of the exports to the United States of the Ottawa valley section.

Location	For consumption	Value.	In bond for export.	Value.	Value, all other wood products.
	Feet.		Feet.		
Ottawa	150,199,285	\$2,017,648.47	33,693,348	\$610,795.71	\$155,489.36
Grenville	30,695,139	263,307.21			30,465.84
Prescott	9,497,863	116,513.23			4,191.6c
Brockville	16,747,472	429,679.64			33,151.94
Total	227,139,959	\$2,827,234.55	33,693,348	\$610,795.71	\$223,298.74

The following shows the exports from Canada (customs returns) of pine boards and plank from all of Canada to the United States for the fiscal year ending June 30 :

	FEET.	VALUE.
1884	557,266,000	\$7,056,508
1885	562,542,000	6,956,248
1886	514,985,000	5,353,021
1887	508,304,000	6,209,023

The following shows the export of pine saw logs to the United States in the following years :

	FEET.	VALUE.
1884	974,000	\$ 8,012
1885	380,000	2,300
1886	6,350,000	49,242
1887	2,869,000	24,452

By comparing the quantities shown in the first table, being the amount exported from the Ottawa valley with the amount shipped annually from all in Canada, it will be found that the first bears a percentage to the total exported in 1887 of 50 per cent., showing the important position which the Ottawa district holds in the industry.

The second table will show also the correctness of my statement that the volume of pine lumber exported to the United States from Canada is too insignificant to have any influence in the making of prices in the United States. The figures show that if all the lumber sent into the United States from Canada was placed in the Chicago market it would supply but one-quarter of the requirements of that market alone, and but one-half of the quantity handled in either Tonawanda or Buffalo.

Regarding the few logs shown to be exported to the United States, they are of no account whatever, nor do I believe that if "free lumber" were to prevail that any appreciable increase of log exports would be seen, for the logs would, to a large extent, be manufactured into lumber at the place of growth or approximately so, as long as the lumber was admitted free. This course presents very many palpable advantages as against the expense of the transfer of the mill.

A few mill owners on the shores or adjacent to the shores of Lake Huron and Lake Michigan, having exhausted all their available timber, would make a few spasmodic attempts to import logs from Canada, but a very brief attempt to handle logs across the lakes would develop the superiority of the location nearer the timber. In addition to this, by operating their mills in Canada they would find the English markets open to them, for it is in Canada that the English buyer of pine lumber always has and undoubtedly will continue to look for his stock. This advantage to the manufacturer is one which will not be lost or disregarded, for the English market requires from Canada pine lumber (mainly cut into "deal") in volume about half as large as is sold to the States. The English demand also is gradually changing in the character of its requirements of "deals," sawed boards and plank.

That the character and volume of the English trade demand for sawed pine lumber from Canada may be properly appreciated, and its relative importance to the Canadian as compared to his trade with the United States, I append a statement of the exports to Great Britain for the same years which I have heretofore given for that to the United States. This comparison shows that fully double the quantity is sent into the United States market in feet over that sent into the English market, but as that sawed for the English is 90 per cent. "deals," sawed 3 inches thick, and is now accepted down in quality to a grade made from quite "common stock," the greater advantage to the manufacturer lies in catering to the English requirements :

	1884.		1885.	
	FEET.	VALUE.	FEET.	VALUE.
Plank and boards	24,484,000	\$ 297,786	19,156,000	\$ 251,070
Deals	700,766,000	7,610,813	198,393,250	2,679,270
Total	725,250,000	\$7,908,599	217,549,250	\$2,930,340

	1886.		1887.	
	FEET.	VALUE.	FEET.	VALUE.
Plank and boards	12,673,000	\$ 155,221	17,016,000	\$ 241,350
Deals	205,326,000	2,943,230	207,861,500	3,148,161
Total	217,999,000	\$3,098,451	224,877,500	\$3,389,521

The abnormal exports of the year 1884 will be specially observed, but cannot be explained.

This subject is a prolific one, and very many points of interest and of commercial value could be entered into in connection therewith, but to do this would occupy more space than is allotted to this character of consular reports. If, however, from the statements, conclusions and statistics given I have in any degree assisted toward a clearer understanding of the free lumber problem, the purpose in view will have been attained.

A NEW IRON INDUSTRY FOR TORONTO.

Description of the New Rolling Mills at the Humber.

VERY quietly and unostentatiously, preparations have been going forward during the past summer for the establishment of rolling mills at the Humber, within a short distance of the western boundary of the City of Toronto. These preparations are now nearly completed, and a few facts concerning this new and important addition to our manufacturing enterprises will no doubt prove interesting. The Ontario Rolling Mills Company, of Hamilton, Ont., are the projectors of these new mills, which will be operated under the experienced management of Mr. W. Childs, with Mr. C. O. Jolley as mechanical superintendent. Both of these gentlemen have been for a number of years in the employ of the Ontario Rolling Mills Co., the former as secretary of the company, and the latter as superintendent of the nail works.

New buildings have been erected during the summer in which the various operations incident to the conversion of old wrought scrap iron into merchants' iron will be performed. The machinery and other apparatus for this purpose is of the latest and most improved design. The management purchased the plant of the defunct London Steel Works, to which they have made large additions of new machinery, comprising a 250 h. p. engine, a large condensing steam pump, a power hammer weighing 4,500 lbs., with 18 inch cylinder and 36 inch stroke, and four large steam boilers.

The buildings occupy a space of about 100 x 75 feet, and are rendered fire-proof by being covered with sheet iron. The site is close beside the Humber river, with excellent railway facilities, and is exceedingly well adapted for the purpose. One of the chief features of interest connected with the starting of this new enterprise, is found in the fact that gas fuel is to be used in the smelting furnaces instead of coal. This, we understand, is an entirely new departure in manufacturing in Canada, and its success will be certain to be watched with no little interest by the manufacturing community. This process of smelting is known as the "Smith Process," and comes from Pittsburg, Pa. It is claimed that a very considerable saving in cost is effected by using gas instead of coal for smelting. The saving is in using slack coal instead of lump, and in utilizing the waste heat as well as producing more perfect combustion. The current of gas and air comes in at one end of the furnace, burns over the iron, and escapes at the other end. The escaping gases make the brickwork very hot, and this heat is utilized by reversing the current, making the unburned gases come in over the hot bricks and escape by the former entrance, thus heating the gases before burning and producing more perfect combustion.

The gas is generated in four retorts, about 10 feet each in diameter and 12 feet high, placed about 30 feet distant from the three smelting furnaces. Three of these retorts supply gas through brick ducts to the furnaces. The gas generated in the fourth retort is distributed in equal proportions among the other three, which, without its aid, would be incapable of supplying the required amount of gas to the furnaces. The furnaces are so arranged that the supply of gas may enter the furnace from either side. By means of a valve connected with the gas conduit, the supply can be directed from one side of the furnace to the other, thus keeping all parts at an equal heat, facilitating smelting operations, and preventing the burning out of one part of the furnace. Some difficulty is being experienced in getting a sufficient supply of gas, and the experiments which are being made with the object of overcoming it, have delayed somewhat the commencement of manufacturing operations.

The mills will have a capacity of twenty-five to thirty tons per day, and will give employment to 150 men.



A still body of water at a temperature of from 75° to 80°, which is about the ordinary summer temperature, will evaporate about 3/8 of an inch in 24 hours if there is no wind. With the wind blowing at 20 miles an hour the evaporation will be about 1/2 inch.

TO FIX PENCIL DRAWINGS.—First pass the drawing through clear water, go carefully over with skimmed milk, using a camel's-hair pencil, dip in a weak solution of alum, and let it dry flat. Allow a thin solution of isinglass to run over the drawing on perfectly level surface.

WHY STEEL IS HARD TO WELD.—A metallurgist gives as a reason why steel will not weld as readily as wrought iron that it is not partially composed of cinder, as seems to be the case with wrought iron, which assists in forming a fusible alloy with the scale of oxidation formed on the surface of the iron in the furnace.

A recent appeal in the British House of Lords decided that a shipowner is responsible for faulty navigation on the part of the ship's master, the owners of the *Berengaria*, which was wrecked off the Yorkshire coast, being held liable to Messrs. E. & F. Richardson, of Sunderland, for £10,188, the value of the cargo of wheat.

An application of electricity to iron mining is now proposed. It consists in the crushing of magnetic iron ore by crusher and rolls, and effecting a separation of the ore from the gangue by means of dynamos. An experimental plant is to be erected at one of the Marquette mines, and machinery best adapted for work on a large scale tested.

INGENIOUS WAY OF COOLING A JOURNAL.—*Wood and Iron* says that quite an ingenious way of cooling a journal that cannot be stopped is to hang a short endless belt on the shaft next to the box and let the lower part of it run in cold water. The turning of the shaft carries the belt slowly around, bringing fresh cold water continually in contact with the heated shaft, and without spilling or spattering a drop of the water.

Of 150,000 carbons burned daily in the electric lights used in the United States, the carbons are made chiefly of the residuum of oil after it has been refined, and the deposit about natural gas wells is also coming into use. The material is ground to a powder, a little pitch is added, and the substance is then placed in moulds. These are packed in boxes, and the latter placed in a furnace, where they are subject to the most intense heat. The capacity of an ordinary furnace is 45,000 carbons.

La Semaine des Constructeurs gives the following recipe to preserve cast-iron from rusting. Clean the casting and wash in dilute acid; when dry, rub the surface with a file or metallic brush; then give it several coats of raw petroleum, each being thoroughly dried before the next is applied. When the last coat is dry rub well with a stiff "hair" brush, and a beautiful dull polish will be produced, that will resist a high degree of heat, and will not be attacked by rust. The polish may be indefinitely preserved and improved by the occasional application of a single coat of petroleum followed by the brushing.

RUST-PROOF WRAPPING PAPER.—A new method for preparing paper for wrapping metallic articles to prevent tarnishing consists in incorporating with the paper or applying to its surface a fine powder of metallic zinc in such a manner that it will adhere, so that when silver, copper, brass or iron articles are wrapped in the paper they will be preserved from rusting or tarnishing by reason of the mere affinity of the zinc for sulphurated hydrogen, chlorine or acid gases or vapors, and preventing them from rusting or tarnishing the metallic articles wrapped in such paper. This is done by sifting on the sheet of paper pulp, while it is in the process of manufacture, and before it is pressed and dried, a metallic zinc powder, known in commerce as blue powder, in convenient quantity, about to the extent of one-half the weight of the dried paper. The paper is then run between the press rolls and over the drying cylinders in the ordinary manner. The zinc powder will adhere to the paper and be partly incorporated with it in greater or less quantity, as the sheet of paper pulp is more or less thick or more or less wet. The paper may also be sized with glue or starch and then dusted with the zinc powder, or the zinc powder may be mixed with the size or starch and then applied to the surface of the paper by well-known methods.

HARDWOOD STRONGER THAN STEEL.—A statement recently appeared in this paper giving the results of a comparative test of hardwood with steel, and showing that the advantage of strength in proportion to weight was with the wood. The fact seems to have been unobserved until recently, and has occasioned much surprise to some of our readers, one of whom writes to us that the fact is "worth the price of the paper for the year" to him, but does not say to what use he puts it. But no matter it is still the fact that hardwood is stronger than steel in resistance to breaking weight. Some further advantages in favor of wood are thus stated by an exchange when an all steel machine is brought into sharp contact with some unyielding obstacle, its frame is liable to spring, and when once sprung its usefulness is at an end. It can not be straightened without resort to the shop for repairs. If a wood frame, it is not thus affected. If bent under a violent strain, it at once springs back to its original shape. A piece of steel one foot long and a half inch square weighs double as much as a piece of seasoned ash one foot long 1 3/4 inches square. In other words, the steel in proportion to bulk, is 15 1/2 times as heavy as the wood. A steel frame of a machine which is one-fifteenth as large as a wood frame weighs exactly the same as the wood. But even with this difference in size the wood has four times the strength. These are simple problems which every one can solve for himself.—*Western Manufacturer.*

SOMETHING FROM NOTHING.

THERE is no use of wasting time and money in trying to get something from nothing. Every time you try it, the result will be 0-1 never.

The same result also appears when a poor workman is set at work on a job he is incapable of doing. He does his best, but it is 0-1 again and the result is the same.

Sometimes the experiment is tried in the line of perpetual motion, then the result is, invariably, pocket minus dollars equals experience. Aside from the large cases where such folly is shown, there are always hundreds of little side issues where the same folly is continually being shown.

A fireman throws some water on his coal heap. He expects to "get more heat" from the coal by burning the water after it has been decomposed into gases.

Again, a man may try to do a large business against close competition with a poor outfit of tools. His machinery may be a trifle obsolete, and not able to turn out quite as large a product as the plants of this man's competitors.

