

Technical and Bibliographic Notes / Notes techniques et bibliographiques

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

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

Coloured covers/
Couverture de couleur

Coloured pages/
Pages de couleur

Covers damaged/
Couverture endommagée

Pages damaged/
Pages endommagées

Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée

Pages restored and/or laminated/
Pages restaurées et/ou pelliculées

Cover title missing/
Le titre de couverture manque

Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées

Coloured maps/
Cartes géographiques en couleur

Pages detached/
Pages détachées

Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)

Showthrough/
Transparence

Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur

Quality of print varies/
Qualité inégale de l'impression

Bound with other material/
Relié avec d'autres documents

Continuous pagination/
Pagination continue

Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Includes index(es)/
Comprend un (des) index

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Title on header taken from: /
Le titre de l'en-tête provient:

Title page of issue/
Page de titre de la livraison

Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

Additional comments: /
Commentaires supplémentaires:

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

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

THE DOMINION MECHANICAL & MILLING NEWS

Vol. VII.—No. 11.

TORONTO, ONTARIO, NOVEMBER, 1886.

Price, 10 Cents
\$1.00 PER YEAR.

ELECTRIC RAILWAYS.

ELECTRIC railways are just now attracting much attention and our readers will be interested in the adjoining illustrations showing the Van Depoele system in operation. Its inventor is Mr. Charles J. Van Depoele, of the Van Depoele Electric Manufacturing Company, of Chicago, Illinois. His experiments in generators, motors and the transmission of power began in 1874 and have been continued to the present time. The Van Depoele generator is shown in Fig. 2. In its original shape it differed considerably from the present form, several very important changes having been made to adapt it to the work of transmission of power. The motors of the Van Depoele system are made of different styles and sizes, ranging from a motor weighing but one pound to the eighty-horse power motor weighing 8,000 pounds. Figure 3 illustrates the large motor which is employed in running railway trains.

The Van Depoele electric railroad was established in Toronto in 1884. The train was run in connection with the street cars, making a connection between the horse cars and the Exposition grounds. An underground conduit was used and the road was highly successful. It was operated during the Exposition.

The train carried 200 passengers on each trip at a speed of about thirty miles an hour, doing the work smoothly and easily and to the satisfaction of all concerned. In the fall of 1885 the distance between the street railway and the Exposition grounds, one mile, was again successfully traversed by an electric train. In this case a motor-car and three passenger cars composed the train and an overhead wire was substituted for the underground conduit used the year before. There was only one track and it was necessary to run at high speed. An ordinary forty-light dynamo was used. This was driven by a 10x16 Doty engine. The train carried from 225 to 250 persons on each trip, and made an average speed of thirty miles an hour. The train traversed the road from 40 to 50 times a day and carried an average of 10,000 passengers daily with the consumption of only 1,000 pounds of coal a day. Much attention was

attracted to the wonderful road, and the business done during the Exposition was limited only by the capacity of the cars composing the train. In the autumn of 1885 a portion of the South Bend Railway was equipped and small motors driven by a water-power generator used to run several independent cars. The success was pronounced, the cars travelling in either direction from the same conductor. Owing to a change in management the equipment of this line has not yet been completed. During the late Exposition at New Orleans, La., a train of three large cars was successfully operated, fully answering every demand made upon the system. At Minneapolis, Minnesota, the authorities compelled the Minneapolis, Lyndale & Minnetonka Railway Company to discontinue the running of their locomotives in the more densely settled parts of the city of Minneapolis, and an arrangement was made to employ electricity to draw the cars into the city and back again to the limit at which the steam locomotives were held. On this line the motor is placed upon a cheaply-constructed motor-car and takes the current from an overhead copper wire. The generator, placed at a considerable distance from the track, is driven by an old slide-valve engine with a 12x18 cylinder, making 125 revolutions a minute. For a run of 17 hours the con-

sumption of coal is about 3,000 pounds. On this road, between 6 a. m. and 11:30 p. m., 48 trains are run each way daily. The trains are composed of three or four closed railway coaches weighing 11 tons each, or of a larger number of open cars weighing six tons each. Eight of the latter cars have been hauled at one time up a grade of 3½ per cent., all the cars being crowded to their utmost capacity, giving the train a total weight of 91 tons.

The Capital City Street Railway, in Montgomery, Alabama, has been running two cars on this system for some time. On the Montgomery line the distance is 1½ miles and the grades are over seven per cent. The motors are placed on the platforms of these cars and the work is successful. On the grades they make six miles an hour. They are run 16 hours a day. The generator is driven by an old-fashioned slide-valve engine located 250 feet from the boiler. The amount of coal consumed a day is 3,000 pounds, including the getting up of steam from cold water.

At Windsor, Ont., a two-mile track on this system has been in successful operation since June 6. This line is owned by the Windsor Electric Street Railway Com-

pany. The operation is a complete success in every way. Other lines are being equipped. At Appleton, Wisconsin, the Appleton Electric Railway is about completed. This line will have five cars run separately and the generator will be run by water power. At Detroit, Michigan, the Dix road has been completed and is now running. At Scranton, Pa., the Van Depoele system has been adopted by the Scranton Suburban Railway Company. The figures quoted in this article show the decided economy of electric railways and the work is in every instance fully satisfactory. In the light of the success achieved by the electric railways already in operation, it seems to be a safe prediction that these silent, clean and convenient railways will before long supersede the slow, noisy, unpleasant horse cars, which have so long been considered a necessary nuisance in large towns and cities. The advantages of using electricity as a motive power on short tramways, street surface railways and elevated railways over steam or cables, are numerous. In cases where steam is used in cities, either for surface or elevated roads, the substitution of electricity for steam does away with the objectionable noise and constant smoke of the locomotives. Trains can be more easily and quickly stopped and started. It has been estimated that the cost of construction of an ele-

vated road for electricity would be one-third less than for steam, and the running expenses may be decreased in at least as large a proportion. In the case of a cable a striking difference exists between the two systems. It is stated by good authority that it takes seventy-five per cent. of the engine's power to drive a cable of over three miles in length, leaving but 25 per cent. of available power to propel the cars; whereas electricity has given as much as fifty-three per cent. of mechanical efficiency and that after being transmitted over a distance of some thirty-five miles. This is something wonderful and is perfectly authentic, coming from such authority as Marell Depres. By no known means can power be distributed so extensively and economically as by electricity. Wherever water power is used to drive the electric generators, the saving can not be disputed, and where steam is used as a prime motor to run the generators, there is a large difference in favor of electricity over animal power. There is also saved in the use of this system the expense of large stables and the annoyance of having a large number of laborers to care for the same. Less space for cars on track is required and there is no wear of the track between the rails. Elevators and other machinery can be run from this power at the stations and anywhere along the line, or in its vicinity where needed.

MECHANICAL DRAWING.

Almost any mechanic can strike out on a new idea and construct quite a machine out of any grade of material, but it takes a real practical draughtsman to bring out a design that shall be simple, durable and symmetrical when finished. There is something about the true beauty of form in engineering designs that follows the same rule as those which render a picture or a group of statuary pleasing to the eye. Every draughtsman must form a correct conception of every feature of the machine he is at work upon, and every part built up in the mind, so to speak, before being made in the workshop. Such a requirement demands a large amount of close observation of the practical department of engineering to-

gether with a thorough training in theoretical investigations. The pattern maker is the first to bring theory into practice. He not only must understand drawing as well as the draughtsman himself, but must be posted up in foundry moulding as well as a foreman moulder, and be able to make a neat, clean structure, that shall imitate the outline features of the drawings. The moulder who is to study out the imitated articles from the patterns, core prints and core boxes, must have a slight understanding of the draughtsman's practice to assist in following out what the pattern maker has been driving at. So in order to attain any degree of proficiency in any one of these callings we should have more or less knowledge of them all. With the draughtsman, he may be provided with all the latest improved drawing tools, and all that he can leave for the pattern maker is either straight or curved lines, which may be either dotted or drawn full, or left shaded. Dimension and centre lines have a broken mixture of them all, but with the three alone every class of material can be indicated, and material substances shown, by introducing them in the cross-hatching whenever a section is drawn.—*Boston Journal of Commerce.*

Paris, Ont., is to have a needle factory.

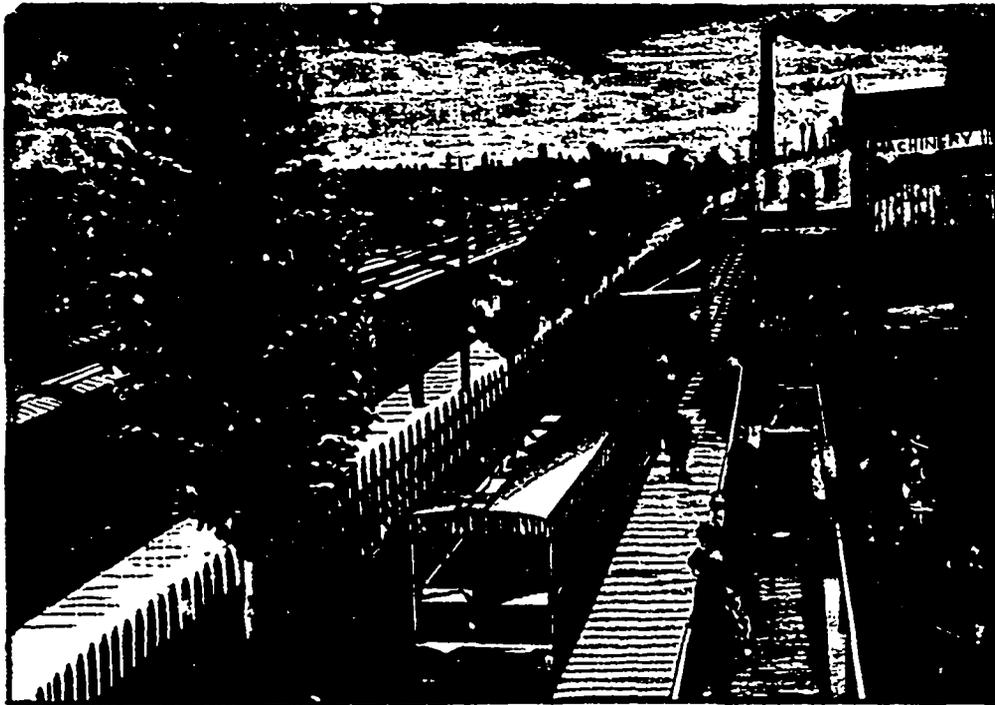


FIG. 1.—TORONTO ELECTRIC RAILWAY.

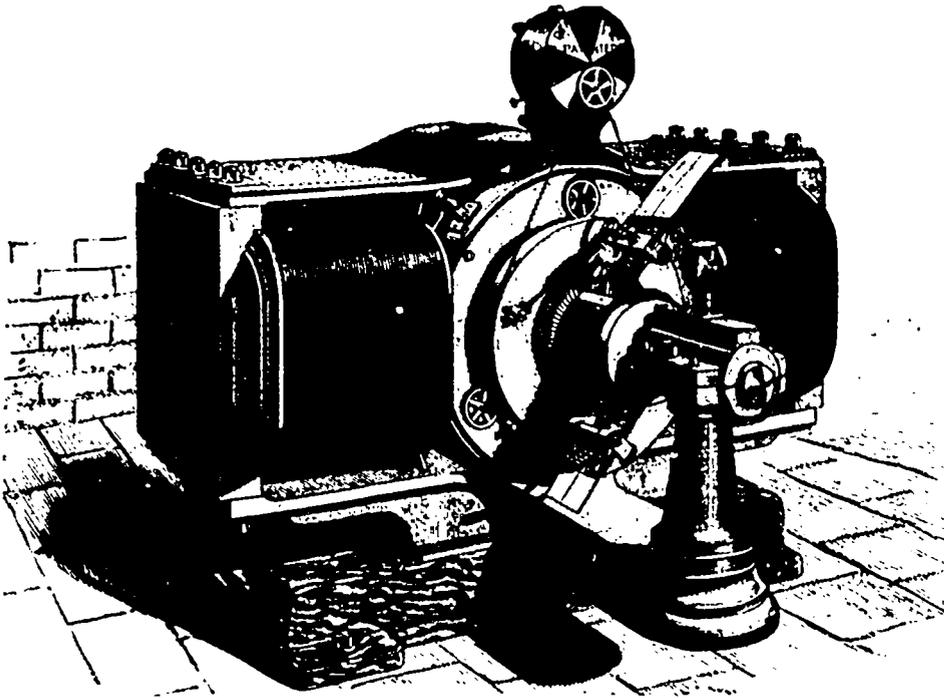


FIG. 2.—ELECTRIC GENERATOR.