In this case the same theory holds good. The poorly equipped man may be able to bring more brains to the struggle and thus out-generat his adversary in one direction and gain a victory, even when he loses in some other direction.

It is bad enough to run a large manufacturing plant, or even a small one, and not make money thereby. In this case you are taking nothing from something, and the plant is sure to suffer, even if you have nothing to show for your trouble.

Messrs. Runciman Bros., of Hamilton, Ont., manufacturers of the Hurford flour bolt, in a circular recently issued to millers, say: "We will agree to put the Hurford bolt into any mill on trial for 30 days, and if it does not give satisfaction, we will take out the same without cost to the miller."

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Desiring the services of COMPETENT ENGINEERS of any class, can obtain sober, intelligent and reliable men, by applying to the

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MACHINERY

FOR SALE.

LIST of miscellaneous machinery for sale by H. W. PETRIE, Brantford, Ont.

ONE Richmond Bran Duster.

PORTABLE Forges, genuine Buffalo make.

ONE Eureka Saut Machine.

ONE Dedenck Perpetual Hailing Press.

ONE Steam Rock Drilling Machine.

ONE Clover Huller and Thresher.

ONE French Filtre Rapide.

ONE Wind Sulky Plow.

ONE Soda Water Fountain.

ONE Card Cutter

LOT School Desk and Seat Castings.

POWER Meat Chopper, American make.

RUN of 40 inch Chop Stones

ONE Corn Husker, Sells' make.

CENTRIFUGAL Pumps, all sizes.

BLANKET Hemming Machine.

ONE Union Leather Splitter, 45 inch knife

ONE Machine to make Wooden Bowls.

ONE Shooting Gallery Tube.

ONE Clay Crusher, Galt make.

PAPER Bag Machine, New York make.

DIAMOND Mill Stone Dresser.

STURTEVANT Pressure Fans, all sizes.

ONE Set of Biscuit Machines.

ONE Bark Mill.

4 GREEN Corn Cutting Machines.

ONE large Iron Band Wheel.

ONE Self Binder, A. Harris, Son & Co.'s make.

ONE Wool Washing Machine, Galt make.

SET of heavy Vault Doors.

ONE Cast Iron Kettle, small size.

NO. 5 Rotary Pump, Waterous build.

41 FEET of 14 inch Leather Belt, double.

NEW 50 inch Double Exhaust Fan, Sturtevant make

ONE large Letter Press and several small ones.

ONE Power Pant Mill.

ONE Bone Mill.

ONE Bobbin Winder, Georgetown make.

TWO Sets Cable Wheels and Wire Rope.

ONE Cider Mill and Press.

SET of Flax Machines, Galt make.

ONE Silsby Steam Fire Engine.

ONE Hand Fire Engine.

ONE 4 ton Weigh Scales, Wilson make.

ONE Sugar Cane Mill, Cincinnati make.

SEND for Descriptive List giving full particulars and mention wants. H. W. PETRIE, Brantford and Toronto.

LIST of Water WHEELS.

ONE 60 inch Tyler.

60 inch Selater.

48 inch Lefel.

48 inch Tyler, in Scroll Case.

48 inch Selater.

45 inch Improved Turbine Water Wheel.

42 inch Sampson Turbine.

PAIR of Sampson Turbine Wheels, 42 inch, run together.

TWO 40 inch Leffels.

36 inch Selater.

35 inch Lefel.

33 inch Little Giant.

30 1/2 inch Lefel.

30 inch Burnham.

26 inch Lefel.

24 inch Lefel.

20 inch Lefel.

21 inch Little Giant.

17 1/2 inch Lefel.

15 inch Archmedian, In Globe case.

13 1/2 inch Lefel.

12 inch Little Giant.

WATER Wheel Governor, Galt make.

FULL particulars regarding any of above Water Wheels sent on application. Address H. W. PETRIE, Brantford, Ont.



SEALED TENDERS, addressed to the undersigned, and endorsed "Tender for Addition, etc., to Post-office at Cobourg, Ont." will be received at this office until Saturday, 10th November, 1888, for the several works required in the erection of addition, etc., to Post-office at Cobourg, Ont.

Specifications can be seen at the Department of Public Works, Ottawa, and at Mr. F. A. Munson's Law Office, Cobourg, on and after Tuesday, 10th October, and tenders will not be considered unless made on the form supplied and signed with actual signatures of tenderers.

An accepted bank cheque, payable to the order of the Minister of Public Works, equal to five per cent. of amount of tender, must accompany each tender. This cheque will be forfeited if the party decline the contract, or fail to complete the work 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. GOBELL, Secretary.

Department of Public Works, Ottawa, 11th October, 1888.

LUMBER PRICES.

Table with columns for LUMBER, CAR OR CARGO LOTS, and prices for various types of lumber like 1 1/2 inch thicker clear picks, 1 1/2 inch thicker, three uppers, Am ins., etc.

Table with columns for YARD QUOTATIONS, and prices for Mill cull boards and scantling, Shipping cull boards, premicus widths, etc.

Table with columns for M. M., and prices for 1 1/2 inch flooring, dressed, 1 1/2 inch flooring rough, etc.

Table with columns for MONTREAL PRICES, and prices for Ash, 1 to 4 in., M., Basswood, Walnut, per M., etc.

NEW YORK PRICES.

Table with columns for WHITE PINE, and prices for Uppers, Selects, Fine common, Cutting up, etc.

Table with columns for EASTERN SPRUCE, and prices for 9 to 12 in., 8 to 12 in., 6 to 12 in., etc.

Table with columns for SHINGLES, and prices for Pine, 16 in., extra, 18 in. extra, etc.

Table with columns for HEMLOCK, and prices for Timber, Joists, Boards, Lath, etc.

Table with columns for DRESSED LUMBER, CAR LOAD LOTS, and prices for No 1 flooring, 3/4 in., No 1 ceiling, 3/4 in., etc.

ALBANY, N. Y. PRICES.

Table with columns for SHINGLES AND LATH, and prices for Shingles, shaved pine, 2d quality, Sawed, extra, etc.

Table with columns for HEMLOCK, and prices for Boards, 10 in., each, Joist, 4x6, each, etc.

Table with columns for PINE, and prices for 2 1/2 in. and up, good, 4ths, Selects, etc.

Table with columns for BUFFALO AND TONAWANDA PRICES, and prices for No. 1, 1 and 1 1/2 in., No. 2, 1 and 1 1/2 in., etc.

Table with columns for WHITE PINE-ROUGH, and prices for Uppers, 1 and 1 1/2 in., 1 1/2 and 2 in., etc.

Table with columns for BUFFALO AND TONAWANDA PRICES, and prices for No. 1, 1 and 1 1/2 in., No. 2, 1 and 1 1/2 in., etc.

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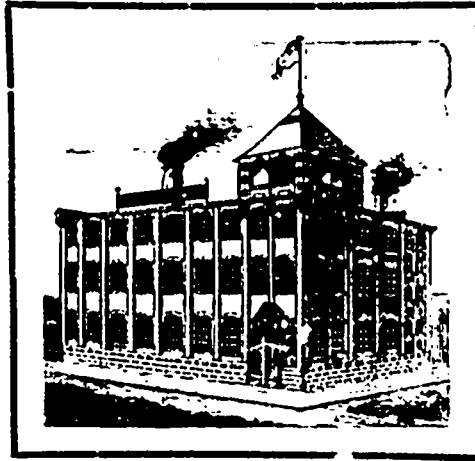
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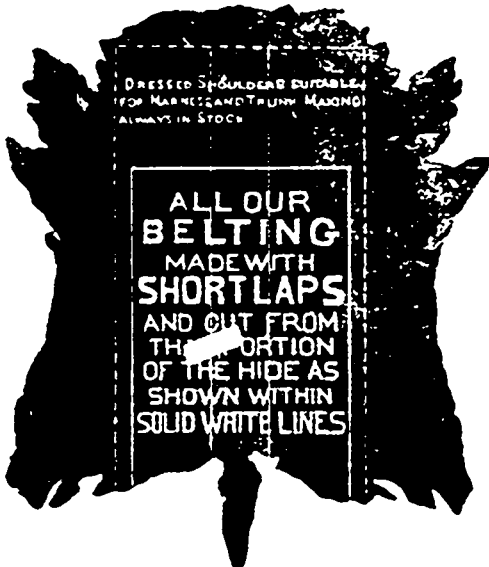
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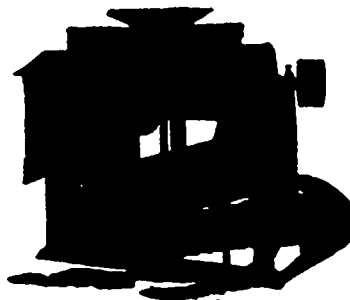
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The above machine is unsurpassed for thoroughly cleaning
wheat, oats, barley and other grain. One of these machines re-
cently put into Mr. Walter Thomson's mill at Seaford, Ont., is
doing most satisfactory work. Read the following testimonials:

Toronto, April 14th, 1883.

MESSRS. A. LAIDLAW & CO., Parkdale.

Gentlemen,—Your favor received, and with regard to the
Harley Cleaners you are manufacturing, we have much pleasure in
testifying to their general excellence. To the best of our know-
ledge 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, 1889.

MESSRS. A. LAIDLAW & CO., Parkdale.

Dear Sirs,—We are more than pleased with the Harley 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. HANTER.

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

Send for circular and testimonials,

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When were your Boilers last inspected? Are they in safe working order?
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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.

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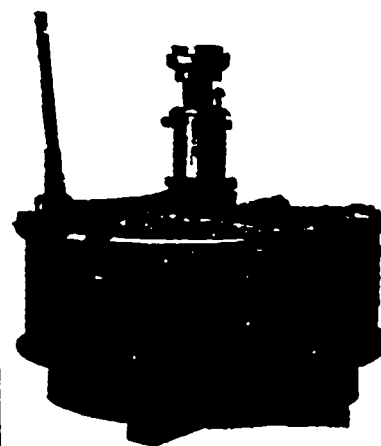
Write for information and price.

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SEAFORD, - ONTARIO,
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TURBINE WATER WHEELS,

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



FACTS FOR ENGINEERS AND THEIR EMPLOYERS.

"BY AUTOMATIC CUT-OFF."

THE time has gone by when any man will do for an engineer. Competition in manufacturing is keen. Engines, boilers, and their appliances, are improving every day. Machinery of every description is being built on better principles. This has been the direct result of much study and forethought on the part of the manufacturer. Now, in order that these machines may be properly used, it is necessary that the men who are placed in charge should have some idea of the responsibility they assume; also some mechanical ability, if they expect to succeed. No doubt experience is a good teacher, and many men have profited by it, but one man's experience with a few different kinds of engines is too slow for this age. We must keep moving. Take some of the mechanical papers, and study up what is in them pertaining to your calling. Watch the introduction of new engines and appliances. Study these carefully. Look for the defects in each: the vendor or manufacturer will post you on all the good points. Spend a little time and money on some of the many mechanical and engineering books. Do this with the intention of becoming a better engineer, and in one year you will be surprised at the result.

Cleanliness is next to Godliness. Keep your engine, boilers and other machinery under your care, clean, and above all things, keep out of the rum shop. Examine your boilers internally and externally often and carefully, find the defects before they become serious.

Keep your safety valves in proper working order all the time. Never miss a day without putting the steam high enough to blow off, and be sure they blow off at the pressure for which they are set. Examine the brick-work about the boiler and furnace and stop up any cracks that may be found with fire-clay or mortar. A few cracks will spoil your draught.

Clean out the furnace often. Brack off any clinkers that may form on the sides or bridge walls.

Keep your grate bars clean and free at the ends, and replace any that are burned out or badly warped. See that the air space in your grate is at least 40 per cent. of the whole area.

Keep your boiler free from scale inside. Properly pack all valve stems. Do not allow a constant drip to fall on any part of the boiler top. A constant drip will wear a hole in the boiler plate.

Learn the principles of combustion, the component parts of the coal, and the best and most economical way of firing your particular plant.

Do not be discouraged because things look hard to accomplish. True merit will be acknowledged every time, and it is only the thoughtful, studious man, that "gets there." No man, whether he be engineer, miller, sawyer or what not, will have reason to complain of the treatment received from his employer, if he thoroughly understands his business. Remember there is always room at the top.

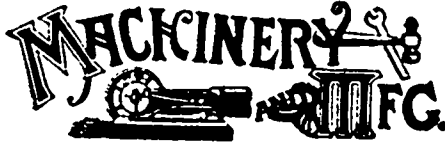
I hear some of the men say: "Oh, that's all very well, but if you were working for my boss, he would soon knock all such hifalutin ideas out of you." Well, now, I do not believe any such thing. I never saw an employer that was not reasonable, at least where his own pocket was interested, and it pays to keep and encourage good men. No person knows this better than a real live, successful manufacturer.