[FOR THE DOMINION MECHANICAL AND MILLING NEWS.]

TREATING MIDLINGS BY THE LONG AND SHORT SYSTEMS.

By XXX.

THERE has been of late considerable talk and opinion expressed among the milling fraternity as to the merits of a shorter system of milling than has usually been adopted by the better class of mills that were erected when roller flour was in good demand and margins better than at the present time. There are many diagrams published in the milling journals showing the separations and the different ideas in regard to handling the material, and all claiming that good results can be obtained with a less number of reductions, and that a saving can be made in the first cost of the plant and the power consumed. Of course, if such were the facts, there would be a great inducement for millers to adopt the short system in preference to the long one; but, thus far, the mills that have been fitted up on the short system have not produced the results that the public was led to expect from them. When we consider the two systems, there are many faults and objectionable points to be found in the short system; and the greatest objection is concerning the manner of treating the middlings. And even if middlings are in good shape coming from the scalping reels after each break, if they are not then properly dusted, graded, purified, reduced and separated into flour, the mill cannot do good work.

In the short system, the middlings are taken from all the breaks and sent to a dusting reel, and after the break flour is dusted out, the material that passed over the tail of the reel is sent to a purifier, where the finest are drawn off for to be reduced to flour, and the middlings that pass through the coarse cloth on tail of purifier are sent to the so-called (in this system) sizing rolls, and the tail of this machine to bran rolls, or to the feed bin.

As the system is short, the number of machines limited at each reduction, there must be heavy pressure used to make as much flour as possible, and not allow

most short system mills produce a large percentage of poorly dressed low grade, which will bring on the market but a small advance over the price of feed. If the miller, in order to reduce the amount of low grade flour, sends the same into the family flour, he then has a product about as good and no better than a good grade of flour made by using the burrs.

In order to shorten up the system as much as possible, some millers advocate the use of a stone or scratched roll on the middlings from the purifier. The practice is a bad one, as, when using a limited amount of machinery, the middlings are not pure; and the action of a stone or scratched roll on such stock will grind the impurities up, and they cannot be again separated from the flour; and again, as the sizing of the middlings has in this system been done in a crude way, there are particles of germ left with the middlings, which are reduced and go into the flour.

To sum up the short system, we find that we have an ordinary grade of family flour, a large percentage of low grade, heavy feed (hence a poor yield), and a system that, at the end of the year, has made no money for the party that operates it, the only saving being in the cost of a few machines to carry out the different separations.

In the long system of milling, the middlings can be taken from the first four breaks and sent to the dusting or grading reels, the material that passes over the tail of the first reel being sent to the aspirating purifier, and then to the sizing rolls. After the middlings have passed between the sizing rolls, which are set with light pressure and very little differential, they should go to another set of dusting reels, which are to be clothed so as to take out all the flour that was made in sizing, and grade the middlings again, as there will be some midds. from the operation that are pure enough to reduce on the smooth rolls without purifying, the larger and impure middlings

to go on another set of purifiers to be cleaned, and the tail of same to be sized again. When the middlings are cleaned and in shape to be treated on the smooth rolls they should be passed through the rolls with light pressure and more differential than is used in sizing. After each reduction, dust, grade and purify up to the fourth grade of middlings. In this way, the impurities can be removed, and the grade of flour will be good from each separation, while the percentage of low grade flour will be small,

as the good stock has been reduced and sent to the packer before commencing the work on material for the low grade rolls. The middlings from the 5th and 6th reductions, after being separated from the other materials on the scalping reels, should be sent to a dusting and grading reel especially clothed to handle such stock, and then to the purifier clothed to clean such stock. The reason for not sending this grade with the four first breaks is, that the last break rolls, being set closer, their middlings are finer and not in as good shape to purify as the other grades, and will waste more under a strong suction. After being purified, this grade should be sent to the smooth rolls running with more differential motion than those working on the better grade of middlings. The writer's opinion is that centrifugal reels are the best for taking care of this material after it has been reduced. As the material is softer and flattened out in the former reduction, the action of the centrifugal tends to round up the product, and prepare it for the following reductions and separations.

Now we find, by comparing the work done on one part of the material in the two systems, that the results obtained for the long system are very much better than those from the short one—that in the long system we have a large percentage of good flour, a small percentage of low grade, and a close yield. In the short system we can see nothing but the opposite results, and we are of the opinion that millers will find, after trying the short system, that their mills are not complete—that they need more machines and more separations, and that a poor mill is poor property at any price.

In the future the writer will endeavor to illustrate the difference between the two systems by publishing some diagrams showing the separations on each system.

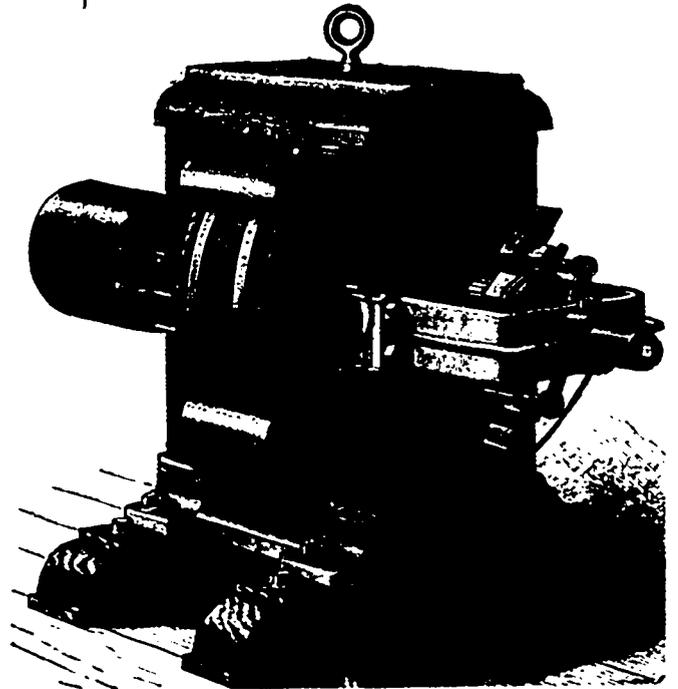


FIG. 3.—ELECTRIC MOTOR.

IMPROVED PUDDLLED IRON AND STEEL.

Job Gilligan, a forge manager in Mammoth county, England, is the inventor of an improved method for the manufacture of puddled iron and steel which consists in submitting the molten metal in the puddling furnace to the action of a blast air. The action of the blast upon the molten iron or steel, as is well known, purifies and refines it, and he constructs his furnace in such a manner that the process of refining and puddling may be carried on simultaneously. In carrying out his invention in practice he constructs a puddling furnace having one or more holes in the breast or front or in any other suitable part such as the back or sides through which the blast is introduced to the molten metal, and he thus dispenses with the use of the ordinary tuyers for conveying the same. As soon as the iron or steel begins to sink to the bed of the furnace, the blast is shut off and the iron or steel is made into balls and removed from the furnace to the hammers or squeezers as the case may be.

We are indebted to the *Napanee Express* for the following flattering notice of this journal:—The exhibition number of the DOMINION MECHANICAL AND MILLING NEWS is an exceedingly fine one. Full of useful information and neatly gotten up, it is a number worthy of preservation by the milling fraternity.

The superabundance of wheat harvested during the last two or three years reduced the price to a figure that left little or no margin to the producer and exporter. This year, however, crops are short in almost all wheat growing countries, and there would seem to be good ground for the belief that we shall before long see an advance in prices.



FIG. 4.—WINDSOR, ONT., ELECTRIC RAILWAY.

THE PLEWES PATENT BOLT.

THE accompanying illustration represents a new flour bolt, the invention of Mr. Isaac W. W. Plewes, of this city, a patent for which has just been granted for Canada. The special features and advantages possessed by this machine are set forth by the inventor as follows:

1. The quantity of work done is unsurpassed, if equalled, by any of the circular reels, or so-called flour dressers already on the market. 2. The capacity is surprising; it will do more work than four Hexagon reels of same dimensions and do it better; 3. It will do more work than any centrifugal of the same size, make cleaner flour and cleaner tailings at the same time. 4. It will do any bolting required to be done either in stone or roller mill, from scalping to finish, high or low grade. 5. It requires but a very small amount of room in the mill and can be built any diameter or length required. 6. Both the machine itself and the cloth will wear longer than any improved flour bolt extant, on account of its voluntary and gentle action, being free from all internal or external claps-traps the former, in many instances, severe in their action, and defeating the object desired, namely, clear bolting; the latter being a bill of expense and a nuisance to the miller. 7. As a matter of economy, if desired, this bolt can be placed in a mill without displacing the old hexagon or centrifugal bolt frames, at a very trifling cost, and with as good results as the entire bolt, providing these bolts have the necessary cut-off. 8. It is positively the lightest running bolt in the market. 9. While it is undoubtedly the best bolt in the market, its selling price is as low as that of any patented improved flour bolt.

Millers wishing to see this bolt at work can do so by calling on Mr. Isaac Warcup, at Oakville, Ont.

FLOUR AND GRAIN.

The absence of anything like activity in the flour and grain trade during October, leaves very little to be said in the way of comment. The inability of Northwest dealers to obtain cars in which to forward consignments eastward, has greatly checked the supply from that quarter. This difficulty, it is said, has now been overcome, and a free movement may be looked for. The war rumors from Europe have affected the market to some extent, and prices have advanced slightly, but the demand has been weak. While producers and dealers have learned not to place much dependence in the seeming probability of a European war, which has time and again proved disappointing, the present signs of trouble are generally regarded as being more ominous than usual, and it is altogether probable that the market will

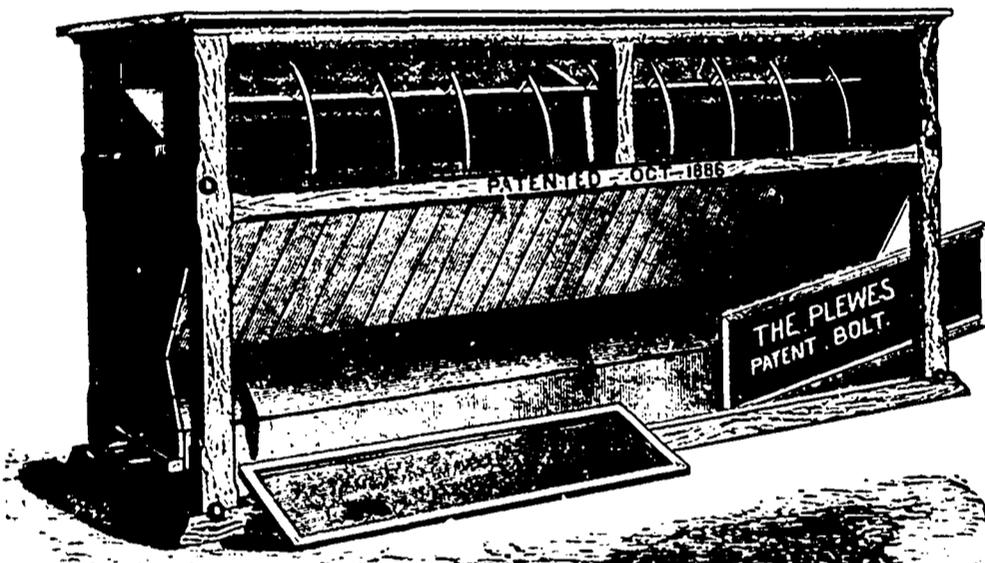
be affected by them for perhaps some months to come. The remarkably free movement of new grain at western points, spoken of last month, brought prices very low, and there would appear to be ground for the expectation that the future tendency will be upward.

Advices state that in the first three months of the present Indian season, viz., from April 1 to June 30, the shipments of wheat from all the ports were 8,510,000 cwt., against 5,618,000 in the corresponding period last year and 3,912,000 in 1884; of this year's shipments less than one-half went to England. The stock at Bombay is exhausted. There is a disposition to pick up distant deliveries of Indians from resellers. Another despatch states that wheat at Liverpool is strong, owing to light receipts. Country markets 6d to 1s per quarter higher. General confidence in prices gaining rapid ground. Considerable demand for Continental account.