There are a few things, however, that employers would do well to think of in connection with their engineers. One of the first things is to get and keep a good engineer. Bear in mind that if he is an intelligent man, and you will consult and co-operate with him, your shut-downs, accidents and repairs, will be reduced to a minimum. Your engineer is usually the first man on the premises in the morning and the last to leave at night. If he is progressive, he will deny himself many holidays that other employes take advantage of; he will be sure to have some little fixing to be done that he can accomplish better by daylight, and when shut down, than at any other time. Give him a good word now and then. Send out to the engine room a copy of the MECHANICAL AND MILLING NEWS, or any other paper or pamphlet that you may have of use or interest to him as an engineer. He will appreciate it, and you will not be a loser by so doing. If you should see him reading anything of this sort, do not hustle around and find a little extra work of some kind for him to do. This is a mistake, and I have seen several instances of such mistakes, one of which, perhaps, it would be well to cite; A factory that had been running some years, enlarged and put in new power—200 h. p. engine and boilers to suit all first-class; and engaged the services of a good engineer. This man worked hard, very hard, for about two months, and by that time he had fixed up the whole

premises, and everything was in good repair. Now this man had practically got ahead of his work, and sometimes he did not have very much to do for a few hours. The manager came in one day, saw him sitting in the engine room reading, and said:—"See here I we hire men at this factory to work, not to sit around and read; I guess you are too good an engineer for us." Mr. Engineer left, and the manager hired another for a little less money. This man was also ambitious, and if he could manage to get a few minutes to himself, he would read or study. The manager told him he wanted a worker, not a reader, and he left. These two men ran that factory a year and never a shut-down that could in any way be charged to them. The third man was just right—he was a worker; a rusher. The shafting soon began to heat here and there, the engine and room go a little dirty, and one morning he could not start—had to send to the shop for a man. In one year, under this man's management, the engine was repaired twice and the boiler once, and the number of hours the place was idle made some of the hands dissatisfied.

I do not think an employer should keep a bed of roses for his men, but I do know that it pays to get a good man and use him like a man.

The fixed expenses of a factory are about the same whether the output is great or small. While the place is standing for some repair, the insurance, taxes, advertising and office expenses are going on just the same, and the factory that keeps its wheels turning every day will make the best return. For this reason man and master should do their very best to keep every thing going.



Coldwater, Ont., wants a foundry.

The Cobourg car works are lighted by 280 electric lights.

The Almonte Electric Light Company has been incorporated with a capital stock of \$20,000.

A joint stock company is being formed in Shelburne, Ont., to furnish the village with electric light.

Messrs. G. Ontram & Son, manufacturers of files, etc., will remove their works from Montreal to Port Hope, Ont.

A company has been formed to fit up a central power station from which to supply power to a number of manufactories at Dundas, Ont.

The town of St. John, Que., is being asked to grant a bonus of \$10,000, payable in \$1,000 yearly instalments, to the firm of Daly Bros., founders and machinists.

The mills and factories at Cornwall, which obtain their power from the Cornwall canal, have been compelled by the recent break in the canal, to cease operations.

The intelligence that the Government will grant the use of the waste water on the new canal, for purposes of power, gives much satisfaction to the people of St. Catharines.

Messrs. R. McDougall & Co.'s foundry at Galt, Ont., was destroyed by fire, October 4. Loss about \$7,000. Preparations are being made to rebuild the works on an enlarged scale.

The Hubbard Electric Manufacturing and Supply Company, with principal office at Montreal, has been incorporated with \$150,000 capital stock for the purposes indicated by the name.

Mr. W. J. Hare, of Oshawa, will at once rebuild his foundry recently destroyed by fire. The main building will be of brick 50x40 feet two stories high, and a brick moulding shop 50x50.

Krupp is about to commence the manufacture of aluminum from Greenland cryolite, by the Netto process, by which it is said that pure aluminum can be produced at almost 6c per pound.

In the annual report of the chairman of the Board of Steamboat Inspection, Mr. Risley, the chairman, points out that steam boilers in England are required to be submitted to a greater test than those in this country.

Workshops are about to be erected at Victoria, B.C., by the National Electric Light and Motor Co. for the manufacture and sale of electrical goods of every description, the generation and sale of electricity for light and power, and the construction and working of tramways.

The London Machine Tool Company has received orders to the extent of \$125,000 since the close of the Western Fair, which is tangible evidence of the reputation which their tools have attained among manufacturers. —London *Fr. Press*.

Mr. C. Heiser lost about \$5,000 by the destruction of his saw mill and furniture factory at Newstadt, Ont., on Oct. 19th. Insurance, \$1,000. A handsome subscription has been raised by Mr. Heiser's fellow citizens to enable him to re-build.

Messrs. Stahlshmidt & Co., the desk manufacturers of Preston, Ont., have recently added a new engine of larger capacity than their old one. They have paid back the loan made to them as a bonus by the corporation, although it was not due for a number of years yet.

At the last meeting of the Winnipeg council the following report of the Board of Works was adopted without discussion:—"The Board would recommend that the Council take steps to obtain a charter from the Dominion Parliament to control and operate the water power on the Assiniboine river within the city limits, and that the solicitor be instructed to make the necessary application.

Professor Ayrton has been making a calculation, and he makes it after this manner. "If we take as a low estimate that a large well-made steam engine burns only 2½ lbs. of coal per horse power per hour, the coal consumption which would be equivalent to the waste of power at Niagara would exceed 150,000 tons per annum, which, at only 5s. or 6s. per ton, means some 40,000,000 sterling wasted."

The *Engineer* thinks these things never will be settled:— Whether a long screw-driver is better than a short one of the same family. Whether water wheels run faster at night than they do in the daytime. The best way to harden steel. Which side of the belt should run next the pulley. The proper speed of line shafts. The right way to lace belts. Whether compression is economical or the reverse. The principle of the steam injector.

A subscriber sends the MECHANICAL AND MILLING NEWS a copy of the Shelby, (Mich.) *Independent* containing an account of the explosion of the boiler in the Blooming Valley saw mills at that place. The mill was blown to atoms, one man killed outright, two injured beyond recovery, and one less seriously. The explosion is said to have been due to insufficiency of water in the boiler. How many more such catastrophes will be required to bring about the exercise of greater experience and caution in the management of steam plants?

Chief Engineer Fagan, of the Consumer's Electric Light Co., Chicago, has just had a patent allowed him for a device to make a quick opening out of screw valves either globe or gate, which he designed particularly for throttle valves. Ordinarily should anything occur in the management of an engine, such as breaking of a belt, or should it become necessary to suddenly stop the engine, much time is lost in using the ordinary screw throttle. Mr. Fagan does away with the screw, however,—he adds a device whereby he can dispense with it when it is desirable.

With a view to providing a supply of good workmen the Carron Iron Works, the largest establishment of its kind in Great Britain, have established a technical school in connection with their works, and, to encourage the students, pay one-half the tuition fees of every pupil who puts in three-fourths of a possible attendance. The school is divided into two classes—science and art—and last year out of twenty-seven students examined twenty-one passed, with five marked "excellent." Models, casts, etc., are provided, as are also competent instructors in drawing, building construction, applied and theoretical mechanics, etc.

The refining of lubricating oils from refuse, a new industry commenced some months ago by Discoteau & Defontaine on a small island near the mouth of the Columbia River has been attended with much success. According to law the canneries are prohibited from throwing away the salmon refuse as long as a refinery is in working order and can use the refuse. In this way the refiners have an opportunity of securing material at a very small cost, and the only real expense is in extracting and refining the oil. So far this season 2,000 gallons have been refined, and 3,000 gallons more will be made before the season closes. Had the salmon run been good this year these figures would have been doubled or trebled. Two grades of oil are refined and both are admitted to be fine lubricators.

An Ottawa despatch says. Mr. Simon Jones, of St. John, N. B., Dominion Trade Commissioner to the Argentine Confederation, was in town yesterday and presented his report to the Minister of Finance. The report will be presented to Parliament in the ordinary way. He considers that steamers of 1,200 or 1,400 tons would be the best to employ in the South American trade. With the heavy engines now in use such vessels could make the trip without consuming such immense quantities of fuel as the larger steamers. If the Government grant a subsidy for steamers of this kind they will have to permit them to take return cargoes, either to ports in the United States or England, as the steamers would not be able to return freights for Canada. The Dominion wants nothing that the Argentine Republic produces, and very little that is grown in Brazil. Canadian coal and lumber would find a ready market in South America.

The enormous consumption of coal annually lends an interest to any scheme which may be proposed to make steam without burning coal. The advantages of burning petroleum under a boiler to generate steam, have already been detailed in these columns, says the *Boston Journal of Commerce*. The latest scheme to render petroleum a cleanly, healthful, convenient, safe and cheap fuel is said by our Chicago namesake to have been accomplished by solidifying petroleum. The process is said to be exceedingly cheap and simple, yielding a product absolutely non-explosive and, while burning, perfectly odorless and smokeless. This new prepared petroleum fuel when ready for consumption is not hard or "bricky," but has about the consistency of tallow, and it is of a grayish yellow hue. It loses none of its properties by age, does not liquify by its own heat when burning, although its flame is fierce, uniform and intensely hot. The residuum is small, perfectly clean, and itself has domestic value.

Edward Atkinson shows how great the value of a single invention may be to a country. The self-binder was first successfully attached to the reaper in 1876; from 1876 to 1876 inclusive the U.S. average crop of wheat, varying more with the season than with the planted area, had been 238,000,000 bushels. In 1877, when the self-binder first began to be used, the crop amounted to nearly 364,000,000 bushels. Again in 1878 it mounted up; and from that date to 1887 inclusive, in which period the use of the self-binder had become general, the average crop, varying more with season than the planted area, was 440,000,000 bushels. Could the crops of the last ten years have been saved without the self-binder? When we consider that the total number of self-binding reapers now made and sold is more than 100,000 a year, requiring over 30,000 tons of twine to bind a single wheat crop, do we not find in the tying of the knot on the self-binding harvester a main factor in the export of grain with the returning import of gold, on which we resumed specie payment? By that single improvement the cost of wheat was reduced not less than 6 per cent., and in some places 10 per cent.

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Correspondents' Opinions.

PROFITS IN SIGHT AT LAST.

SIMCOE, ONT., Oct. 16, 1888.

EDGE MECHANICAL AND MILLING NEWS.

DEAR SIR,—Please omit the "Co." in addressing your paper in future, as I have purchased my late partner's interest. There is not much milling news to report. The milling business is better, however, and profits larger than for years past. We have a great pea harvest in this locality. Over 100 car loads have been shipped out to date this season. We would like to hear of a town in Ontario that can beat this.

Yours truly,

W. B. BROWNE.

BENEFICIAL EFFECTS OF ACKNOWLEDGING ONE'S MISTAKES.

EDGE MECHANICAL AND MILLING NEWS.

SOME people never err, at least they think so, for they have never been heard to own a mistake, though the old saying has it: "To err is human." Some would fain have others believe that they are infallible, and often tug hard against their own better judgment to convince themselves to this effect. The wish is father to the thought, and while it is commendable to desire to be in the right, it is superlative folly to persist in a course that is wrong, simply because one does not wish to retract. The false notion is often indulged, that it is a mark of a heroic and noble mind never to recede from a position once assumed in word or deed.

The brightest examples of history, from every pursuit of life, were men who were highly sensible of their own weakness, and ready to point out their own shortcomings, often, too, when their faults were so concealed as to escape the notice of others.

Occasionally, it is true, a man of a perverse disposition achieves success in his vocation, which is due more to a happy combination of circumstances, than to intelligent, sagacious direction. Pertinacity, with narrow-mindedness and bigotry, make a trio which are inseparable, and which has blocked the avenue of progress for many an otherwise capable and worthy individual.