The visible supply of grain in the United States and Canada, and in transit by water, as compiled by the secretary of the Chicago Board of Trade, was as follows on the dates named:

	Oct. 16, '86.	Oct. 9, '86.	Oct. 17, '85.
Wheat, bus.	53,828,499	52,787,293	48,738,976
Corn, bus.	13,755,910	13,577,853	4,140,387
Oats, bus.	4,135,246	4,074,689	4,405,376
Rye, bus.	524,637	519,092	531,145
Barley, bus.	2,075,370	1,608,362	1,154,783

Stocks in store in this city on Oct. 18th, stood as follows: Flour, 750 bbls; fall wheat, 34,297 bush; spring wheat, 21,659 bush, mixed wheat, 3,910 bush; oats, nil; barley, 111,542 bush; peas, 4,158 bush; rye, nil; against on the corresponding date last year, flour, 250 bbls; fall wheat, 109,788 bush; spring wheat, 53,034



THE PLEWES PATENT BOLT.

bush; mixed wheat, 1,295 bush; oats, nil; barley, 203,635 bush; peas, 26,041 bush; rye, nil.

Messrs. Wm. & J. G. Greey, inform us that they have finished and started in operation five complete roller mills during the past month, viz: a 100 bbl mill for T. W. Tyson & Sons, Clarksburg; a 100 bbl mill for F. Rollens at Madoc; a 100 bbl mill for Malone Bros., at Alvinston; a 100 bbl mill for S. A. Lzier, at Belleville; a 75 bbl mill for Colin Wigle, of Amherstburg.



Messrs. L. Leonard & Sons, manufacturers of steam engines, &c., London, Ont., have lately opened an agency in Toronto. It is situated on the Esplanade, between Bay and York streets.

Messrs. Wm. & J. G. Greey, have booked an order from John McDowell, of Dundalk, for a run of 4 feet stones for chopping, and all the belting, gearing, &c., required to drive them.

Mr. Wheeler's mills at Meadowvale, Ont., which were lately remodeled on the Case system, by Messrs. Inglis & Hunter, of this city, are now in full blast, and we are pleased to hear that the enterprise of the proprietor is meeting with appreciation.

Messrs. Stahlschmidt & Co., manufacturers of office furniture, Preston, Ont., are putting an additional storey on their present building and erecting a new addition of stone, 80x44 feet. They are also putting in a 75 h. p. steam boiler from the shop of Messrs. Goldie & McCulloch, Galt.

Messrs. McLaren & McArthur, of Rodney, Ont., will change their custom stone mill to the roller system, now so generally adopted. For this purpose they are enlarging their present building, which is a very small one, by raising the roof 12 feet, and have contracted with Messrs. Wm. & J. G. Greey, through their traveller, Mr. Lawrie, for the necessary outfit of rolls, &c., for a capacity of 50 bbls per day. The new mill will contain 10 pairs of 9x12 and 15 inch rolls, two purifiers, two centrifugals, (a No. 1 and No. 2), a brush machine and separator, besides the usual bolting reels, &c.

The Heslop Bros., who formerly carried on the milling business at Canboro, have purchased the mill on Venison Creek, township of

Walsingham, Norfolk Co., about 6 miles from Courtland Station, on the Air Line of the G. T. R. As the situation is in the midst of a splendid wheat growing section, they have decided to put in a small roller plant, consisting of eight pairs of rolls, two purifiers, two centrifugals, two wheat cleaners, and a Little Giant wheel to drive the whole, the stream being a never-failing spring creek. We understand that the order for the above named machinery and all other supplies has been placed with Messrs. Wm. & J. G. Greey, of the Toronto Mill Furnishing Works, who also supply plans, &c. The cost of the improvements will be in the neighborhood of \$5,000.

Chatham, Ont., which has long been known as one of the chief milling points in Western Ontario, is about to receive an addition to its modern milling facilities, as Mr. Thos. Holmes has contracted with Messrs. Wm. & J. G. Greey, of Toronto, for the complete refitting and remodeling of his mill on the roller

system. Mr. W. S. B. Lawrie, superintendent for the Messrs. Greey, was in Chatham last week arranging the details of the work, and to him we are indebted for this information. It is the intention to put in 10 sets of chilled rolls, two improved Velocity middlings purifiers, two centrifugal reels, one packer for flour, two gran cleaners, a brush machine and a cockle machine, No. 1 dust collector, and new bolting and scalping reels in improved chests. The mill, when completed, will be able to make either "Patent," "Bakers," Low Grade or Straight Brand as desirable

SMITH'S Mercantile and Land Reporting Agency.

BANKERS—DOMINION BANK.
General Solicitor, JNO. LEYS, Esq., Barrister, Toronto
Clerk—JOHN SMILEY, 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 tradesmen and others, the collection of outstanding accounts, and the procuring of the most reliable information from independent sources of the value and condition of landed and other properties in any part of Canada and the United States, with correspondents in Great Britain and other parts of Europe.

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

The Landed Enquiry Department of this Agency, the only institution of the kind known, is invaluable 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 Receipt, on which will be entered the name of each debtor, the amount owing, and a full report of the prospects of collection, and providing 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.

DIAMOND
DIAMOND ANTI-FRICTION METAL
Being the only metal successfully containing
PLUMBAGO
It will run smoother and cooler than any other, requiring
50 per cent. less oil than brass to lubricate it.
PLUMBAGOINE,
A Superior Grease for Axles and Heavy Bearings.
FRICTION PULLEYS,
GREATER AND MORE DURABLE THAN MILL-BOARD.
Trial Orders Solicited.
THOS. RATCLIFFE, AGENT,
133 BAY STREET, TORONTO.

ARTISTIC DESIGNING
WOOD
CHAS. SANDHAM.
TORONTO

MACHINERY FOR SALE.

- SAW MILL MACHINERY, for sale by H. W. PETRIE, Brantford, Ont.
- SAW MILL, Waterous make, direct action, complete with power, good saw. All ready for use.
- SAW MILL, in good timber section, railway siding, splendid power. Success sure to right man.
- SAW RIG, 15 feet carriage, new saw frame, mandrill and saw.
- SAW MILL, Reid & Barr's make, 30 feet carriage, modern rig.
- MULAY SAW MILL, complete rig, in good order, for \$75.00
- LOG AND LUMBER CARS, several in stock, prices low.
- ONE DRAG SAW, with log car, &c., price low.
- ONE WATEROUS ADJUSTABLE HOLTER & PICKET MACHINE.
- ONE SINGLE EDGING TABLE, complete, in good shape, very cheap.
- LATH MACHINE, one Waterous self-feeder, good as new.
- LATH MACHINE, in good order, price \$30.00
- TWO STAFF CUTTERS, complete, with Pitman rod and counter shaft.
- TWO DOUGHERTY SHINGLE MACHINES, in good order, price very low.

UPRIGHT SWING SHINGLE MACHINE, Law's patent, Galt make, iron frame.

WHEEL JOINTERS, 4, by different makers, and very cheap.

HEADING MACHINERY, one Heading Planer, Saw, Turner and Jointer, at a bargain.

LARGE STOCK OF Engines, Boilers, Iron and Wood Working Machinery, Water Wheels, Grist Mill Machinery, &c. Send for catalogue. H. W. PETRIE, Brantford, Ont.

FULL DETAILS of any of above machinery forwarded on application. Address, H. W. PETRIE, BRANTFORD, ONT.

Corona Engraving Co.
WOOD ALL BRANCHES OF ENGRAVING

FIRST-CLASS MECHANICAL WORK.
W. KINGS W. JORDAN
F. ORCEN. H.B. BEALE.

SITUATION WANTED.

A MIDDLE-AGED MAN, WITH TWENTY years experience at engine driving, wants a situation. Married. Address A. B., Scarboro P. O., Ont.



Mr. E. B. Eddy's new sash factory at Hull will be ready for occupation in a short time.

Henry Ford had a finger severed by a buzz saw in Hobson & Wilson's saw mill at Huntsville, Ont., recently.

Gatthil & Fraser, lumber merchants, Emerson, Man., have dissolved partnership. Mr. Gatthil will continue the business.

The Muskoka Mill and Lumber Co. have a horse that weighs 1520 pounds.

The Midland *Bee Press* says that more mills will likely be built up in that region.

J. A. Christie, lumber dealer, of Brandon, is able to be around again, after a serious attack of fever.

Mr. James Commee, M. P. P. S., steam mill at Port Arthur was totally destroyed by fire on the night of Oct. 14th. Loss will be heavy.

Messrs. Francis, Carswell & Co.'s sawmill at Calabogie, Ont., has been sawing timber for a new government dam near L'Esperance Rapids. The dam is to afford better facilities to lumbermen.

The planing mill and sash factory of Kearns & Kearns, Brockville, was destroyed by fire on Oct. 6th. Loss \$10,000. no insurance.

Owing to a break-down of some of the machinery the Midland and North Shore Lumber Company's steam mill has been closed down for the season.

Johnson & Eberts' saw mill at Palmira, Ont., was recently destroyed by fire. It is believed that an incendiary set fire to the premises.

The lumbering season of 1885-7 has opened with considerable activity. Gangs of men are being sent into the Haliburton and Georgian Bay districts. Wages run from \$15 to \$20 a month.

On the night of Oct. 13th, Mr. J. A. Duvall's saw mill, shingle and stave factory at Grimsby, Ont., were totally destroyed by fire. The loss amounts to about \$2,500. no insurance.

Alex. Cooper, who was injured in Hilliard's saw mill at Peterborough, Ont., a short time ago, is recovering. He has lost his right arm, it having been amputated close to his right shoulder shortly after the accident occurred.

The first consignment of lumber from New Westminster, B. C., has arrived at Calgary, N. W. T. The lumber is very clear stuff, and can be sold at about half the price charged formerly for this class of timber.

Among the species of wood found in the Canadian Northwest are: black poplar, cranberry, cherry, basswood, birch, willow, maple, spruce, cottonwood, plum, elm, black ash, tamarac and thorn.

In consequence of an arrangement between the Canadian Pacific railway management and the lumber firms in the Nipissing Valley, Ont., in regard to transportation rates, two large mills will soon be built at McLeod's Bay, near Sturgeon Falls.

Mr. J. R. Booth, the well known lumberer and mill-owner, of Ottawa, has purchased a timber limit on the Temiscamingue some 75 miles in extent, from La Banque Nationale, for which he paid \$77,500.

A party of Canadians have bought 50,000 acres of timberland on the Little Tennessee River, Tenn., and want to buy 100,000 acres more. Their object is to cut off the timber, develop the mines, if any, and settle the lands with Swede, Swiss and Scotch.

Reports from Parry Sound state that during the coming winter the cut of saw logs in that district will be the largest ever taken out. Already many camps have been established and active preparations for a big season's work are being made.

Messrs. Cozland and Adams, from Glasgow, Scotland, have arrived in Ottawa to look into the possibility of extending the timber trade between Canada and Scotland. They are favorably impressed, and several suggestions that have been made are likely to prove of great advantage to Canadian shippers.

While Mr. Wm. Thompson, tail sawyer in Knight's saw mill at Baldwin, Ont., was performing his usual duties a slab was caught by a moving belt and thrown against his stomach with such force that he was knocked insensible for a time. He is slowly recovering.

Dr. E. P. Roche, Maine, U. S., argues that some species of trees evade a resin which, after hardening for a short time, before becoming opaque acts under a hot sun as a magnifying lens or "burning glass" of sufficient power to set fire to the dry tinder-like undergrowth and decay close by, and thus start a forest fire.

The largest sale of pine land ever made in the Northwest was recently completed by the transfer of Mr. J. S. Pillsbury's entire possessions to the Grand Haven Lumber Company. The purchase includes 650,000,000 feet of pine lumber, most of it lying within thirty miles of Aitkin, Minnesota.

Squatters are making clearings in the heavily timbered lands of British Columbia by boring one large hole in the trunk, slanting upward, and another from a point well up the trunk and slanting downward, both meeting in the heart of the tree. Then the upper hole will be filled with any convenient combustible and ignited. The long hole acts as a chimney, and the fire burns furiously until the tree is destroyed.

One hundred and two thousand shingles have been shipped from Puget Sound to Port Moody for shipment across the Canadian Pacific to the east. The Vancouver *News* says: "This is only the beginning of a future great trade between the Pacific and the Atlantic coasts. Cedar grows here in abundance, and the shingles cut from the lumber are the most substantial in the world, tests having proved that, placed on the tops of buildings, they can with-

stand the rain and tempests beating down on them for 40 years. The shingles will not rot; the action of the weather wears them away, but decay never attacks them. Our eastern friends speak highly of the shingles turned out on this coast, and the first shipment of them over the C. P. R. is the beginning of an immense trade. The forests of cedar in the Atlantic States are well-nigh exhausted, but in British Columbia there are such immense supplies that a century will pass away before all the trees will have fallen under the unerring aim of the aveman."

A considerable quantity of lumber is being held at Minamichi ports for higher prices, according to a correspondent at Newcastle, N. B. It is believed that the amount shipped to Europe this season will not exceed seventy million feet, as compared with 117, 140, 108 and 87 millions in 1882, 3, 4 and 5 respectively. Following are the quantities rafted at the South West boom in these years: '82, 77,740,241 ft.; '83, 71,101,951 ft.; '84, 37,049,643 ft.; '85, 37,282,825 ft.; '86, 30,809,353 ft. Charters have ranged from 40 to 45 shillings per standard this year. Snowball's deals have been shipped up to date in 34 sailing vessels. No steamers have been employed this season. Most of the deals forwarded have been to ports in France and on the Mediterranean. Nearly all the deals cut by Richards & Hickson at Newcastle are piled up on their wharf, and Burchill, of Nelson, has only shipped two cargoes this summer. Scarcely any move has been made by operators as to next winter's work, and those spoken to seemed to be greatly discouraged over the continued depression in the European markets and the prospect of no decrease in the government stump age tax.

The Aurora *Boat* prints the following particulars of a shocking occurrence which took place in an old saw mill in that village a fortnight ago.—Mr. Baldwin recently decided to pull down the old dismantled saw mill in the rear of his grist mill, leaving the water-wheel still in position. Soon the lads discovered in this wheel a grand instrument for pleasure. It is twelve or fourteen feet across and nicely lined within. The shaft was oiled and many the happy ride was taken by the youngsters, a being used on the principle of a dog churn. Some, more courageous than the rest, had learned to brace themselves between the "spokes" and go clear around, which, of course, emboldened others, and not satisfied with this sport during the day, procured a lantern and followed it up during the nights. At about 7.30 on the evening in question the boys belonging to Geo. Russell, while sitting upon the veranda with a companion, heard a dull crash and surmised that something had gone wrong. They immediately visited the spot but found all quiet. Two or three lads then got within the wheel and proceeded to amuse themselves. One boy succeeded in making the circuit when Master Harry Russell, a bright young fellow in his 15th year, undertook the feat. Alas, however, his courage was not sufficient for the ordeal and while suspended head downwards he fell, his head reaching out sufficiently beyond the wheel to come in contact with the framework of the structure, which stood about six inches outside. The huge wheel was brought to a standstill with his head between one of the spokes and a beam, the result being that it was smashed in a most horrible manner. His companions extricated the unfortunate fellow and bore him home, summoned medical aid but all in vain. Mr. Russell returned home a few minutes before death in time to hear the young lad ask his forgiveness for visiting the spot, his father having warned him before going away. We might mention that the noise which drew the boys attention and took them to the spot was caused by a young son of Edward McMahon getting fast in the death trap. The boy was taken home and medical aid called. Fortunately, however, his injuries were not of a dangerous character.

Michigan men continue their purchases of timber limits in the Georgian Bay region of Ontario, says the *Lumberman's Gazette*, despite the threat of the Dominion authorities to raise the export duty to a point where it will equal prohibition of exportation. During the past week some five or six lumbermen of this city, who have had a man looking over some limits, stole away to the Spanish river country to have a look at the lands themselves before parting with their shingles. The intention has been clearly expressed by the Canadians not to allow the timber of the Dominion to be exported to the United States to be cut, and there is no doubt the export duty will be raised to a rate that will stop it. This is generally understood by the lumbermen and the continuance of purchases we take to be an indication that purchasers are not unwilling to proceed to the extent of constructing saw mills in the Dominion, if that shall be necessary in order to realize upon their investments. Many of the Michigan parties who have purchased berths are the owners of saw mills on this side and had in view the bringing the logs across the lake. This was the intention of the Emery Lumber Company, who have saw mills at Tawas and on the Saginaw river. They will have brought over some 12,000,000 feet the present season and intended to put in 15,000,000 feet for the same purpose this year. F. W. Whitney, who recently purchased a tract containing 120,000,000 feet of pine, expects to put in 8,000,000 feet this winter for export. Several parties at Alpena and Oscoda intended to operate in the same way. What were the expectations of those who went over this week we cannot say, but one of them is a saw mill owner at this point. Folsom & Arnold of this city have a tract on French River, but they built a mill there several seasons ago and are bringing no logs from thence. Some of the parties, no doubt, are buying on speculation, and if the export duty should be advanced will doubtless hold for the future. Big money has already been made in the sale of limits. One party bought a tract for \$50,000 and sold it for \$150,000,000. Reports say it has since changed hands for \$350,000, and is now held at \$500,000. As the big fortunes that have been made in the lumber trade in late years have come of fortunate purchases of timber lands, the expectations of purchasers of Canadian timber may be based on belief in the advance of value there, as much as upon the hope that they will be allowed to bring the timber across the line for cutting. There is one thing to be said, however. This is the best lumber market in the country, and it will pay to bring stock here for manufacture at considerable expense.

The supply of hemlock in New England and Lower Canada will

be exhausted, so far as a practical supply is concerned, much sooner than most people think. The supply of spruce will last much longer, while that of sapling white pine is of such rapid growth that it will always be the leading lumber crop in New England. It is a fact not known to the average reader that the supply of hemlock in the Eastern Townships, or Canada East, so-called, is practically exhausted. Notwithstanding the immense hemlock forests which existed there twenty-five years ago, the ruthless hand of the destroyer has levelled those great hemlock forests. Very little of lumber was marketed at the time the bark was peeled, as it would not pay the transportation bills. Hence, millions upon millions of hemlock logs have rotted on the ground in Canada during the past twenty-five years. Twenty-five years ago Mr. Cutting, of W. Chester, who was the pioneer in the bark business for the supply of tanneries in this section, brought in the first carloads of consequence from the Eastern Townships into Massachusetts. At that time he only paid \$1.50 to \$2 per cord for bark peeled, dried and hauled to the line of the railroads in Canada. This was a very low figure, and afforded the buyer more profit to the carload than can be made from half a dozen carloads now. It seemed at that time as though the hemlock forests of that part of Canada could never be exhausted, but to-day the great tanneries erected there twenty years ago are idle and are rotting down, merely because a supply of bark cannot be procured. When the great tanning firm of E. Shaw & Co., established its tannery at Waterloo, Can., they bought thousands of cords of bark delivered at their tannery at \$1.25 to \$1.50 per cord. Thus, of course, gave them a great advantage over those tanneries operated at a great distance from the best of hemlock supplies, but that advantage is fast vanishing, and but a limited number of tanneries can be run in Canada at the present time. Even the great hemlock extract companies, which were located in the heart of the hemlock districts, have been closed, with the single exception at Upton. Never was a great hemlock forest fooled away at no profit to any one as was the case in the Eastern Townships of Canada. The French habitant who felled his hemlock trees, who peeled his bark, who piled it to dry, and who the subsequent winter hauled it to the railroad, getting only \$1.25 to \$1.50 per cord, did not realize twenty-five cents per day for his own labor. The supply of available hemlock is so small at present that the subject is really one of startling importance, both to tanners and owners of hemlock lands. A thorough investigation of the subject is necessary and important. The area of hemlock lands was never nearly so large as that of spruce or pine, and the bark is an article which can only be transported by teams or railroad. It cannot be marketed as ordinary log can, by rivers and streams. The days of nine dollar bark in Boston and vicinity are evidently numbered, and \$11 to \$12 will probably be the price for next year.—*Manufacturers' Gazette*.



Indians entered over sixty exhibits, chiefly of wheat and potatoes, at the fair at Regina, all being very creditable.

Brampton streets are to be illuminated by electric light on and after 1st November next.

The coal production of Nova Scotia last year amounted to 1,400,000 tons.

The antimony mines at Central Kingsclear, N. B., are now being vigorously worked.

The Record Foundry & Machine Co. of Moncton, N. B., have raised the wages of their employees 10 per cent and are also adding largely to the number of their employees.

The English Consul at Hiogo, Japan, reports that in the importation of iron machinery and plant on Japanese Government orders, a transfer of business has of late taken place from British to German firms, and probably, along with this, a transfer to some extent from articles of British to articles of Continental origin. In connection with this there has been also a similar transfer of private business in these articles.

The production of copper throughout the world last year is estimated at 221,715 tons, as compared with a corresponding production of 217,483 tons in 1884, and 153,057 tons in 1880. The largest copper producing countries last year were: Australia, 11,400 tons; Chili, 38,800 tons; Germany, 15,250 tons; Japan, 2,000 tons; Spain and Portugal, 45,949 tons; and the United States, 74,050 tons. Canada's copper production will have to be taken into account by statisticians in future.

It is reported that a rich mica mine has been discovered in the township of Methuen, County of Peterborough, and has been acquired by Mr. William Martin, of Kingston, and Mr. Seth Welch, of Wollaston. About two tons have been blasted, and one piece of pure metal weighing thirty pounds has been obtained. This has been sent to New York for examination. It is pure and white, and the promise is very good. Six feet of depth has been explored, and the mica is found to be better as the workmen go down. The mine is believed to be ten acres in extent.

Nitro-glycerine and dynamite do not, when exploded, exert such a force as is popularly believed. To speak precisely, the power developed by the explosion of a ton of dynamite is equal to 45,675 foot-tons. One ton of nitro-glycerine similarly exploded will exert a power of 64,452 foot-tons; and one ton of blasting gelatine, similarly exploded, 71,050 foot-tons. These figures, although large, are not enormous, and need not excite terror. Seventy-one thousand tons of ordinary buildingstone, if arranged in the form of a cube, would measure only 90 feet on the side, and, if it were possible to concentrate the whole force of a ton of blasting gelatine at the moment of such explosion on such a mass, the only effect would be to lift it to the height of a foot. The foregoing figures are derived, says the *Engineer*, from experiments made at Ardeer with an instrument which gives accurate results in measuring the force of explosives.

FLOUR MILLING IN CANADA.

FIVE years ago, when prospects were fair and European harvests were poor, the chances for the wheat grower of Canada and the miller seemed secure for a steady trade. As the years roll on the disturbing spirit of competition has slumbered not, but is more vigorous and threatening than ever. Year by year some new fact presents itself to the view, and contingencies not thought of before force themselves on the attention with a persistency as enduring as it is unexpected. Sometimes it is a question of manipulation of the raw material, involving the stones or rollers. Then it is a question of change of taste, implying a rearrangement of brands. The great and pressing grievance just now is the competition of the Northwestern milling interest. The growing and milling of the hard wheats of the Northwest has been the most powerful of all disturbers of the Eastern miller's peace. It is thought by many well informed men who are friends of the government, that the remedy is not in an increased flour duty, but in lowering or abolishing grain duties altogether. The trouble which bothers the Canadian miller is scarcely less vexatious to the man of Detroit, Buffalo, and other Eastern points where milling is carried on. The flour consumers' demand has changed from a flour made of all white wheats as grown at Eastern points, like Ohio, Michigan and Ontario, to one of a mixed character, or of hard spring as grown in the Northwest. The battle between the new and old wages stronger every year and makes itself felt the keener when competition brings down prices to a level which affects profits. It will not advantage us anything to go over the ground of recent argument, as it is perfectly clear that the present relation between the wheat duty and that of flour is not satisfactory. One thing is clear, for if all the concessions asked to-day were granted, there would be no guarantee that discriminations in freight between far Western points and the extreme East would not completely neutralize tariffs. If the dressed beef trade of New York is condemned to reduction and possible extinction, it is because Chicago has certain natural and acquired facilities which the former does not possess. The milling trade of the United States is almost analogous, inasmuch as it is alleged that a large demand is arising for patents of Northwestern make, and the stronger flours are pushed on the Canadian markets. This is a purely trade matter which legislation will find it of increasing difficulty to deal with.