In reference to the miller and the mill, this proposition can be well established, and many are the instances that could be cited. The operative succeeds by rectifying his blunders. The unaccustomed tasks of the beginner are likely to bewilder him, and end in frequent mistakes before the necessary skill is acquired. To avoid mistakes is good advice to beginners, but to acknowledge them after they are made, is still better advice, because the latter is within the ability of all to do, while the former is not; and to see one's faults is the sure way to correct them and avoid their repetition. A blundering beginner, willing to learn and open to conviction, will outstrip every time his companion who is so careful that he is above pleading guilty of an error. It pays to be careful, but it pays better still if careful and honest to a fault, sensible of his ignorance and needs, the learner is led to honest inquiry; and this is as it should be. No one censures or under-estimates the man because he does not understand everything he hears or sees, and therefore asks an explanation. Just so with the beginner in the mill—he is not born with a knowledge of milling, therefore he must acquire it. Tradition tells us of born millers, qualified by nature, without preparation or experience to mill the grain. If this be true, modern milling has scored a point against nature, for now millers, whether born or educated fit for the task, must be reconstructed. Ordinarily, the average miller meets with many a difficulty which cannot be speedily removed. Time, study and work are required to fully master the situation, and when at last the victory is won, and the field of action is reviewed, how plain the mistakes that were committed! The miller who has never gone wrong has never ventured much, and as a result, has never attained to much. "Nothing venture, nothing win," expresses the truth verified by daily experience. The most skilled operative is not exempt from the possibility of mistakes; his ambition presses him on, and his attempts are often experimental. In the present transition of the process of milling, the operative must release many ideas, and practice new measures to qualify him for the position he must now occupy; he must initiate himself into the new departure, and it is impossible for him to learn without experimenting. When defeated, he makes a new start.

No one will fail to see the benefit of owning one's mistakes at this juncture. This particular time will be the turning point of a man's career. Either he will see his errors and profit by them, or he will persist in his self-conceit and prove a complete failure. Examples of both kinds are in abundance. Without exception, the

successful roller millers have sprung from the ranks of burr millers; but they have been men neither ashamed nor afraid to own their faults; consequently they have improved their opportunities to the best advantage. The botch roller miller is the individual who knows the burrs are best and rolls all wrong, who says he knows what is right and wrong because he never makes a mistake.

The subject has not only a bearing on the operative, but it is indirectly of great consequence in the art and industry of milling. What affects the operative must wield its influence on his pursuit. Invention and development in milling appliances are dependant upon recognizing the necessity of advancement. Some think it is so humiliating to acknowledge a mistake, never realizing the beneficial effects of acknowledging their mistakes, and never appreciating, as a writer forcibly says, "that to acknowledge that we are wrong is but saying that we are wiser to-day than we were yesterday."

Yours truly,

LUCIFER.

TIDAL MILLS ON THE ELBE.

GERMAN contemporary announces the approaching demolition of three of the eleven tidal mills left on the river Elbe. Half a century ago there were some 120 tidal mills on this stream, but of late years they have been fast disappearing before "the advance of civilization," in this case represented by a deepened river and larger river steamers, in whose course these structures were a nuisance, not to say a danger. For this reason these floating mills have been vanishing one after another, but it is satisfactory to learn that wherever their owners have been able to produce anything like a prescriptive title they have been compensated. In old times advantageous positions on this and other German rivers were granted to individuals who had in any way deserved well of the State. If we mistake not, it was on the Elbe that a tidal miller performed during the wars of the first French Empire the feat of taking a whole detachment of Napoleon's soldiers captive. The story runs that one evening the miller received a visit from an infantry detachment, which formed part of the vanguard of the French army advancing against Prussia. Like a wise man, he accepted the inevitable with grace, and begged his captors to make themselves as comfortable as possible. After he had put the soldiers in good humour he proceeded to offer them Prussian hospitality in the shape of a bowl of very stiff punch, which, coming after a hard day's marching, had the effect of sending every man of the detachment into a sound sleep. Whereupon the wily miller slipped his mill from her moorings and let the boat drift down the stream until he had fairly got his guests within the Prussian lines, where the captors were rudely awakened from their nap to find themselves captives. For this service to his country, which, had a single Frenchman awoke, would probably have cost him his life, the King of Prussia granted to the brave miller a special position by the Bridge of Wittenberg, in the Prussian province of Saxony; and we believe that his descendants continued to enjoy the privilege until last year, when their rights were sold to the Elbe Navigation for £1,500, and the old tidal mill broken up.—*The Miller*.

SOLID DRAWN COPPER TUBES.

AT the Glasgow Exhibition the Tharsis Sulphur and Copper Company exhibit cylindrical copper billets used for making solid drawn tubes by a process invented by Mr. James Robertson. These billets are usually about 30 in. long and from 4 in. to 7 in. diameter. *Industries* describes the process as follows:

In practice, a hole 1/4 in. diameter is bored right through the billet by drills from either end. The billet is then lightly skinned in a lathe to clean the surface, after which it is enclosed in a cast-steel container made in halves and bored out to suit the particular size of the billet. This container rests on a stout bed plate, and remains stationary while a pear-shaped mandrel attached to a revolving hydraulic ram is entered at one end of the hole in the billet. A flexible tube inserted in the other end of the hole supplies lubricant. On pressure being applied to the revolving ram which carries the mandrel, the metal of the billet gradually flows back in the container, in front of the mandrel, and in a few minutes the mandrel pierces the elongated billet, leaving a shell having the original outside diameter, but with a hole corresponding to the size of the mandrel. A sample cut in halves shows the operation partially completed. After annealing, this shell is ready for drawing hot in rolls, or cold in the usual draw benches. The temperature of the shell or mandrel never exceeds 120 degs.

Fahr., and the only waste occurring in the process is the 1/4 in. hole through the centre of the billet, and the surface cleaning. This hole, however, is only a convenience and is not an essential, for very frequently tubes are pierced out of the solid, it being only a question of a little more power and a somewhat longer time.

Oval billets are produced for another process of making solid drawn copper tubes, and measure 24 in. by 10 1/2 in. by 2 1/2 in. thick, which are rolled hot in the direction of the shortest diameter till they become circular discs about 30 in. diameter. By means of suitable dies and mandrels in a hydraulic press, and after annealing, these discs are cold worked successively into basins, conical domes, and ultimately into parallel tubes having one end closed. On punching out this closed end, a shell about 5 feet long remains for finishing on the draw benches, and, with the exception of the closed end, all the metal of the original oval cake is in the shell.

AN IMMENSE CASTING.

LAST week, says the *Boston Journal of Commerce* the heaviest casting ever made in the world was successfully run at the Pittsburgh steel casting works. The difficulties were of an exceptional nature, owing to the peculiar shape of the casting, resulting in unequal shrinkage. The mass of metal is intended to serve for the stern post of the war ship Maine, now building at the Brooklyn navy-yard for the government. It is an L-shaped affair, the two arms measuring respectively twenty-six and thirteen feet, portions of the casting being forty-two inches thick. The heaviest portion is to act as a ram when upon the boat Maine. To fill the mould called for 11 tons of steel, 22,000 pounds and it will weigh 18,000 pounds, nearly 2,000 more than the steel gun recently cast at this establishment. Two ladles, one containing nine tons, the other two tons, were drained into the mould in the short time of 1.14 3/4. The utmost skill and celerity on the part of the men in charge, under superintendent Heinsworth, was necessary to the successful completion of the casting, a fact recognized by the gentlemen, who ordered each man to take part in a little treat after the pouring had been finished. Lieuts. Arnold and Forne represented the government, and inspected the work at every stage of its continuance. It will require five weeks to finish the stern post, and when mounted on a car for shipment east, the casting will extend from a few inches of the ties to within four inches of the roofs of the tunnels. A rudder post and other large castings for the same vessel will also be made at the Pittsburgh casting company's works.

WORN-OUT SAWS PUT TO GOOD USE.

SAYS a New York journal of recent date: A wagon heavily laden with a nondescript assortment of old saws in every stage of decrepitude was slowly wending its way along Greenwich avenue the other day. The curious collection caught the eye of a reporter who, hailing the driver, inquired whither he was bound with his unique load. "Jump aboard and I will show you." The reporter clambered to the lofty seat and there obtained a closer view of what appeared to be the most valueless rubbish imaginable. There were hundreds of saws in the load of every kind, from the long and broad two-handed instrument of the lumber camp to the delicate scroll saw of the cabinet-maker, and there was not a whole one in the wagon. Proceeding slowly to a neighboring street, the driver turned in the yard of a large factory, where the broken and rusty relics were dumped upon the ground to be sorted into separate piles according to their worth. "You will be surprised," said one of the proprietors of the establishment, "when you learn the use to which these old saws are put after they leave our hands." Then leading the way into the exhibition room of the place, the reporter's attention was called to a show-case containing a collection of engineering tools of delicate make and exquisite finish, including rules, sextants, quadrants, compasses, lancets and knives of the finest manufacture and all highly polished. "Every one of these scientific instruments," said the proprietor, "is made from the same stock which you saw dumped upon the ground a few moments ago. We make a regular business of buying used-up saws from carpenters, cabinet-makers and others all over the city, which we transform into these delicate tools, and they are the best materials for our purpose. It is not generally known that saws are made of the finest and best tempered steel, but it is a fact, and as we get them for prices usually paid for junk, it is much cheaper than manufacturing our own product."

The farmers on the Mississippi River between Playfairville and Ferguson's Falls are claiming damages for injury done to their hay by the letting of the water out of a dam which had been built across the river by Messrs. McLean & Edwards.

THE LOCATING OF MACHINERY.

BY JOHN KANE.

OF the many persons who purchase machines, there seems to be but few who give much thought to the matter of locating them. They will perchance cast their eyes to the line shaft, and see where they can most easily take out a length, put on a pulley to drive the machine in question, re-couple the shaft, place the belts and start up the machine; or they may select some part of the floor that has the most open space, forgetting all other considerations, and place the machine there. Again, others want a machine to stand at right angles to the line shaft, but not knowing how to lead the belts to the machine, give it up and do what they consider the next best thing, which may be entirely unsuited for the purpose intended. In either of these cases, as well as many others, the machines are a continual source of delay and trouble, costing a great deal more time and money to operate them as well as to get work to and from them.

I have seen a buzz or hand planer placed in the darkest corner of a shop, requiring a gas light almost all the time; I have also seen upright shapers so close to a wall that one-half of their work had to be done on the next one, thereby causing delay and extra cost of production. Again, I have known of large planing and matching machines so placed that all the lumber that passed through them had to be handled at least twice as much as it would have been if a little consideration and study had been done on the start.

A great part of the success of some establishments is largely due to the advantageous location of the various machines used therein. Light being absolutely necessary to the production of good work, it should be one of the first considerations. An illustration of this fact is had by comparing the amount of work performed by a man on a machine in good, clear daylight, with that done by the same man, on the same machine, while using gas or other artificial light (electric light is not taken into consideration here). Convenience in getting stuff to and from a machine is another important item. No machine that is tucked away in a corner, or has its surroundings of such a nature that extra exertion and work have to be employed to supply it, can do justice to its maker, operator, or owner, the machine may possibly do as much work but it will be at an extra expense.

Another important feature to be considered in locating a machine is that it should have plenty of room. It is neither pleasant nor profitable to have a saw table and buzz planer so close together that every time either operator steps back with his work he is compelled to climb upon the other's back, neither is it just the thing to have a board running through a rip-saw machine strike the mortising operator in the back, until he wishes the saw was at least three or four feet away in his rear. You see there is a good deal of backing to my arguments in favor of ample room. Why, I would give them plenty of room if only for the same reason that Mark Twain invented his scrap book, viz.: to save barrels of profanity.

Finally a lot of machines should be so placed in relation to one another, that no piece of work would have to pass a machine without being operated on, if necessary. It is poor policy to have a machine operator have to pass his work clear to the other end of the shop for the next process, and then back to the middle of the shop, and so on through all the processes. I have in my eye an establishment that took in lumber at one end and brought the finished work out at the same door, and I can truthfully say that each piece that was cut up as it entered was carried up and down the whole length of the shop at least three times, and that, too, when there was not the least reason for so doing, as there was plenty of room and light everywhere. I said there was no reason for it; there was: the owner's lack of studying and reasoning faculties when he started, and they have developed nothing better yet. After the stuff was sawn into lengths and widths, it would run against a boring machine, around a sand-papering machine, and under an upright shaper to reach the planer, when planed it would go through a like devious path to reach the buzz planer, and so on until it was taken to the finishing room. How they managed there I don't know, as I was glad to get out of the machine room, and considered that I had accomplished quite a feat with my big feet. It is needless to say that other concerns in the same line of business do not fear the competition in trade of such a shop as the one just mentioned. They have no need to; such shops are generally as untidy and wasteful as they are inconvenient. System is one of the fundamental principles of success, and is nowhere more clearly shown than in the locating of machinery.

In contra-distinction to the above class of shops, I would say that it gave me great pleasure to go through a large furniture factory not long since, upon the invitation of the superintendent, with whom I am acquainted, and know that his great hobby is system. The machinery was so placed that the lumber went in at one end and door, and out the other, almost as quickly as the boy who went through college in the same manner, with this difference, the lumber showed the results of "going through" by being a finished piece of work. It first went to the cut-off saw, thence to the ripping saw, then through the planing machine, afterwards to the jointing machine, band saw, scroll saw, or sand-papering machine, as occasion demanded, but no unnecessary steps were taken, and there was no going back. Once started it went like clock-work, smoothly and without friction. The same organized system extended, as a matter of course, to all the different departments, and I can assure you that any visitor to that factory will be favorably impressed with the *modus operandi*, no matter if he doesn't know a tenoning machine from a corn sheller. He will leave the premises with the impression that the brain having in charge the mechanical part of the works, understands the value of a system of locating machinery.

Not long since the writer had a part in supplying a factory that had been run on the good old hap-hazard plan, with some new machinery as it was being enlarged. An efficient mechanic who makes such things his special business, was employed to arrange and set the new works.

Looking the situation over carefully, he began to dispose of the different machines in such a manner that they would be placed where they would do the most good, but after about two-thirds had been so arranged the owner came into the building and the new order of things was so entirely at variance with the old, that he ordered them changed. Expostulations and explanations were in vain; he must have them something like what they had been for the past fifteen years. The expert would not submit and he left. Well the machines were all re-arranged and two of them so close together that the men could not work, and Mr. Owner ordered two feet to be sawed off the rip saw table before he would acknowledge his error, it then had to be moved and patched up before it could be used at all. Not long since the same factory caught fire by reason of their not having the exhaust fan properly put up, entailing a loss of several thousand dollars. This severe loss was caused by ignorance and obstinacy; hard words but true.

Machines are often required to be placed at right angles, or even at any angle to the line shaft for a matter of convenience, etc. This can easily be performed with the aid of a "mule pulley stand," a mechanical device but little known. It is far better for all ordinary purposes than bevel gears, and can be used to transmit power to almost any angle within the same plane or nearly so. It consists of a standard or column suspended from the ceiling at any point suitable to turn the belt. It is provided with two idle pulleys revolving on stems which are adjustable in any direction; it receives the belt from the line shaft and turns it round the corner to the countershaft at any angle; it is simple, reliable and noiseless and promises to take the place of many bevel gears. The first cost is much less than that of gears and it is easily put up by anyone.

Belt carriers are also a useful appliance for the transmission of power from one side of the shop to the other. They can be placed midway between the delivering and receiving points, and hold the belt up out of the way—in other words, take up all unnecessary "sag." They are made with a column hanging down from the ceiling and have two pulleys for upper and lower side of the belt revolving on spindles at right angles to the column or stand; they are also adjustable in any direction, thereby allowing the leading or direction of a belt, and they also save a long belt from excessive strain.

Indeed mechanical appliances for transmitting power in any direction are so numerous and varied, that with a little good judgment there is no valid reason why the art of setting up and locating machinery should not be thoroughly executed and machines conveniently arranged.

The Bell Electric Lighting Company have closed a contract with the town of Mitchell for thirty-five lights to be supplied at once. The number will be supplemented in the spring.

Godby & Tredale's saw mill at Gleumeyer, Ont., and 5,000 feet of lumber burned October 5th. Loss, 4,000; insurance \$1,200.

Graves & Co.'s planing mill, and C. W. Smith's cooper shop at Mount Brydges, Ont., were destroyed by fire on the 19th Oct. Some of the machinery and stock, etc., were saved, but the loss is heavy and there is little insurance.



Napoleon Lemay, St. Camille, Que., has ordered another Eureka smutter from Wm. & J. G. Greey, Toronto.

Sandy McVean, of Dresden, Ont., has ordered a wheat heater and steamer from Wm. & J. G. Greey, of Toronto.

A. Hunter, of Coleman, Ont., is putting in a chopping mill, and has ordered a second-hand 4 ft. stone and rig from Wm. & J. G. Greey, Toronto, Ont.

Dobson & Campbell, of Beaverton, Ont., have placed an order with Wm. & J. G. Greey of Toronto, Ont., for brush machine and a lot of other machinery.

The St. Hyacinthe Oil and Paint Co. are increasing their plant and have ordered a 24 inch dry paint mill from Wm. & J. G. Greey, 2 Church st., Toronto.

W. H. Bradley of Nashank Village, N. B. is getting out a mill to supply the neighborhood with Buckwheat flour and has ordered a 30 inch double geared under runner buckwheat mill from Wm. & J. G. Greey, Toronto.

Mr. W. Little, of Teeswater, has placed his order with Wm. & J. G. Greey, of Toronto, for a complete outfit of roller mill machinery, including a line of Greey's new rope driven connected rolls, also Greey's improved flour dressers and purifiers.

Wm. Ross & Sons, Brussels, Ont., have their mill running again with one of Wm. & J. G. Greey's lines of connected rolls and their new rope drive. They express themselves as well pleased with the work it does and the little power it takes.

Wm. Needler, of Bobcaygeon, Ont., is having a line of Wm. & J. G. Greey's connected rolls, with rope drive, placed in the mill he recently purchased from Mr. Boyd. When completed this is expected to be one of the best small mills in the province.

Rathburn & Co., of Deseronto, Ont., have become alive to the importance of a steady and regular motion in their mills, and have ordered a motion indicator from Wm. & J. G. Greey. This little machine unerringly shows any variation in speed and at once gives notice.

Cook & Cole, of Wolsley, N. W. T., are enlarging the capacity of their roller mill at that place, erected two years ago, and have ordered a double set of 9x24 rolls, and a No. 3 purifier and other machinery from Wm. & J. G. Greey, of Toronto. Business must be booming out at Wolsley.

H. A. Mulhern, of the Ottonabee mills, Peterboro' Ont., has determined to have his wheat in the very best possible condition for milling, water mill though his is, and has ordered a steam generator and two Victor wheat heaters from Wm. & J. G. Greey, Toronto, who have promptly supplied them.

The little Province of Prince Edward Island keeps doing a steady little trade of its own in mill machinery. Messrs. Wm. & J. G. Greey have recently received orders from there for 3 Eureka smutters, 1 combined smutter and brush machine, 2 sets of second hand millstones and rigs complete, besides batting cloths, etc.

The Boiler Inspection and Insurance Company of Canada, whose head office is in this city, will apply for an act granting them power to include under their policies insurance covering loss of life or injury to persons resulting from explosion of injured boilers, and also to transact a plate glass insurance business.

John Gregory, of Whitehead, Man., is enlarging and improving his roller flour mill built four years ago, and has ordered from Wm. & J. G. Greey, of Toronto, rolls, round scalpels and the other machinery necessary, besides sending his old rolls to Wm. & J. G. Greey to be reground and corrugated; a long trip for the rolls.

Mr. Anthony Goettler, of Schringville, Ont., has fitted up his mill with roller machinery, using five double sets of 9x15 and 9x18 rolls, coupled together and driven from one end by two rope pulleys. Mr. Goettler asserts that it takes less power to drive his whole mill than it formerly did to drive the wheat stone alone. Messrs. Wm. & J. G. Greey, of Toronto, are the builders.

A. W. Ogilvie & Co. know when they get a good thing and stick to it. They have ordered some more Cockrell cases for their wheat cleaners from Wm. & J. G. Greey, of Toronto, who have already supplied these cases for Messrs. Ogilvie's mills at Montreal, Seaforth and Winnipeg. Messrs. Greey also report sales of these cases to R. J. Skinner, Morrisburg, Ont., and Mr. H. Bechley, of Cambridge, and others.

We are pleased to learn from Messrs. C. W. Allen & Co., patentees and manufacturers of the "Dandy" bag holder, that the device is meeting with favor and ready sale. Messrs. Allen & Co., have just sold to the Sifton Manufacturing Co., of Chicago, the right to manufacture and sell this invention in the States of Illinois, Wisconsin, Iowa, Indiana, Michigan and Ohio. The castings will be made by Pratt & Letchworth, of Buffalo.

H. Brown & Son, Carleton Place, Ont., having decided to have an oatmeal mill fully equipped with the latest improved machinery, placed their order with Wm. & J. G. Greey, of Toronto, who have just completed the contract, the mill being ready for operation. One of the special features is the manufacture of rolled oats, and the use of a steam generator and machine for steaming the oats before rolling and drying them after rolling, this being the first machine of the kind made in Canada.

The 3-roll choppers manufactured by Wm. & J. G. Greey, of Toronto, do not lose any of their popularity with millers, but appear to be gaining ground all the time. Messrs. Greey have shipped these choppers lately to R. Ironsides, Manitou, Man.; R. McGowan, Durham, Ont.; G. S. Baldwin, Aurora, Ont., and Neil McCahill, of Forest, Ont. T. Hayne, of Iridgen, Ont., went over to Forest to see the choppers at work in McCahill's mill, and was so pleased with it that he at once telegraphed an order for one for his mill.

THE MILLER'S 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 claim 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-ten pairs of 9 x 24 inch Rolls, and as loose 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 GRINDING ROLLS AND CALLENDERS USED IN GRAM MILLS, RUBBER FA TOMES, 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., P. S. MALLOCH, of Hamilton; CHARLES RIORDAN, of Toronto.



Ocean freight for lumber have advanced to nearly double the figures which prevailed early in the season.

Mr. Henry Lath, of Shakespeare, Ont., has sold his stock of lumber, and purchased a saw mill on the Saugeen.

Mr. A. B. Noble has sold his shingle mill in Shelburne, Ont., to Mr. Hardy, who will put in a new portable engine.

Buswell's saw mill, on Spanish River, was destroyed by fire on Monday, Oct. 15th. Loss, \$40,000; no insurance.

The lumber firm of Thompson & Ellis, Fenelon Falls, Ont., has been dissolved, Mr. Ellis continuing the business alone.

Hungerford's burned mill at Glen Lewis, will be rebuilt in time for spring work. About \$500 worth of machinery was saved.

The new saw mill on the Fraser River, B. C., being erected by the Ross McLaren Co., will be in running order by next June.

Drummond Island in the Georgian Bay will be the scene of extensive lumbering operations for the first time the coming winter.

The Ontario lumbermen are in communication with the railway authorities with the object of securing better carrying accommodation.

Seven million feet of lumber valued at \$90,000 have arrived at Selkirk, Man., from the mills on the great fresh water lakes to the north.

Lumbering operations have fairly commenced in the woods. Every train going north bears its contingent of men making for the camps.

It is understood that the Ontario Government will shortly place a number of valuable timber limits in the Sudbury district on the market.

The Saginaw Salt and Lumber Company will cut 20,000,000 feet for export on Fitzwilliam Island, Georgian Bay, during the coming winter.

Hollister & Jewett's mill at Gordon River, Ont., has made its first cut of 400,000 feet of lumber, which has been purchased by a Chicago dealer.

The bursting of a saw in Richardson's shingle mill, Rockwood, Ont., on the 6th of October caused fatal injuries to a 14-year-old son of the proprietor.

Two thousand men are said to have been sent up to the woods from Ottawa this fall, and that, before the snow falls, fully as many more will go up.

Notwithstanding the recent death of Hon. J. G. Ross, of Quebec, the Ross McLaren mill project at Westminster, B.C., will be commenced at once.

Messrs. R. Lewis and B. W. Greer have left London, Ont., for Little Rock, Arkansas, to look after the timber lands owned by a London syndicate in that neighborhood.

Mr. H. J. Cloan, a prominent lawyer of Montreal, is said to have bought one hundred square miles of timber limits on the Ottawa and intends forsaking law for lumber.

Owing to an abundance of rain which kept a plentiful supply of water in the streams, the Nova Scotia saw mills have done a large business during the season now about to close.

There is now piled at Ridgewater, N. S., about 8,000,000 feet of lumber, at Port Medway, 4,000,000 and at Liverpool 2,000,000, which may have to remain over winter or serve for winter shipment.

We learn from the annual report of the Ontario Minister of Crown Lands, that the revenue of the department, during the year, exclusive of the sales of timber limits last December, amounts to \$590,000.

Sandford Fleming has handed in his report on the condition of the Ottawa river. He finds that the discharge of sawdust from the mills does not affect navigation but that the bays are liable to fill up in time.

Complaints are made concerning the depredations of timber thieves from Dakota on the southern boundary of Manitoba, and it is said a patrol of mounted police will be detailed to put a stop to the practice.

Leigh Robertson, who built the celebrated Joggins raft, says there will be an end of business if the export duty is levied and timber owners hold to high prices. It cost a great deal more to get the raft torn apart than he supposed.

Hamilton Bros. mills and 150,000 feet of logs at Hawkesbury, Ont., have been purchased by a syndicate composed of Hiram Robinson, W. R. Thistle, H. K. Egan and Robert Blackburn, who have already sent 250 men into the woods.

Hugh R. Robertson has returned to St. John, N. B., from New York. He says it took fifty-five days to break up the big raft. He has an engagement to build two rafts on the Pacific coast, one to be floated to San Francisco and the other to Valparaiso.