When a single Western territory like Dakota can grow enough wheat in one year to supply all the wants of a population as large as that of Canada and send it to be milled at such points as Minneapolis, thence to be shipped to Montreal, Quebec or Halifax, by rail to Duluth, and thence by water or by all rail to destination, it must be confessed that there is no easy way out of the fix but to take one's chances with what advantage we have, and to be content to supply a part of the flour if we can't have the whole trade. Last year the produce of Dakota was not less than 24,500,000 of bushels, and the estimate of 5²/₂ bushels per capita would make this ample for the Dominion. Up to the end of June, 1884, the Ontario millers had not felt the competition of the Northwest to be very serious. The quantity of flour imported amounted to about 10 per cent. only of the consumption. The bulk of this flour was of a kind which is not produced in Canada to so large an extent as that which is home-made, and the demand was from the Eastern provinces chiefly, so that the 531,188 barrels were not so terrible after all. The fact which has created most alarm in the minds of those who ask for an increased duty is the enormous increase in the quantity of breadstuffs we have imported since June, 1884. Now the question is, how far are Canadian millers suffering by the excessive importations from the States, and can the increased duty entirely remove the evil? Taking the experience of the cotton and other manufacturers, it seems not. What is going on in the States and in England will most likely take place here, in fact, has taken place, and will to a greater extent in the future.

The remodeling of mills which began in the United States ten years ago, and in Canada five years later, will continue, and the competition of the more modern ones is pushing the older concerns out of the field. Millers are suffering from this in the countries of Europe and the American cities also. Those best situated for the business in Canada will hold on, but some may have to succumb. Abnormally cheap wheat and low rates of profit in flour milling from excessive competition are the cause of the present state of things. Canadian millers will continue to make flour at a profit, and to supply the largest proportion of the flour used in Canada, but they can not and need not expect to supply the whole of the market. There is much which the manufacturer can always do himself, and it is often better to try all other remedies before seeking aid which is not willingly given and which

implies a disturbance of political arrangements. In bad times and falling markets there is sure to be a shrinkage of profits, and though they may be aggravated by market incidents and unfair discrimination of freight rates, it is some consolation and satisfaction to know that the evil is temporary and will pass away. In the times of depression it is better to cultivate patience, keep a cool, clear head, and hope for the best by making the most of what one has already.—*German-American Miller.*

ESSENCE OF BUSINESS LAW.

Under the above heading the Boston *Journal of Commerce* publishes the following useful information:

The maker of an accommodation bill or note—that is, one for which he has received no consideration, having lent his name or credit for the accommodation of the holder—is as fully bound to all other parties as if there were a good consideration.

No evidence may be introduced to contradict or vary a written contract, but such evidence may be received in order to explain the contract when it is in need of explanation.

If one holding a check as payee or otherwise transfers it to another, he has a right to insist that the check be presented that day or, at the farthest, the day following.

Checks and drafts should be presented during business hours, but in this country—except in cases of banks—the time extends through the day and evening.

An oral agreement must be proved by evidence. A written agreement proves itself. The law prefers written to oral evidence, because of its precision.

"Value received" is usually, and should be, written in a note, but is not essential. If not written it is presumed by the law, or may be supplied by proof.

If a note is lost or stolen it does not release the maker. He must pay it if the consideration for which it was given and the account can be proven.

If the letter containing the protest of non-payment be put in the post-office, any miscarriage does not affect the party giving notice.

A note endorsed in blank—the name of the indorser only written—is transferable by delivery, the same as if made payable to bearer.

An agreement without consideration is void; a note made on Sunday is void; contracts made on Sunday cannot be enforced.

If the drawer of a check or draft has changed his residence, the holder must use all reasonable diligence to find him.

A note made by a minor is void; a contract made with a minor is void; a contract made with a lunatic is void.

The time of payment of a note must not depend upon a contingency. The promise must be absolute.

An indorsee has a right of action against all whose names were on the bill when he received it.

Notice of protest may be sent either to the place of business or of residence of the party notified.

A note obtained by fraud or from a person in a state of intoxication cannot be collected.

A bill may be written on any paper or substitute for it, either with ink or pencil.

The payee should be distinctly named in the note unless it is payable to bearer.

No consideration is sufficient in law if it be illegal in its nature.

Principals are responsible for the acts of their agents. The law compels no one to do impossibilities.

Signatures made with a pencil are good in law.

A receipt for money is not always conclusive.

Notes bear interest only when so stated.

Ignorance of the law excuses no one.

It is a fraud to conceal a fraud.

GLUEING.

A furniture journal says: Experienced wood workers have always contended that a glue joint, properly done, is stronger than the wood itself. And yet joints often give way at the surface where the glue is used, which is accounted for by bad material. A similar reason is frequently the true cause, which few artisans wish to acknowledge. It is merely that skill is lacking. In glueing wood, it is asserted by competent authority, that bad work is produced by applying glue to both surfaces. A good job is secured by applying the glue hot, but not extremely so, to one surface, which should be cold, while the other surface should be heated at the stove, but should have no glue upon it. By this method the glue will permeate the wood and bind the surfaces together firmer than nature binds the fibres. It is said by good cabinet makers that if these precautions are taken, less difficulty will be found with glues which, skillfully handled, usually will do the work required of them.



TO PURGE BOILERS.—Distilled cedar oil is said to be unexcelled for purging boilers.

One hundred degrees centigrade is equal to 212° Fahrenheit—viz., to the boiling point of water.

LUBRICANT FOR FINE MACHINERY.—A good lubricant for fine machinery, and one that will not gum or corrode, can be made by putting pure olive oil into a clear glass bottle with strips of sheet lead. Expose to the sun for several weeks, and pour off the oil.

TO FREE BOILERS OF SEDIMENT.—A two-inch blow-off pipe, connected to the bottom of the boiler not over twelve inches from the back end and opened a few seconds every day at the proper time, will suffice to keep a boiler entirely free from sediment.

PRESERVING WOOD.—M. Lostat, a French contractor, preserves wood of all kinds by piling the wood in a trench or trough, covering it with quicklime and sprinkling with water. The lime-water not only preserves the wood from decay, but makes it harder and stronger.

Certain scientists are now of the opinion that the great pyramids were constructed of artificial stones. This theory, says an exchange, would satisfactorily explain the source from which the enormous blocks were obtained, and the process of placing them in position, something which has always puzzled scientists, as there are no stone quarries in the immediate vicinity, and the machinery and appliances of those days were necessarily crude and primitive.

A large establishment in Pittsburgh, Pa., has been using petroleum resolvent in its boilers for three years, without spending a cent for repairs, while previously the boilermaker's gang were at work on them every Saturday night in the year. Worse scale could scarcely be found before the use of the resolvent, while now their condition is pronounced by the inspectors as the cleanest boilers in the country.

Considerable interest is awakened in experiments now proceeding in Pittsburgh, which seem to prove that excellent steel can be made directly from iron ore, by mixing in small pieces with twenty per cent. of Rhode Island graphite, reduced in an ordinary heating furnace to a spongy mass; the phosphorus and other impurities flowing off with the slag, and the mass being ready to be drawn in two hours. Specimens have been hammered into knife blades, developing fine qualities.—*Pittsburgh Times.*

DEVICE FOR STRETCHING EMERY.—A novel and useful device for stretching emery cloth for use in the workshop consists of a couple of strips of wood about 14 inches long, hinged longitudinally, and of round, half-round, triangular or any other shape in cross section. On the inside faces of the wood strips are pointed studs taking into holes on the opposite side. The strip of emery cloth is laid on to one set of the studs, and the file as it is called, is closed, which fixes the strip on one side. It is then similarly fixed on the other side, thus constituting what is called an emery file, and which is a handy and convenient adjunct to the workshop.

A NEW JOINT MATERIAL.—When Portland cement is mixed with a solution of calcium chloride, it rapidly acquires hardness, setting usually beginning in three or four minutes, and being attended with an elevation of temperature that may attain 70° C. During the course of setting, a slight degree of expansion is also produced. If the mixture of cement and calcium chloride be plunged immediately into water, it will soften, but it may be so immersed without injuring its cohesion and hardness, if it has been air dried for a week or ten days, while ordinary damp air has no influence upon the mixture. To illustrate the extreme hardness and strength of this compound, it may be mentioned that it is quite frequently used for repairing the runners of cement mills, and the stones are put to work within an hour after repairing. The cheapness of calcium chloride permits the use of the mixture for numerous purposes, while the facility with which joints can be made and acquire solidity makes it invaluable. The slight swelling in setting is advantageous in filling hollows and making good adhesion. When great hardness and quick setting are required, the cement may be gauged pure, but in general an equal mixture of sharp sand or gravel will be found to answer every purpose.—*American Engineer.*

The mayor of Charleston has received a letter from an English architect, who says:—"Some new facts have been discovered here lately regarding mortars that may be of great importance to you in erecting future buildings at Charleston. The addition of saccharine matter (sugar treacle, infusion of malt, etc.) increases the strength of mortar in an extraordinary degree, making common lime mortar, with sugar added to it, as strong as our famous Portland cement. If you refer to any good treatise on chemistry you will find that water to which sugar has been added dissolves 14¹/₂ times more lime than does water without sugar. Reflecting on this fact I mentioned it some years ago to my friend, E. V. Binney, F. R. S., who said that that was no doubt the explanation of a circumstance that occurred where he was born, Vorksof. An Italian architect came down to erect a building in Mr. Binney's grandfather's time, for a nobleman in that neighborhood. This architect refused to use plain water for slacking his lime, and demanded, and was supplied with malt for the purpose. Many years afterward the building had to be taken down, but they could not pull it in pieces and had to blow it up with gunpowder. Mr. Binney and I both agreed that it was the sugar in the infusion of malt which produced this extraordinary hardness and tenacity of the mortar. I have no doubt now that that old wonderful Roman mortar, which is the admiration of builders after 2000 years, owes its hardness and excellence to the addition of saccharine matter. Another fact that I have to tell you is that powdered brick is probably a better thing than sand to mix with your mortar."



St. Jean Baptiste, Man., has a new grist mill.

Mr. Helmka has rented the flour mill at Brownsville, Ont.

Pakan's Reserve, in the district of Alberta, is to have a grist mill.

The Portage la Prairie, Man., Milling Co. are enlarging their buildings.

The firm of Fletcher & Hughes, millers, Moosomin, N. W. T., has been dissolved.

The milling property of the Norbert Milling Co., St. Norbert, Man., is to be sold by auction.

All the mills in Winnipeg except the Hudson's Bay are running full time.

Mr. W. D. Mace, Tamworth, Ont., recently lost a quantity of wheat by a fire which occurred in an old building near his mill.

Mr. L. Van Loven has lately added a purifier to the machinery of his mill at Batterssea, Ont.

The repairs to Snider & Steckle's flouring mills at Plattsville, Ont., are about completed.

Wheat sold at 69 cents in Minneapolis a fortnight ago, being the lowest price ever reached in that market.

Amanuel Ritter, a miller from Conestogo, Ont., is in Minneapolis looking for a situation.

The Portage la Prairie (Man.) Milling Co. has decided to enlarge its mill from 125 to 300 bbls capacity.

The Hudson Bay Company's mill at Prince Albert, N. W. T. is being placed in order and will soon be running.

Mr. J. G. Oliver, the well-known mill owner and contractor, of Battleford, N. W. T., is at present visiting in eastern Canada.

Farmers from the Birtle district, in the Northwest, are taking grists to the Asessippi Mills, fifty miles distant.

The elevators in the Red River Valley are said to be all filled, and farmers are unable to find storage for their wheat.

The old grain sheds at Fort William are being torn down, and the elevator now handles it all.

It is expected that the new centrifugal mill which is being built at Tavistock will be in operation before the opening of the new year.

The skeleton of an Indian was recently dug up near Van Nostrand's Mills, 4th concession of Whitechurch township. The skull is on exhibition in the mill.

The price of barley must rule low this season. California, the Western and Eastern States and Canada, have the largest crop ever grown on this continent.

The Grain Committee of the Napance Board of Trade have procured standard grades of barley from Oswego and Toronto, which are open to inspection at the Inspector's office.

The electors of the municipality of St. Joseph, in Eastern Algoma, Can., have voted down a by-law for granting a bonus of \$1,000 to establish a grist mill at Richard's Landing.