Mr. Joseph Oaver, of the firm of Donogh & Oliver, this city, after visiting the Pacific coast, is greatly impressed with the timber resources of British Columbia and Alberta, and gives it as his opinion that as a producer of lumber as well as wheat, the Canadian Northwest is destined to rival the United States.

The Commissioner of Inland Revenue has given instructions that hereafter no lumber which has passed through the Lachine or Ottawa river canals shall be delivered up unless a *bona fide* cheque, properly endorsed by the owner himself, is presented. The change is aimed at the middlemen, who have been making a fat thing out of the present arrangement. Matters had reached such a pass that it became risky for bankers to advance on timbers, as heretofore anyone having a specification and filing it at the office, provided the dues were paid, could have the lumber delivered up to them.

Mr. Sandford Fleming's report of his examination of the bed of the Ottawa River has been received by Mr. Bronson, M. P. It will not be made public until next year, when it will be presented to the Government by the lumbermen. Mr. Bronson says the lumbermen are serious in their threats to remove from Ottawa if the Government restrains them from throwing mill refuse into the river.

The demand for Canadian shingles in the American market has developed quite an important industry in that line in New Brunswick, where, in some localities more men are employed getting out cedar logs for shingles than pine logs for lumber. Messrs. Haze & Co., who have built a new shingle mill at the mouth of the Charlo river, Restigouche county, operate no less than 30 shingle machines.

The total value of forest products entered at the United States consulate at Ottawa for shipment to the States for the quarter ended September 30th aggregate \$86,000. This includes fifty-nine million feet of sawn lumber, of which five million feet was shipped in bond for re-export from American ports. Thirty-six million feet were shipped by water and the remainder by direct rail transport.

The law requiring saw mill owners to prevent the sawdust from entering the streams, is causing much comment among mill men in Nova Scotia. It is stated that as most of the mills in Nova Scotia are direct action, there will be waste in any attempt to stop the sawdust, and the effect must be to curtail the business. A stoppage of business has taken place until an understanding can be arrived at in the matter.

The cut at Messrs. Gilmour & Co.'s big mill at Trenton, Ont., will average over 500,000 feet per day, or about 78,000,000 feet for the season, ending about November 8th. The shingle mill has turned out over 240,000 per day, making the total output over 35,000,000. Preparations are being made for the starting of a cedar mill to cut ties posts, and cedar shingles, which will give employment to twelve or fifteen men.

Mr. F. E. Boswell, of Boswell Mills, Spanish river, Ontario, Can., spent a day in Chicago this week, visiting his Chicago agents, Messrs. T. C. Morris & Co. Like all holders of Canadian pine who are not interested in Michigan stumpage, Mr. Boswell hopes that the duties on Canadian lumber will be removed. Mr. Boswell's firm has shipped over 3,500,000 feet of Canadian lumber to this market this season.—Chicago *Timberman*.

At a meeting of creditors of the Michael's Bay Lumber Co., held in this city, Messrs. W. R. Brock, Smith, of Smith & Keighley, and Orr, of Orr, Harvey & Co., were appointed inspectors to wind up the estate. A statement of the liabilities and assets was given, showing that the debts amounted to about \$100,000 and the assets, all told, about \$80,000. The Central Bank holds \$40,000 worth of over due notes but is secured by mortgages. The Imperial Bank holds \$20,000 of well endorsed notes of the company. Both banks will receive 100 cents on the dollar.

J. C. Ross & Co., of Quebec, offered for sale at Ottawa on Oct. 10th, 720 square miles of timber limits. The limits are situated in the territory that lies between the Big lake, on the River du Moine, and Runcey, on the Ottawa. The first offered were berth 176 and 177, containing 100 square miles, which went to Klock Bros. for \$52,000. Berth 178, 50 miles, was bought by Mr. Frank Ross, of Quebec, for \$45,000. Berths 175 and 184 were bid up to \$60,000 and then withdrawn.

English advices of Oct. 6th state: From Canada the arrivals consist of: From the St. Lawrence Pine deals, &c., 774,000 pieces, against 1,222,000 pieces in 1887; spruce, \$97,000, against \$48,000 in 1887; and from New Brunswick Pine deals, &c., 41,000, against 17,000; spruce, 383,000, against 79,000. The supply of pine deals, &c., continues on a very moderate scale, and the stock is now no greater than the trade requires. In spite of largely increased arrivals of spruce from New Brunswick, the stock is much below that of any recent year; the demand continues active, but the recent rise in freights is a serious obstacle to business.

It would appear from the facts that come to the surface, says the *Northwestern Lumberman*, that lumber will continue to come in good and increasing volume from Canada to the United States—not only to the more important eastern markets, but to Chicago, without the stimulus afforded by a removed customs duty. Canadian lumber has all along cut more or less figure on the Chicago market, and late purchases by men on the American side, of pine timber in Canadian regions, accessible to Chicago by waterway, indicate enlarged operations in such regions from now forward. Of course these purchases have been mainly in anticipation of an increase of value in the timber bought, and some buyers have been moved by a belief that the free lumber measure in this country would carry. The feeling in Canada is that, in that event, the Dominion would be largely benefitted, and naturally operators in the Northwest want a finger in the pie. But the timber in the Spanish river region of Ontario is good property without the duty off, and those who have bought some of it will no doubt find it so. As an evidence of this probability it is instanced that the Buswell Lumber Company, formerly of Grand Rapids, Mich., and now operating on the Spanish river, has been cutting 10,000,000 feet of lumber annually, and shipping the most of it to Chicago at a profit, in spite of a \$2 customs duty assessed on this side the line. Many Michigan men who are now operating in Canada are reported doing well.

A correspondent writing from Canada to the Chicago *Northwestern Lumberman* says: A case of considerable importance to shippers of dimension timber from the United States to Canada is entered for trial before the exchequer court. Section 686 of the Canadian customs act provides that lumber, and timber, plank and boards, sawn, of basswood, cherry, walnut, chestnut, gumwood, mahogany, pitch pine, rosewood, sandalwood, Spanish cedar, oak, hickory and whitewood, not shaped, planed or otherwise manufactured, may be imported into Canada free of duty. Some time ago Mr. Hazleton, of Michigan, sent two or three consignments of dimension oak timber, unmanufactured or shaped, into Canada, which he contended should have been brought in free of duty, but upon which the government collected a duty of 20 per

cent., which Mr. Hazleton paid under protest, the amount of duty being in the vicinity of \$3,000. For timber of the same description McGome & Co., a Toronto firm, had to pay about \$9,000, which was also paid under protest, and which, as in the Hazleton case, they are endeavoring to recover from the government through the exchequer court, on the ground that the timber was unmanufactured or shaped and should have come into the country free of duty. Both firms had contracts with the Grand Trunk and Canadian Pacific railways for the delivery of sawed oak lumber and dimension timber to be used in the manufacture of cars. It was on the understanding that this timber could be imported free of duty, according to the customs act, that the contract was entered into, as the 20 per cent. duty makes its importation almost prohibitory. The case is being watched with considerable interest, as it will decide whether lumber sawed to order in the United States, to be used on specific manufactures in Canada, can be entered free of duty, or that duty must be paid as for manufactured lumber.

PERSONALS.

Hon. James Gibb Ross, a large operator in lumber, died at Quebec last month.

Mr. Jos. Parker has been engaged to take charge of the St. Clair flour mills, Sarnia, Ont.

Mr. J. Chisholm, of Halifax, N. S., a prominent lumberman, has lately been visiting the Western States.

George Goding was instantly killed by being thrown on the saw in Jordan's saw mill at St. John, N. B.

Mr. R. S. Hamlin, President of the Oshawa Milling Co., has been elected a member of the Toronto Board of Trade.

The late Senator Ross, who came to Quebec over 60 years ago a penniless boy, died leaving an estate valued at \$10,000,000.

Mr. W. R. Kimball, of the Royal Electric Co., is giving a series of interesting lectures on electricity before the V. M. C. A. of Montreal.

Mr. Thos. Cullen, formerly of the Glenelg Mills, Alvinston, Ont., has secured a lucrative position in Messrs. Bickle & May's mill, Petrola, Ont.

Mr. Andrew Eby, who has been miller for P. Kelly & Son, of Blyth, Ont., for the past three years, purposes taking a trip through Manitoba for recreation.

James Kennedy, a miller in N. McCahill & Co.'s mill at Alvinston, Ont., was horribly mangled while replacing a belt a week or two ago. It will be at least three months before he will be able to resume work.

Mr. W. S. B. Lawrie, of the Toronto millfurnishing firm of Wm. & J. G. Greer, returned a week ago from a business trip to the Northwest. He reports that the excitement up there consequent upon the advance in wheat must be seen to be fully understood. Farmers are holding for still higher prices.

The body of W. S. Mogatt was lately found standing erect with the right arm terribly mangled and wrapped around the shafting in the Leedy grist mill at McDonald's Point, near St. John, N. B. Owing to the absence of the family the body remained undiscovered until a man came to the mill with grist.

Mr. J. A. McIntyre, head miller for the Moose Mountain Trading Co., N. W. T., was married on the 26th September to Miss Minnie H. Dean, only daughter of Mr. Peter Dean, Tilsonburg, Ont., at the residence of the bride's brother, Mr. C. A. Dean, principal of the High School, Newberry, Mich. The happy couple left immediately for their home in the west.

B. P. Hutchinson—"Old Hutch"—who has been flying the Chicago wheat market for a kite during the past week, has been a prominent figure on the board of trade for the past twenty-five or thirty years, says an exchange. Formerly he operated in hogs and corn, and it is only a few years since he took to the wheat pit. He is a six-footer, large framed and rather ungainly—one of those men whose clothes never seem to fit them, and who do not "go much" on style. He is a typical Yankee, shrewd, bluff and unconventional. Although he lives, and finds his greatest enjoyment and profit, in the midst of the speculative excitement of the Chicago board, and always carries on his business at high pressure, he is nevertheless very methodical in his business habits. For instance, a few weeks ago while "Old Hutch" was having a brick block put up in Chicago, it is said he went to the place regularly every day, and with his long legs climbed all over the unfinished building, watching the progress of the work and giving directions with respect to all the details. He has a son, C. I. Hutchinson, president of the Chicago Board of Trade, who is a chip of the old block—one of the brightest and shrewdest of the young business men of Chicago. The old man likes to talk on the subject of religion, regarding which he holds some very unorthodox views. Religion is, in fact, one of his chief topics for discussion in his hours of relaxation, and he sometimes even branches off on to religion while engaged in putting up a wheat deal with his friends.

PUBLICATIONS.

To all directly or indirectly interested in the lumber industry of the United States a series of compilations now appearing in the *Northwestern Lumberman*, of Chicago, will be of importance. It consists of directory lists of manufacturers of and dealers in lumber and principal timber products in all the states and territories. They are compiled from original sources, and will be published as completed, thus insuring their freshness and current value.

The Canadian *Patent Record* for July came to hand a day or two ago. We would suggest to the Hon. Minister of Agriculture that the fossils who have the printing of this *Record* should be compelled to keep a little closer up to the times. A July publication which only reaches its readers the latter part of October, is about as stale and useless as a last year's calendar.

A Duluth man proposes to cheapen the transportation of grain to Europe, by enclosing it in cigar shaped cylinders of steel, which are to be filled with wheat at Duluth, sealed up and towed through the lakes to Buffalo, and from there, via the Erie canal and Hudson river, to New York, where an ocean-going steamer will take a large raft of them in tow, and pull them across the big ferry. It is thought to be practicable, and that it will be much cheaper than by railroads, canal boats, and steamships, with the necessary transfer and elevator charges.

JONES' -:- SHORT -:- SYSTEM

THE LATEST AND BEST

FOR MERCHANT AND CUSTOM MILLS.

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

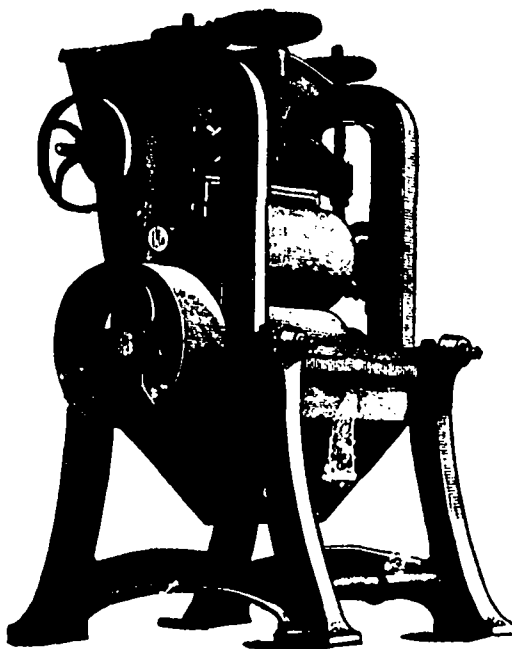
Our Purifier and Aspirator combined is the best machine we know of for the proper handling of middlings.

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.



JONES' SHORT SYSTEM FOR CUSTOM MILLS.

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 Poller 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.

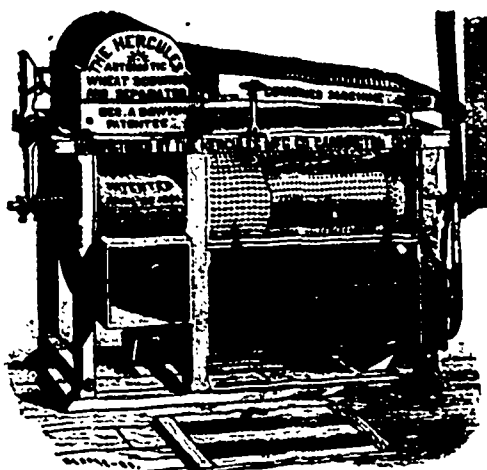
DUSTLESS

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.

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LONDON MACHINE TOOL CO.,

LONDON, - ONTARIO,

MANUFACTURERS OF

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

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

?  Do you want a **Catalogue Printed** Or do you know any one who does, if so refer to **Bingham & Webber** ?

The Premier Catalogue Printers and Pioneers of Art Printing in Canada.

Whose Office is in the Lakeside Court **253 Adelaide St. East, Toronto**

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; or Five Million READERS, if 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. F. ROWELL & CO., 10 BRUCE ST., NEW YORK.

We have just issued a new edition of our Book called "Newspaper Advertising." It has 26 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 150,000 population**, omitting all but the best; **DAILY NEWSPAPERS IN CITIES HAVING more than 250,000 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 most 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 500 population and every important county seat. **SELECT LIST OF LOCAL NEWSPAPERS**, in which advertisements are inserted at half price. **547 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**.



R. J. McAUSLAN,
MILLWRIGHT,
43 Marlon Street, - Parkdale, Ont.
Plans for Flour Mills, long or short system, also for grain elevators, carefully prepared.
Correspondence solicited.

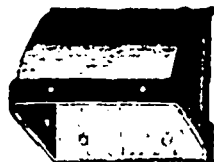
SMITH'S Mercantile and Land Reporting Agency.

BANKERS—DOMINION BANK.
General Solicitor, JNO. LEVY, Esq., Barrister, Toronto.
Secretary—JOHN SMITH, 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 or otherwise of traders and others, the collection of outstanding accounts, and the procuring of the most reliable information from independent source 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, &c. 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.

FAVORITE MILL BUCKETS



Manufacturer and Dealer,

JOHN RADIGAN,

68 Mary Street,

HAMILTON, ONT.

SEND FOR PRICES.

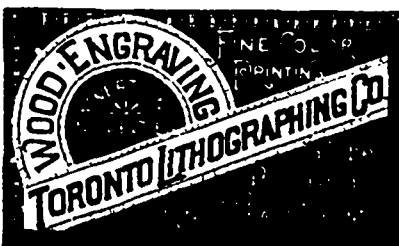
THE "DANDY."



Time saved and profanity saved by diminished in every mill, store and barn where the "DANDY" PATENT BAGHOLDER 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.

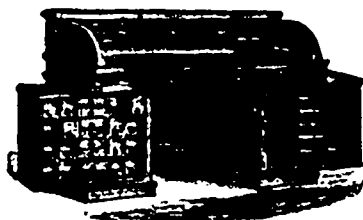


KAY ELECTRIC CO.

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.

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.

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.

MILLERS' AND MANUFACTURERS'

INSURANCE COMPANY.

HEAD OFFICE,
24 Church Street, Toronto.

JAMES GOLDIE, Guelph, President.
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HUGH SCOTT, Managing Director
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GEO. HANSON, Inspector.

OBJECTS.

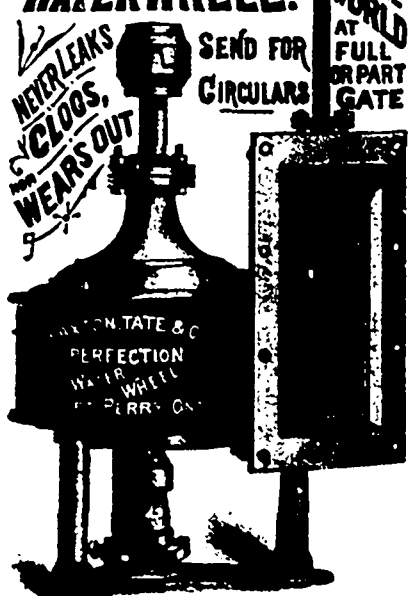
To prevent by all possible means the occurrence of avoidable fires.
To obviate heavy losses from the fires that are unavoidable by the nature of the work done in mills and factories.
To reduce the cost of the insurance to the lowest point consistent with the safe conduct of the business.
The Combined Losses and Expenses on the business of 1887 was under Fifty per cent. (50%)



W. J. KRAMER
FINE
WOOD ENGRAVING
21 MELINDA ST TORONTO

THE ONLY PERFECT WATER WHEEL. THE BEST IN THE WORLD AT FULL OR PART GATE.

NEVER LEAKS SEND FOR CIRCULARS
WHEELS WEAR OUT



PERFECTION WATER WHEEL



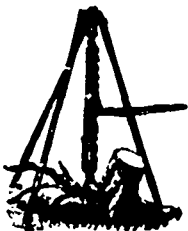
CHAMPION FIRE & BURGLAR PROOF SAFES.

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.

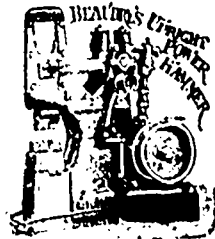
CHAMPION STUMP AND STONE EXTRACTOR.

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, Sawn Cutting. SEND FOR PRICE LIST.



Beaudry's Upright Cushioned

POWER HAMMER

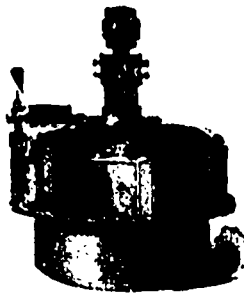
Simple, Practical, Low-priced, Entirely New Design.

— 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 THURSTON, 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 Patentees 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.

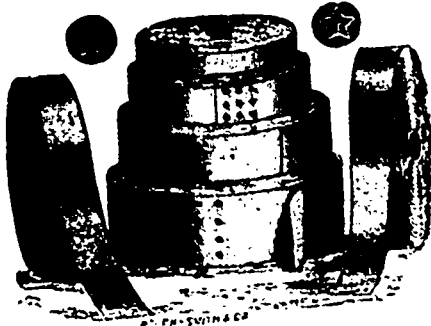
F. E. DIXON & CO.

MANUFACTURERS OF

- PURE -

OAK-TANNED

LEATHER



BELTING

Guaranteed in every respect equal to the best American or English Belting.

Send for Latest Discounts and our Pamphlet on Belting.

OFFICE AND FACTORY:

70 KING STREET EAST, - TORONTO.

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.



The Keewatin Milling Co. will erect an elevator at Holland, Man.

Improvements are being made to the dam at Hilliard's mill, Peterboro.

It is said that about fifty cars of wheat are shipped daily from Port Arthur at present.

Stocks of flour in Montreal are about 34,000 bbls. more than reported one year ago.

A joint stock company is being organized to erect an elevator at West Toronto Junction.

Messrs. Stevenson Bros. have purchased flouring mills at Laskey York County, Ont.

Messrs. Martin & Sons, Mount Forest, Ont., are perfecting the steam power for their mill.

Clay Bros., millwrights, are putting new machinery into the Greenwood mills, Greenwood, Ont.

The elevator boots and weigh scales for the two million bushel elevator have arrived at Fort William.

A new grain storehouse is being erected at Omamee, Ont., for Messrs. Fairbairn & Preston, grain buyers.

The erection of Brandon's ninth elevator has been commenced by Mr. F. H. Hesson, a citizen of that place.

Mr. W. H. McAlister, of Pembroke, Ont., will place in his mill a seventy-five horse-power steam engine.

Letters patent have been issued incorporating the Plattsville Milling Company, with a capital stock of \$15,000.

Mr. Forsythe, an experienced Toronto millwright, is putting in the roller process in Mr. Needler's mill at Bobcaygeon.

D. H. McMillan & Co., of Winnipeg, are building an elevator at Indian Head, Assa. The capacity will be 25,000 bushels.

Cook & Cole are making changes in their flour mill and elevator at Walseley, Assa., with a view to increasing their business facilities.

Messrs. Smith & Bayham, who have lately assumed the management of the Moosomin, N. W. T., mill, will shortly light it by electricity.

Mr. Walter Thomson, of Mitchell, has purchased the Dominion mill, London, Ont., and intends to run it as a flouring and oatmeal mill.

The Wingham, Ont., oatmeal mill has undergone improvements and has re-commenced operations in the hands of Messrs. Elder & Clegg.

If flour continues to rise in price, by Christmas time he will be a prosperous and happy man who can order toast with his quail Buffalo courier.

The Northern Pacific are considering the question of building a system of elevators along their line in Manitoba. One is already being erected at Morris.

It is stated that Ontario millers will see very little good Manitoba wheat this season, the Ogilvies having bought, or contracted for, the bulk of it already.

Mr. Jos. Mitton has sold his roller flour mill at Newbury, Ont., to Mr. J. Heatherrington, formerly a partner. Mr. Mitton intends moving to Ridgeway.

The Town Council of Birtle, Man., propose aiding the Birtle Milling Co. to the extent of \$2,000 provided the rural municipality of Birtle assist in the enterprise.

The price of flour has advanced in England eight shillings six pence within eight weeks, owing to the poor quality of English wheat and the enhanced value of American.

As a result of the entrance into Manitoba of the Northern Pacific railway it is said the Canadian Pacific has reduced its freight rates on grain in the Winnipeg district.

One Montreal firm is said to have made upwards of \$300,000 to date on Manitoba wheat this season. Two other firms which bought heavily are also known to have made money.

There is said to be no fear of a wheat blockade on the Canadian Pacific this season. They have 3,000 cars on the Winnipeg division for this season's work, last year they had but 1,400.

The Winnipeg Commercial says a mill machinery manufacturer from Ontario was at Port Arthur last week, contemplating the erection of a large flour mill at that place, to grind Manitoba wheat.

An elevator belonging to Mr. Sheppard, grain dealer of St. Thomas, failed in Leamington, Ont., a few days ago. Six thousand bushels of grain of different kinds were all mixed up together.

There is talk of the Balmoral (Man.) mill being taken in charge by a Toronto man, with the view of establishing a market at that point, which is said to be located in one of the best wheat districts of the province.

The break in the Cornwall canal has shown the necessity for increased storage facilities at Kingston, Ont. The Montreal Transportation Co. will endeavor to have the necessary elevators erected as soon as possible.

The Loderby, B. C., roller flour mill, sold recently to Welch, Ritchie & Co., of Victoria, is said to have been purchased for about \$33,000. The mill cost nearly \$60,000, and was only completed about a year ago.

While Mr. James Sharp, of the Alexandria, Ont., roller mill, was placing a belt over a wheel on 9th Oct., his hand was caught in the machinery and fearfully crushed. All the fingers of the left hand but one had to be amputated.

Burglars gained an entrance to the office of the Manitoba Milling Co., at Carberry, Man., recently, and blew the safe open. Upwards of \$1,000 were secured. The mill which adjoins the office where the burglary took place, was in operation until mid night.

Messrs. Agnew & Co. are making alterations in their elevator at Dominion City, Man., by dividing their shipping bins so as to be able to handle the different grades of wheat. They are also making other improvements which will facilitate the shipping of grain.

The C. I. R. elevator at Sarina, rented by P. B. Sandborne, of Port Huron, is filled with grain, and it is difficult to secure sufficient cars to ship the grain away. The schooner Egan has been there several days, unable to unload, and other boats delayed have unloaded. The Point Edward elevator is also full.

Consumers, who complain that wheat bread threatens to be "too dear" this winter, should not forget that it has been "too cheap" for several years. The farmers and millers have fought against heavy odds for years, and the consumers alone were benefited by the superabundant crops and the over production of flour.

General Superintendent White, of the C. P. R., states that storage can be found for from seven to seven and a half million bushels at inland points and on the head waters of Lake Superior. The C. P. R. accommodation at Port Arthur and Fort William amounts to five million bushels, leaving ten million and a half bushels for Manitoba and Keewatin.