The largest single cargo of grain that ever left Montreal was recently put on board the s.s. "Brentford" by Messrs. George McBean & Co. It comprised 104,000 bushels of wheat and peas.

Hon. C. P. Brown will move his grist mill from Gladstone to Westbourne, Man. His Broadfoot mill is to be changed to the roller process.

Miller O. M. Mowat has removed from Stratford, Ont., to Ithaca, N. Y.; Jas. M. Horn from Chatsworth, Ont., to Erin, Ont., and R. M. Hazlewood from Chippewa, Ont., to Wingham, Ont.

The total wheat exports from India during the past year aggregated 56,000,000 bushels, while five years ago the exports from that country were less than 4,000,000 bushels.

The entire wheat crop of the United States this year, according to the September report of the Department of Agriculture, will exceed that of last year by 80,000,000 to 90,000,000 bushels.

The Rockwood flour mill at Stonewall, in the Northwest, has been put in operation, and will be run with the stones, until the machinery arrives for substituting the roller process.

The Schooner Nicholls, Waukegan, was the first vessel to bring this season's American corn to Owen Sound elevator. She brought over 20,000 bushels.

About 125,000 bushels of barley have already been delivered at Newcastle, Ont. It is expected that the whole season's delivery will run close on 200,000 bushels.

The first consignment of wheat from the Northwest Territories to eastern Canada this season was made by J. R. Neff, of Moosomin. It consisted of two cars of No. 1 hard, billed to Montreal.

The Regina Milling Co. expect to have their new mill in operation about the 1st of November. The Company is arranging to get a supply of wheat from the Wapella and Moosomin districts.

T. Fletcher, who in connection with Hughes was creating a roller mill at Moosomin, Assa., has withdrawn from the undertaking, which will be completed and run by Hughes.

Owing to the elevator charges at Brandon having been advanced to 2½c., some of the smaller grain dealers are bagging their wheat. They claim to be able to save ½c. per bushel in this way.

The electors of De Salaberry municipality, Man., will shortly vote on a by-law to grant aid to the amount of \$3,000 for the establishment of a flour mill and butter factory.

A Newcastle, Ont., correspondent says The Atherson Mills which have been closed for a length of time for repairs will be open again for gristing and chopping on the 1st of November being thoroughly repaired and renovated.

On Oct. 14th a two masted schooner, with 22,000 bushels of wheat was waterlogged and drifted past Dealtown, Ont. Two men washed overboard and were drowned.

The Qu'Appelle Valley Farming Company's mill at Indian Head, N. W. T., is running full capacity. Quite a number of cars of flour have been shipped this fall, mostly to Montreal.

The elevator charges at Brandon have been raised to 2½ cents. About 10,000 bus per day are being offered at that market from farmers' wagons.

The present year's grain crop throughout P. E. Island is reported unprecedented. The yield of wheat will probably average twenty-five bushels to the acre, in some places reaching as high as thirty bushels.

The Municipal Council of Shoal Lake, in the Northwest, is to be asked to submit a by-law to raise \$5,000 as a bonus to be given to the person who shall build and operate there a roller process flour mill.

There is at least one miller in Ontario who is not on good terms with the N. P. The "Randall" mill at Stayner lately bore a streamer on which was emblazoned the defiant words, "This mill goes, no thanks to the N. P."

Milwaukee elevators have further reduced their rates to ¾ of a cent per bushel for the first fifteen days, and ½ of a cent per bushel for every fifteen days thereafter. The winter storage is 4 cents per bushel, to be reckoned from Nov. 15 to May 1.

The Kingston *Whig* says. The barley trade has not reached large proportions this year. Vessel men are afraid that there will be little of it to carry. The freight rate to Oswego ranges from 2 to 2½c. per bushel.

On the 7th of October, a young son of Mr. Grant, proprietor of the grist mill about ten miles north of the village of Birtle, in the Northwest, was caught in the machinery, and badly injured. His hands, arms, legs and the front of his body were cut and mangled.

To prevent the numerous accidents from suffocation in the grain bins of elevators and flouring mills, it is suggested that a small rope be suspended over the center of each bin. The grain will keep the rope to the center, and the instinct of the person going down in the grain would cause him to clutch the rope.

At the Colonial Exhibition in London there are over 200 exhibitors of Canadian wheat, some samples weighing 67 lbs per bushel, with a yield of 30 bushels to the acre. Canada, as a wheat producing country, fairly outrivals India, the samples being shown in larger numbers and in better condition.

Two prominent men of Port Arthur have written to Mr. Jas. Jernyn, of Minnedosa, N. W. T., inviting him to go to that place at once and erect a roller mill. They assure him a large bonus from adjoining townships, water power, dockage, and exemption from taxation.

With the object of seeing whether it is possible to find improved means for placing the small miller on as near as possible a level with his larger neighbor, our English contemporary, the *Millers Gazette*, offers £5 for the best diagram of a short system adapted to mills of two or three sacks per hour capacity.

The aggregate exports of grain at Montreal from opening of navigation to and October reached 11,198,633 bushels, divided as follows:—4,678,310 bushels of wheat, 3,373,862 bushels of corn, 1,376,681 bushels of peas, 1,753,855 bushels of oats, and 15,925 bushels of rye.

A meeting of citizens of Lindsay, Ont., was held a fortnight ago to discuss the prospects of organizing a joint stock company to build a grist and chopping mill. Speeches in favor of the project were made by A. D. Mallon, W. B. Fee, and Geo. Crandell, but the meeting adjourned without taking any definite action.

Mr. Hugh John Macdonald, of Winnipeg, who has just returned from a visit to British Columbia, says he has little doubt that if the C. P. R. keep their rates properly adjusted, all the wheat and flour used by the people of that Province must be drawn from the Canadian Northwest.

A circular is being distributed throughout Manitoba by Messrs. Henderson & Greenwood, of London, England, announcing that their representative will shortly visit the Northwest to purchase wheat and flour, and stating that the amount required to supply the British markets will be eighteen million quarters.

Mr. John Shaw's flouring mill at Normandale, Ont., which had just undergone extensive repairs and been changed from the stone to the roller process system, was totally destroyed by fire on the night of the 1st of October. The loss is placed at \$10,000, and the insurance at \$4,500.

Mr. W. B. Brown has sold out his interest with Wheeler Bros., at Cataract, Ont., and purchased a large water-power mill and elevator in the heart of the town of Simcoe, Ont. He is making extensive improvements in his new mill, which, when completed, will entitle it to rank among the largest and best flouring mill establishments in Western Ontario.

The Trent Valley flour mill at Lakefield, Ont., owned by R. & G. Strickland, and leased by Donald McLean, a description of which appeared in the October number of the DOMINION MECHANICAL AND MILLING NEWS, was totally destroyed by fire on the 5th ult. The loss is put at \$10,000, and the insurance at \$7,000. The origin of the fire, if known, has not been made public.

It is an encouraging sign, says the *American Miller*, when the proprietor of a "grain and stock exchange," or in other words, a bucket shop, can be convicted as the keeper of a common gambling house, as was recently done in Montreal. We export a good many rascals to Canada; it would be a good thing if we could import some of her salutary justice.

Owing to serious complaints made by millers of the condition of the wheat brought to Buffalo, N. Y., in iron-ore vessels, the flour and grain-inspection committee of the Buffalo merchant's exchange has passed a resolution instructing the chief inspector of grain to reject such portions of cargoes of wheat as are discolored by iron-ore dust, although they were damaged by water or any other cause.

The hand mills in use at Red River in early days came out first in 1815, were of two round flat stones 3 feet across, and 2 inches thick, the under one hollowed slightly, and the upper working on a spindle fixed in the lower, and having a hole through which to pour the grain, and a handle to turn by. One of them is still preserved at Lower Fort Garry.

Mr. A. Mitchell, who operated heavily in Northwest grain both last and the previous winter, arrived in Manitoba recently for the same purpose. He has not yet decided to what extent he will dip in, as he has not "sized up" the crop. He is of opinion that the price of wheat will continue low, as there is a surplus on the continent of 55,000,000 bushels of last year's wheat. In England, he says, the price of wheat is only 85 cents a bushel.

According to the *North-West Farmer*, there is evidently a much heavier yield of wheat this year on the Portage Plains than was expected. Mr. Thomas Sissons tested the yield on his farm and found that it averaged 44 bushels to the acre. Several other farmers in the vicinity have also reported a yield of 35, 36, 38 and 40 bushels per acre. A good deal of the wheat is turning out over 60 pounds to the bushel, some of it going as high as 65 pounds.

Manitoba is said to have 5,000,000 bus., or 625,000 qrs. of her fine hard wheat to spare for export this year. This is not a large quantity, but it shows an increase on previous years. Very little of this wheat will, however, says the *Miller's Gazette*, find its way to Europe, for in other parts of Canada the crop is short, and Canadian millers will not allow this wheat to pass their mills, being able to pay a better price for it comparatively than British millers.

Mill owners who take a daily yield, says the *Milling World*, will soon just discover where any leak is in their establishment. They will know just how much wheat their millers are using, just what quantity of flour they are making and the quality of the product. Every conscientious miller would prefer to report daily on these points. In this way only can a mill be kept at its highest point of efficiency.

The work of rebuilding Mr. Tillson's oatmeal mill at Tilsonburg, Ont., which was recently destroyed by fire is proceeding rapidly. The new structure, including dry house, elevator and grinding mill, is being built of white brick, and in the most substantial manner, the walls of the first storey above the basement being two feet thick. The mill will be much larger than the old one (which was built of wood) and will contain all modern improvements.

A prominent London grain merchant lately visited the Canadian Agricultural Court at the Colonial Exhibition and obtained full information as to the grain and flour trades of the Northwest. This gentleman estimates that there will, this year, be required for the British market as much as 144,000,000 bushels of wheat from abroad. Seeing this large demand and the growing importance of the North-West as a grain producing country, he is now about to visit the North-West to extend to Winnipeg the business connections already formed in Eastern Canada.

Mr. Hugh McCulloch, son of Mr. McCulloch of Goldie & McCulloch, Galt, was in Portage la Prairie, Man., in the early part of October, on business connected with the firm, who tendered for the work on the enlargement of the Assiniboine Roller Mills. By the new addition of buildings and machinery this mill will have a capacity of 250 barrels of flour per day. The present capacity is 150 barrels per day. Mr. McCulloch is also looking after the new woollen and grist mills at Rapid City, as well as some work at Carberry and other points.

Complaints are very numerous, says the *Manitoba Free Press*, about the shortage of freight cars supplied by the C. P. R. for moving the wheat. From the southwestern part of the province we have it that while farmers are being grieved by their creditors it is impossible for them to market their grain, elevators being full and cannot be relieved. Of course the C. P. R. has an enormous mileage to provide for, but it is a severe pull upon our farmers and buyers as well, all the same, that things should be as reported. We have been told of our own dealers having to go to Minnesota to fill European orders.

Mr. J. B. Rutherford, the joint owner of a stone mill at Stonewall, Man., which is now useless for merchant work, and does not pay to run for custom work alone, has asked for a small bonus from the municipality to enable him to change the mill to the roller process. In return for such assistance he offers to grind fifty bushels of wheat yearly for each ratepayer, at the rate of ten cents per bushel, or a reduction of five cents from the usual rate. He also agrees to chop thirty hundred weight of grain at eight cents per hundred weight, or to use his own words, "a reduction in itself sufficient to pay each farmer the amount he would have to contribute in taxes."

Millwrights and millfurnishers, no less than millers themselves, have a direct interest in the threatened destruction of the small mills of the United States by unprofitable competition with the larger mills. Should any considerable decrease in the number of small mills take place, the decrease would seriously reduce the amount of labor for millwrights and the amount of sales for millfurnishers. If a few great milling centers acquire a monopoly of the business of making flour, the result must be that many prosperous millfurnishing establishments now catering to small millers will be forced out of business, and millfurnishing and millwrighting will be localized and restricted to those centres.—*Milling World*.

The *Montreal Trade Bulletin* refers to Manitoba wheat as follows:—"Samples of new Manitoba flour have been received and inspected, and most of them give great satisfaction, several lots being ordered from different milling sections upon receipt of samples. One of our best judges in the trade says all the samples he has tested come well up to the standard and requirements of strong flour. The dough, as he puts it, "pulls like a rope, with color perfect." We came across one sample, however, that was considered not as desirable as it might be, and the receiver, here accounted for this exception to the rule by stating that the flour had the appearance of being ground from new wheat mixed with frosted. If millers should take this means of getting rid of the residue of frosted grain left in the country, they will make a great mistake as traces of the old damaged stock are bound to be de-

ected, even though only a small percentage of it be mixed with the splendid quality of the new crop. What there is of frozen wheat left in the North-West had far better be disposed of for feed purposes, rather than allow it in the least to stain the high reputation which Manitoba Strong Bakers' flour has already attained."

It would be a good thing physically for Canadians, and a good thing financially for Canadian oatmeal millers, if the people of this country would eat more oatmeal. It would not be easy to find handsomer women anywhere than the oatmeal eaters of Edinburgh, and the only ladies that equal them in rosy health and classic beauty of figure, so far as obtained, are found in the interior districts of Ireland. Oatmeal would seem to have something to do with it, and every one may remember the reply of the Scotchman to the taunt of Dr. Johnson that the horse in England ate the same kind of meal as the men in Scotland. "Ah!" said Scotchle, "but such horses and such men!"

One of the largest and most destructive of the many fires which occur every month in Canada, took place at Fergus, Ont., on the afternoon of Oct. 15th., when the Monkland Mills at that place, owned by Mr. James Wilson, were totally destroyed, together with 8,000 bushels of oats. The Monkland Mills consisted of three very large stone buildings, one used as a woollen factory, another as a warehouse, with the flour and oatmeal mills situated in the centre. The fire originated from the oatmeal kiln, and, fanned by a terrific gale which was blowing at the time, neutralized all efforts made to check its progress. But for the service rendered by the hand fire engine of the village, the warehouse situated only a few feet distant from the mills would also have been destroyed.

A prominent miller of Canada, who obtains his American milling news from the columns of the *St. Louis Miller*, was attracted by the full page illustration of the Todds & Stanley Concentrated Roller Mill, which appeared in our September issue packed his grip, purchased a Knight Templars' railroad ticket, came to St. Louis, visited the Exposition, examined the mill on exhibition there, called a cab and went down to the warerooms of the Todds & Stanley Co., introduced himself to Mr. Stanley, in ten minutes had purchased a mill, and soon after returned to his Northern home with the assurance that he had made a profitable trip.—*St. Louis Miller*. This prominent miller's profit would have been larger if he had obtained his milling news from the *MILLING NEWS*, saved the price of his railway ticket, and purchased his machines in Canada, where wheat and the machinery for making it into flour both find their highest development.

Holders of No. 1 Manitoba hard wheat are in luck. A despatch from Grand Forks, Dakota, dated the 8th of October, says:—A representative of a syndicate of Detroit, Buffalo, Rochester and Scotch millers arrived here yesterday. He said:—"The stockholders of the organization are actual millers. We purpose to buy up all the genuine No. 1 hard wheat raised in the Red River Valley, not to speculate with but to grind in our mills. This wheat is worth from 10 to 15 cents more per bushel for actual grinding purposes than any other wheat raised. Having resorted to every known measure to get this wheat in its unadulterated purity, and having failed, we now purpose to come into the market and buy in person." As soon as the syndicate begins operations, we may expect to hear of a decided advance in price of the much coveted No. 1 hard.

A Chicago dispatch states that "an experimental shipment of grain from Chicago will pass through Ottawa for Boston within the next day or two. The shipment is quite an extensive one, several hundred cars being engaged carrying the grain. The route to be taken is by steamer to Owen Sound, thence by C. P. R. to Ottawa and on to Boston by C. A. R." No one will be disposed to take exception to business being found for our national road wherever it is attainable and can be profitably secured. The company may stretch forth to New York, New Orleans or San Francisco, and the more it can find to do the better Canadians will be pleased, always provided that the interests of Canadians, for whom the road was built, and who have had to pay so liberally for it, do not suffer in consequence of these little "diversions." But we confess we do not like to read about several hundred cars being found for an experiment in Chicago wheat, while Manitoba wheat has been practically stuck for the want of cars to move it.—*Manitoba Sun*.

From inquiries made at the stands of various friends on the corn market, it appeared that a limited quantity of wheat called "Manitoba frosted wheat" has been sold in Mark Lane within the last few months, but the amount seems to have been quite insignificant. We ourselves have a sample of this frosted grain, which does not, indeed, appear to have taken any great harm from the cold of its native region, and we were not, therefore, surprised to learn that the wheat represented by the sample in question found ready buyers among millers at the respectable figure of 28s. a quarter. In fact, the representative of one of the best known firms on the market assured us that he had at that price easily disposed of some 400 quarters, and could no doubt have got rid of a much larger quantity, as the so-called frosted grain was valued for its strength, and on that account mixed by millers with other wheats. The sample in question has all the appearance of Manitoba grain, and we were assured as a fact that it came from Montreal and nowhere else. A small quantity is said to be still in the hands of a certain Mark Lane corn merchant, who, we were given to understand, valued it at 31s. a quarter. As a matter of fact, but little wheat from Manitoba has ever reached our shores, and such as arrives, be it frosted or not, finds ready buyers.—*The Miller*, London, Eng.

The London Machine Tool Co. find the demand so good for fine tools such as turret lathes, fox lathes, milling machines and other lines of iron tools, and being determined to keep right up to the times, Mr. Morrison and Mr. Yates are now on a visit to Boston to obtain a first-class American mechanical superintendent for the works, and at the same time a number of the very best tool fitters to be obtained, as they cannot find any Canadian workmen of sufficient experience in tool building to do their work satisfactorily to either themselves or their customers. It is pleasing to note any advancement of this kind along the line of the development of any important industry like tool building.



A cash prize of \$10 is given every month for the best essay contributed to this Department on a subject selected by the editor. The essay selected as the best in each month will be published, and \$10 forwarded within ten days to the author. The conditions on which these prizes are offered are as follows:—1. Competitors must be paid-up subscribers to the *Dominion Mechanical and Milling News*. 2. All articles sent in to become the property of the publisher of this journal. 3. Articles must reach this office not later than the 20th day of the month next preceding the date of issue. 4. Every article must be accompanied by the true name and address of the author, not, however, for publication unless desired. 5. Articles to be written on one side of the paper only, and not to exceed 2,500 words. The merits of all articles written for this Department will be decided by three thoroughly competent and impartial judges selected by the editor, and competitors may depend upon being fairly treated in all cases.

Subject for next competition: "How Power is Lost and May be Saved."

ACKNOWLEDGEMENT.

Mr. L. A. Morrison, who was awarded the *DOMINION MECHANICAL AND MILLING NEWS* prize of \$10 last month for his essay on "The Transmission of Power," sends us the following happy acknowledgement of the receipt of the money, which we take the liberty to publish:

I have your cheque,
And I thank you kindly for it;
And I think it "quite a spec"—
In the words of Dickens' "Dorrit."

"Ain't you glad you got the prize?"
Says my boy who round me ranges;
Bless his happy heart and eyes!
Human nature never changes.

In an essay, when a lad,
I remember (nor am sordid)
How my heart was jolly glad,
When I won the prize awarded.

Years have passed away since then,
With their "bulls" and "bears" and "panics"—
Now my opponents are men,
Skilled in metals and mechanics.

Yet I have the prize to-day,
So I guess I earned it fairly;
This, however, I can say:
I've been learning late and early.

And I hope—by God's good grace—
So to do the work assigned me,
That when I vacate my place
To the one that comes behind me,

He may find it takes a man,
Of the manliest human measure,
To complete what I began:
He won't do it at his leisure.

And I know, if I am true—
By God's word and promise given—
Every well done thing I do
Shall obtain reward in Heaven.

Toil and labor hath an end,
Many build for few to scatter:
Yet on this we may depend,
Faithful as the "laws of matter";

This great mercy underlies
All our energies inherit;
Each true worker gains a prize
Of supreme, eternal merit.

THE PRESENT CONDITION AND FUTURE PROSPECTS OF THE MILLING BUSINESS IN CANADA.

BY "CANADA."

By this title is meant the flour milling business only, which may be divided under two heads. First, the mechanics of milling—the converting of wheat into flour, &c.—and second, the business of milling—the conducting of a milling business.

In this paper will be discussed the condition and prospects of the milling business in Canada, without further reference to the mechanics than is necessary—or in other words milling judged by the money test.

In Canada all the early mills of the country and a large number now, were, and are grist mills, or mills in which gristing is the important part, any merchant work being done to fill in time, or utilize power not required for gristing.

The pay for gristing being established by law at one twelfth of the wheat ground in water mills and one tenth in steam mills, the income from a gristing business depends directly on the price of wheat.

Wheat being now below 75c per bushel and without any considerable advance thereon being discernible, it can safely be said that the present condition of the gristing business is unsatisfactory and the prospect equally so. No change of consequence has occurred of late years in the direction of cheapening cost of running, to effect the low price of toll, nor can any such change be looked for. While there are exceptions to the general condition of grist milling in Canada at this time, that condition and the prospects both unmistakably

warn the sagacious man to stay out of a grist mill venture, if out, and look out for some more remunerative employment for his time and capital, it in.

The old grist mill, which has done such good service, and around which has gathered so much romance, with its overshot and waste-gate, its day of sixteen slouchy working hours, has seen prosperous days and happy ones. Recollections of it make many a modern miller, who lives with one eye on the "ticker" and the other on his boss miller, sigh for the more primitive days of his initiation, but as a business its present and future have less of cheer, than its past of genial remembrance.

With the next class, the combined mill, when located well for a local flouring trade, especially if possessing a sufficient and cheap water power, the condition is better, and the prospect promising, if handled economically.

Passing on to the roller mills of 100 barrels a day and upwards, but not including the very large establishments, both present condition and future prospects are good, except in cases, not frequent yet, where overshadowed by very large concerns with correspondingly large influence in freight matters. The "building-over," fever and ambition to own a full roller mill, because of the profits that could be figured out in advance, have given birth to many a milling business in Canada that has been a bitter disappointment. But these are the exceptions. The great milling business of Canada as represented by moderate-sized mills, with many practical owners, located all over the wheat raising portion of the Dominion, is fairly prosperous now, and can look forward with confidence to good prospects ahead.

This class of Canadian mills is equipped with the best modern machinery, which already is made in abundance at home, and mechanically are keeping up with the world's procession. They have in Canada a rapidly increasing population to supply, and one of the largest mercantile fleets of the world to offer cheapest transportation over the seas for surplus product. They are managed by men, speaking generally, who possess their full share of the true spirit of progress and conservatism that Canadian business men in all lines are entitled to lay claim to, no matter what nation the comparison be made with. This is the class of milling business that will most benefit the country, by its prosperity. The wealth that it gathers is distributed wealth, and beneficial accordingly.

But this prosperity of the large number of moderate sized mills may be threatened by the power of a few monster concerns. No one can gainsay the right of any man or company, to erect milling establishments of any immense capacity, but when the average mill-owner discovers that some big neighbor can send his product to market at rates so much lower than his that the difference is a milling profit, then he may fear for the future prospects of the trade in general, while resenting its application to his own present condition. That this can be done over railways subsidized by Government (as all Canadian railways are, in some degree) is not a fact calculated to lessen the hardship. Fortunately, however, special freight rates are not likely to depend permanently on the genius of a wealthy miller to hobnob with high railway officials. The long delayed railway commission is intended among other things to give equal show to the great man and his humble neighbor. A commission has lately been in session in Ottawa, and is soon to meet in Toronto, to inquire into the necessity or otherwise of such a court. That commission will probe but slightly if they fail to find a "True bill."

As to the mammoth mills themselves, they are yet so few in Canada that they can scarcely be spoken of as a class, but that a class of very large mills will yet exist in the Canadian North-west there is no doubt. They will have abundance of the best wheat on earth near at hand, coal plentiful and cheap, when water is not the motive power, and sufficient transportation facilities for carrying their product to the Eastern and old world markets.

On the whole, the present condition and future prospects of the milling business in Canada are good, if not all that could be wished for by those whose money and labors are devoted to the industry. Men who are experienced in the business and possess fair business abilities, and are willing to devote that experience and ability to the milling business (which does not include speculation on the course of markets at home or abroad), have reason to reckon on winning their share of the general prosperity of the country.