A despatch from Ottawa says. The statement that the Minister of Inland Revenue is considering the grain standards and that the one agreed to by the Boards of Trade last year will be acted on this year is totally incorrect. The new grain standards came into effect on the 1st of September, the department having to decide upon them as the Board of Trade could not. Similarly the Boards of Examiners have failed to agree upon the samples by which Northwest grain shall be judged and graded, and under the Act an Order-in-Council has been passed authorizing the Minister to select the samples.

Mr. McGaw, of the Ogilvie Milling Co., Winnipeg, who has lately returned from a trip through the country, looking into the wheat situation, is reported as saying that the poorest samples of wheat being marketed this season, which are fit for milling, bring as high prices as the best samples sold for last year. The bulk of the damaged wheat in the country, will bring better prices than sound wheat was worth last season, and a great deal of what may be classed as frosted grain will bring very much better prices than ruled last year for No. 1 hard. Sales of frosted have been made at as high as 95 cents. Of course there is some wheat that is not fit for milling, but the quantity of this is very light.

A published despatch from this city says. Speculation in wheat on the long side is being transferred from this side of the Atlantic to Liverpool. The view taken by dealers is that the United States and Canada having sufficient wheat for home consumption, with some over and above, export prices must be fixed on an export basis. In Liverpool, the value of grades considered, wheat is selling at not more than it is at Port Arthur, not so much as Duluth, Minneapolis and Winnipeg yesterday, and no more than Chicago. It is concluded from this that if wheat is to be bought at all it is to be bought in Liverpool. A number of buying orders have been sent across the ocean from Toronto and Montreal during the past few days.

Necessity is the mother of contrivance, remarks our London contemporary, the *Miler*, in publishing this item. An accident recently happened to the crank shaft of Messrs. Herdman's Haymarket mills, at Edinburgh, which resulted in completely disorganizing the steam engine, so that the mill was stopped for want of power. The proprietors of the mill, however, finding that there were five portable engines disengaged within a reasonable distance, secured them as temporary substitutes for the broken down engine. The five engines were placed in a row in a shed close beside the mill, and belt holes having been made in the building, its machinery was soon set to work again. The funnels of the five engines were directed into a common tubular shaft, which served to take the smoke into the mill chimney.

There are very few mills where smooth rolls have been used to the limit of possibilities in the purification of middlings. It often happens that the coarse middlings are operated upon a number of times previous to a rapid reduction. Two operations on coarse middlings by a purifier will do about all that can be done for them previous to a reduction. Oftentimes one purification, where the capacity is ample, and the machinery well handled, will do the work. The breaking of these middlings by the rolls, and their further purification, will do a great deal in the way of clean middlings, and not add to the complexity of milling operations. Smooth rolls, properly used, are natural purifiers. They make separations which cannot be made in any other way. No purification system is perfect without their use. — *Miller's Gazette*.

Manager Heaton, of the Molsons Bank, intends taking action to compel the Water Commissioners to turn on the water at Murrhead & Gartley's old mill until the end of the year, as the rates have been paid up till that time. It will be remembered that the mill was not paying nearly the amount for the water that they were entitled to according to the schedule rates, and that this mistake was not noticed until after the mill was burned down. They were paying all the Commission asked, however, and Mr. Heaton holds that they had no business to turn the water off in the unceremonious manner they did. The reason for Mr. Heaton's action is that the mill owners agreed to supply Mr. John Fairgrievs with sufficient waste water to run his engine, and as the supply was cut off they were unable to fulfil their agreement. *London Free Press*.

The break in the Cornwall canal will entail thousands of dollars loss on grain dealers. W. W. Ogilvie, proprietor of the Glenora mill, on the Lachine canal, and an extensive wheat buyer in Manitoba and the Northwest said. "I have abundance of wheat for every purpose but I have no corn in Montreal. That is where I am caught. I have 500,000 bus. of corn west of the break in the

canal and am now making arrangements to have it brought immediately by rail. I have 150,000 bushels of wheat west of the break, but have stopped shipping for a time. The loss will be considerable, as there will be large demurrages at Kingston and on the upper lakes. Steamship companies and grain shippers will be put to great inconvenience and loss." The Government Engineer has a staff of men at work day and night repairing the break.

In the handling of tailings it should be remembered, says the *Miller's Gazette*, that the stock should be merely broken and not mashed or compressed. It is not the purpose in running it to the tailings rolls to get the greatest amount of flour from a single reduction, but to make a separation of some very good from some very bad material. This can only be done on tailings rolls by changing the relative size of the good and poor material; that is, by breaking the better stock into smaller particles, and leaving the inferior stock in its original form, or, if possible, in a larger form. Thus the good material may pass through the cloth or cloths of various grades while the inferior material may pass over the cloth and over the tail of the reel, or through the coarser cloths at or near the tail, the excellence of the material being determined by the fineness of the cloth through which it passes.

A correspondent, writing from Escanaba, Mich., says: "Last March Wm. Cochrane, of Washington, was induced to come here and establish a plant for the manufacture of a new roller mill. Citizens readily subscribed stock, and the result was that a company with \$400,000 capital stock commenced to rear buildings. The structures are of solid brick, the main shop covering an area of 250x50 feet, while the foundry is 122x70 feet, the latter being a continuation of the erecting room, which is 60x70 feet with 22 foot ceiling. The entire concern is equipped with the very best of machinery throughout. The company has also erected furnaces, warehouses, a hotel for the accommodation of officers and guests, a handsome office, and in the early spring will build a flouring mill on the site in order to display the modus operandi to contemplating purchasers. It is anticipated that the Cochrane mills will employ 700 workmen ere 1888 draws to a close.

RECENT ELECTRICAL PROGRESS.

AT the recent convention of the National Electric Light Association of the United States, President Duncan in his opening address spoke as follows of the progress in electric lighting: "From time to time, statistics as to the amount of electric light apparatus in use in this country have been presented to the Association. Six months ago it was estimated that there was no less than 4,000 isolated plants and central stations, operating 175,000 arc lights and 1,750,000 incandescent lights. To these figures we may now add that there are 1,351 new isolated plants and central stations, operating 35,201 arc lights and 392,944 incandescent lights, of which I have a detailed record. By adding this increase to the figures of six months ago, we find that there are now 5,351 isolated plants and central stations, and there are burning every night in the year, in the United States, no less than 192,500 arc lights, and 1,925,000 incandescent lights. We may also add that there are 459,495 horse-power of steam engines devoted to electric lighting. Figuring this in coal consumption, it can be demonstrated that in the year 1888 enough coal will be consumed in the United States, for electric lighting purposes, to make a solid column 100 feet square and over a mile high. It may be here parenthetically remarked that there has been an increase in the capitalization of the electric light companies of the United States, in the last six months, of not less \$42,210,100. But we have not yet touched upon the great industry of the electrical distribution of power. There are at the present time (of which we have record) 34 electric railways completed and in operation in the United States, having an aggregate 138 miles of single track, and operating 223 motor cars, and utilizing 4,180 horse-power for stationary engines. There are also now in process of construction 49 other electric railways, aggregating 189 miles of single track, which will operate 244 motor cars, so that at the present time there are constructed and being constructed 83 electric railroads, aggregating 327 miles of single track and operating 467 motor cars. In this connection it must be remembered that there are 39 other electric railroads incorporated which have not yet begun construction. It is also estimated that the electric cars now in operation in the United States will carry, in the year 1888, no less than 17,045,500 persons. In view of the difficulty of compiling statistics on such small units, it has been impossible to collect reliable information relative to the stationary motor business; but we know that at the present time it has stimulated capital to such an extent that there are single factories employing no less than 1,500 hands each in the manufacture of electric motors, and at no distant day all large cities will have their power stations of several thousand of horse-power each, distributing energy throughout every ramification of industry. So rapid a development of this new industry into gigantic commercial proportions should be an admonition to the electric light companies now in the field, to reap the harvest which is ripe to their sickle, and not wait for competitors to come within their field of operation, in the shape of power stations."

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 Hiene" 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,
"AVERY" STEEL ELEVATOR BUCKETS,
WHEAT CLEANERS AND SEPARATORS.**

**"BODMER" BOLTING CLOTH,
COTTON, RUBBER AND LEATHER BELTING,**

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.

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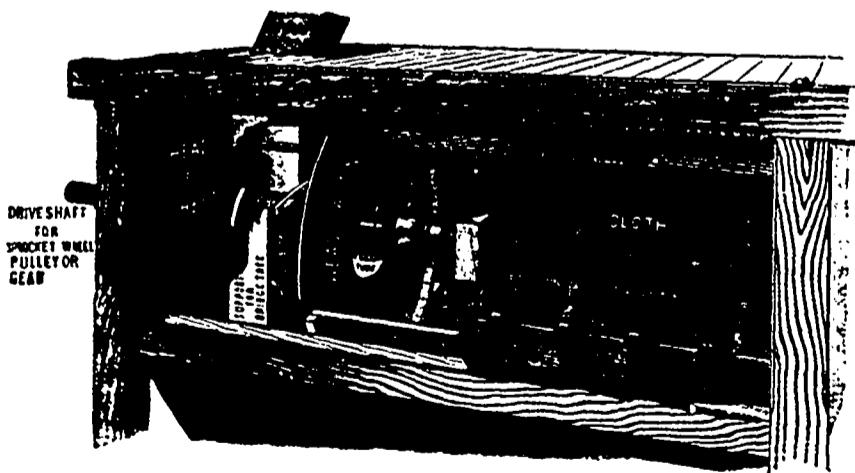
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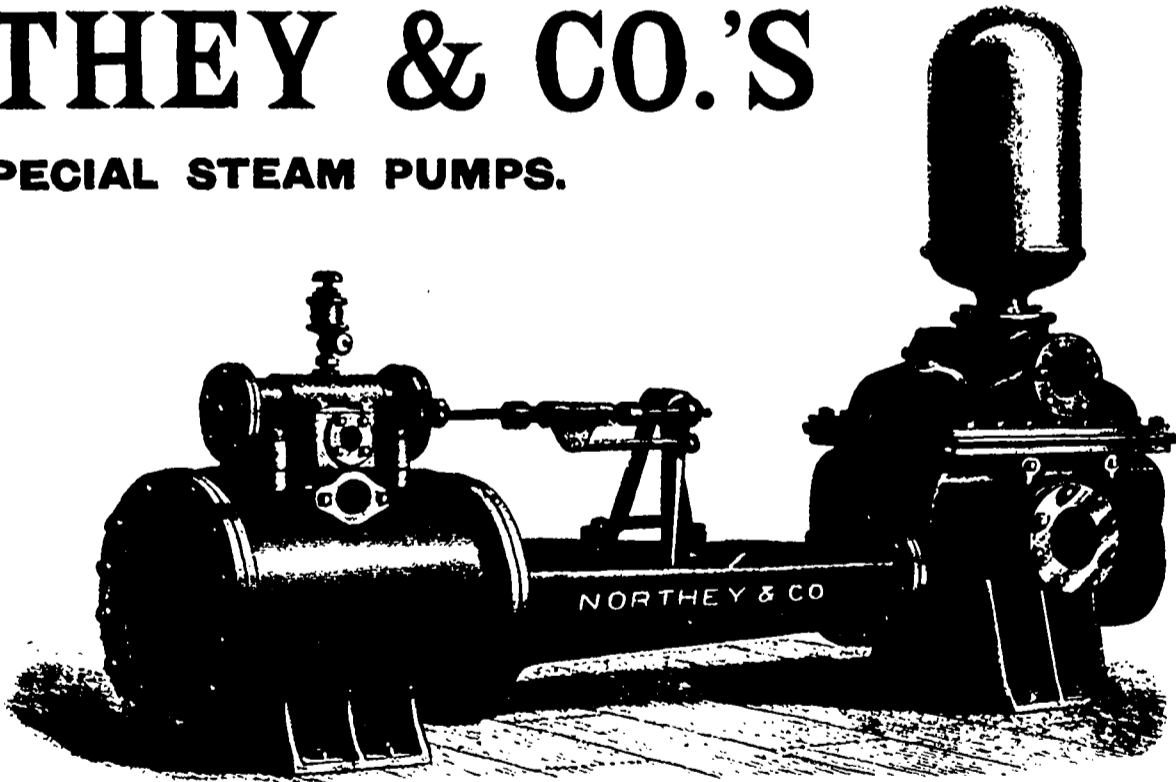
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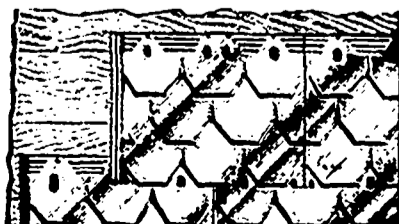
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