The *MECHANICAL AND MILLING NEWS* had the pleasure of a call the other day from Mr. J. Leuzarder, formerly manager for the E. P. Allis Co., in Canada. He was over attending to some business on behalf of the firm, with which he is still connected.

FLOW SHEET ON THE SHORT SYSTEM.

A CORRESPONDENT who has been studying up the short system, sends the DOMINION MECHANICAL AND MILLING NEWS the accompanying flow sheet, showing the machines and separations for a mill of 40 to 50 barrels capacity. The list of machines used in a mill of this size are: One small dustless wheat separator; one small combined smutter and brush; one double 6x12 corrugated roller machine; one double 6x18, one pair corrugated, one pair smooth; one double 6x18, one pair scratched, one pair smooth; one single 6x18 scratched roller machine; two 10x30 scaping reels with division in one reel; four 14x32 bolting reels; one 7x36 centrifugal reel; one double purifier sieve 10 ft. long.

Our correspondent adds: As the different separations are shown and also the numbers of cloth to be used, the flow sheet does not need an extended explanation. It will take about 20 horse power to run this plant, and it will produce a good grade of family flour and a small percentage of low grade flour. If required there can be drawn off from 15 to 20 per cent. of patent flour. This outfit of machinery will make a nice little mill for doing exchange work and local trade, and being cheap in first cost, would enable millers operating small stone mills to adopt it.

CARELESSNESS WITH STEAM.

The following remarks by a writer in the Milling Engineer, will bear reading twice and thinking over daily by a majority of Canadian engineers:

In the engine room of a first class establishment for the manufacture of fine machine tools, was noticed a faint, subdued thump, every time the connecting rod passed the center. The engine was a beautiful machine, a horizontal engine from one of the best builders, and ordinarily it worked without noise. The engineer seemed vexed when his attention was called to the slight thump, and he got a two-pound chipping hammer, with a twenty inch handle, and stationed himself at the crank end of the engine and struck the back of the strap as often as he could, as the crank pin ran the gauntlet. An engineer who will do this quite common trick ought to turn his time and talents to the mending of roads: he is too nearly a fool to begin at the beginning and receive instruction in how to run an engine. A blow thus struck at random, without any means to calculate its force or determine its results, might cripple an engine seriously; it is possible to twist off the crank pin, or melt the babbit in the brasses. There is no more motions power exerted through a small space than that of the wedge, and the key to a box strap is a wedge of the most delicate and effective sort, having a solid locking on one side and the yielding brasses on the other.

Another engineer, another person in charge of an engine, was noticed chipping out the carbonized and baked hemp or flax packing from the stuffing box of a valve stem with a narrow one-quarter inch rape chisel. The packing looked as though it had been there a year, and was about as hard as the valve stem, so that the workman could not tell, by the feeling, whether he was cutting hemp or steel. The condition of that valve stem, when the packing had been removed, may possibly be imagined, it may best be described as having the appearance of having suffered a severe attack of cold chisel small-pox, of the confluent type. This man received pay as an engineer.

Another attempted a common trick, that of setting up the gland of the piston rod stuffing box while the engine is running; but this time the wrench slipped, a heavy forked wrench, two feet long, and before it could be recovered, as it lay across the incoming piston rod, the crosshead socket of the piston rod struck it with the result of a broken cylinder head, a cracked cross-head, and a bent connecting rod. This engineer said that he had done the same thing (setting up the stuffing box gland while the engine was running) many

times, without trouble, but he did not seem to consider that he could also set up the gland when the engine was stopped, without danger.

Some engineers—good men usually—are full of such quips and quirks. It is not altogether a desire to show off their dexterity, for they will play the same tricks when alone. It comes from the love of neatness, preciseness and perfect order, and the unreasonable impatience of waiting until the proper time, that should have been laid aside, with other childish imperfections, on reaching manhood.

A usually careful engineer once knocked out a cylinder head on starting the engine in the morning, when everything was cold. He neglected to open the cylinder cocks, and gave the cylinder almost a full head of steam at once, instead of starting slowly and heating up gradually. The condensed steam—water—was like a wall of iron between piston and cylinder head, and the momentum of the fly-wheel hurled the piston against it, with the result of stripping the threads off some of the cylinder head bolts and cracking the head.

In consequence of carelessness in not making sure that an oiler was performing its functions, the babbit in a pillow block was melted, and the crank shaft so badly scored as to require re-turning, or rather scraping,

ing, as ashes are said to be a substitute for emery.

If steam engines were kept in hermetically tight cases, like watches, and the keys to the locked cases were lost they would, in some instances at least, reflect credit on their builders, who aimed at durability as well as efficiency; or, if the engine tinkers could be induced to transfer their attentions to mule teams, a similar result might be attained.



The Queen's dry dock ship building yard at Collingwood and the Collingwood foundry and machine works have been consolidated.

Brandon Board of Trade has appointed a select committee to develop manufactures, and it already is seeking facts looking to opening cheese factories, creameries, a binding cord factory, a woolen mill, etc.

Band saws are now constructed for sawing iron as well as lumber. The saw blades are made especially for the purpose, being thinner at the back, in order to give clearance to the sides of the blade while cutting.

The first floor of Messrs. Firstbrook Bros.' new planing mill on Kingstreet east, this city, fell in a few days ago, causing damage to the machinery and the building that will probably cost ten thousand dollars to replace and repair. Defective construction caused the collapse.

All that is saved by using a machinery in a new mill, says an exchange, is not gain in the long run. A patched pulley or a shaft with a flaw in it is liable to break at any time, and when it does give out is liable to do ten times more damage than the first cost of a new one, besides the vexation and loss incident to stopping the mill.

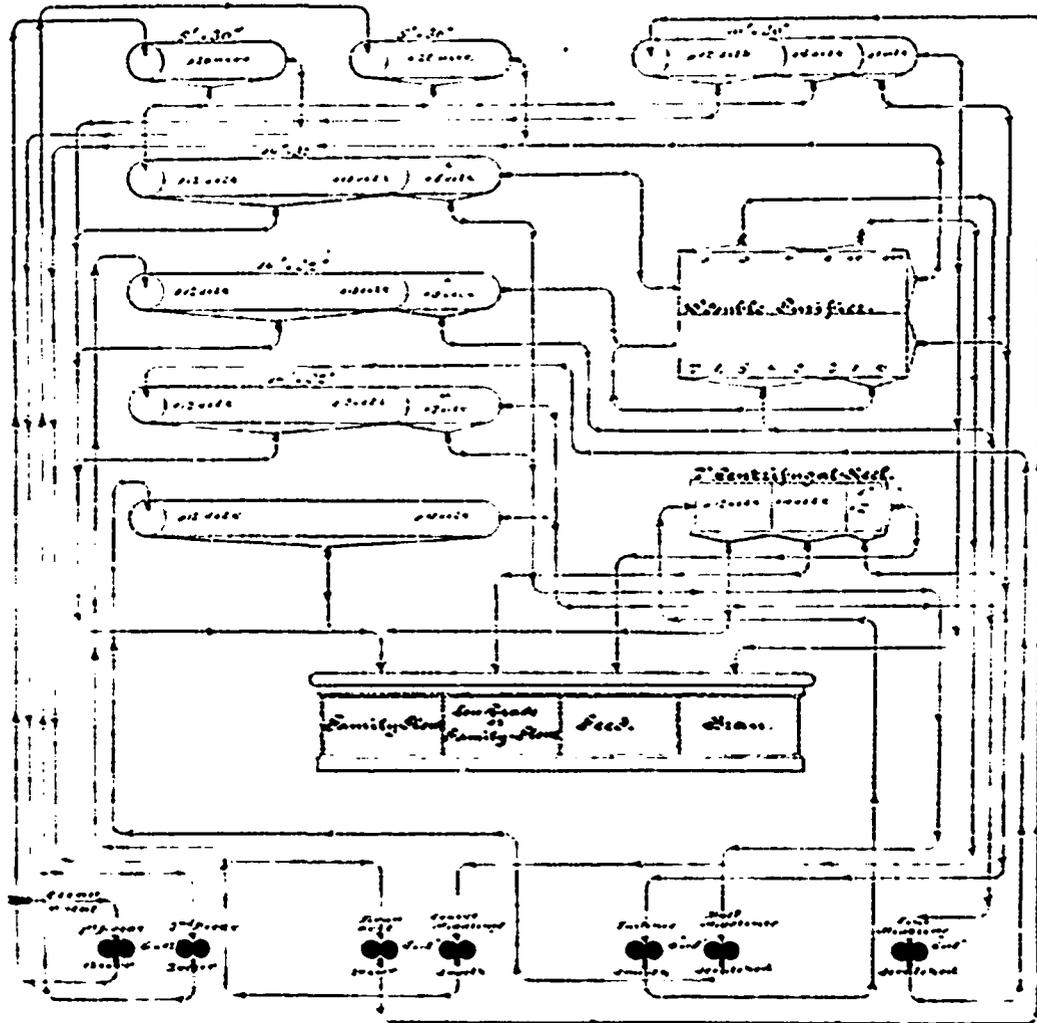
The Orillia Packet is responsible for the following:—A noted sheep breeder, from Simcoe, was in the machinery hall, at Toronto Industrial, and overheard a manufacturer of hydraulic rams, remark: "We have the best ram in the country." He immediately exclaimed to his companion, "Let us go and see it," and started for the stock sheds. The friend took in the situation and enjoyed the disgust of the farmer, when it dawned upon him that the reference was to a mere bit of machinery.

A German scientist, Mr. Walter Hempel, has made a discovery that may lead to important consequences. He has observed that the quantity of electricity furnished by a machine increases considerably when the latter works in an atmosphere of compressed air. A machine that under ordinary atmospheric pressure produces, for instance, 15 sparks a minute when turning at 400 revolutions, produces 32 when the pressure is increased to two atmospheres. By further increasing the pressure of the surrounding

air, the quantity of electricity generated increases in considerable proportions.

The numerous suits brought against the corporations of the city, and the heavy damages frequently obtained by operatives who have been injured by the machinery, writes a Fall River correspondent of the Providence Journal, have led those who manage mill property to make extensive inquiries into the causes of the accidents. A mill filled with machinery driven at its highest rate of speed is not the safest place in the world, and a knowledge of this fact, treasurers say, has induced them to take all ordinary precaution. Certain belts and portions of the machinery have to be left exposed, but so far as is possible the most dangerous parts are boxed up. In spite of this, hardly a week passes that some operative does not lose a portion of his hand or arm. It is said that in a majority of instances, these casualties result directly from carelessness. At times defective machinery injures somebody, but more frequently machinery which is in the best condition, though always dangerous, does the damage. One great trouble manufacturers assert, is that the help in spite of the warnings posted, persists in cleaning machinery while it is in motion. The work can be more easily accomplished in this way, and commands and threats have no effect. The help complain that they are not allowed sufficient time for cleaning, but it is thought that that makes little difference. A case in point is that of a man who was recently found crushed to death against the ceiling of a room in the King Philip mills. He was always dismissed from work ahead of time, to enable him to go to his dinner in season to clean the wheel which killed him. He had been warned repeatedly by men over him, but preferred to do the work while the machine was in motion. This is usually the case, but with the present position of juror towards corporations, manufacturers feel that stockholders will have to suffer the consequences.

Mr. Gould's woolen mill at Uxbridge, Ont., is being rebuilt.



FLOW SHEET ON THE SHORT SYSTEM.

which job, by the way, was done *in situ*, by hand tooling, the disconnected crank shaft and fly-wheel being run by hand—four men at a crank—and the job was well done.

There are other careless habits which are not confined to incompetents, but are practiced by otherwise competent engineers and firemen. Some of them are not only unmechanical, but reprehensible, and sometimes dangerous. For instance, it is a common practice to set up the hold bolt of a newly packed manhole while full steam pressure is on. Sometimes, if the tiny leak does not cease immediately, a piece of gas pipe is slipped on the handle of the wrench, greatly increasing the leverage; and at least one instance can be cited where the engineer, holding the wrench on the nut, had his fireman strike repeated blows on the wrench handle, to set up the nut!

Some firemen do not hesitate to apply the caulking chisel to a leaky boiler seam, when a full pressure of steam is on. Others will blow off and empty the boiler, which may not require cleaning by hand, and before the boiler is cool, will fill up with cold water. Such a test is a severe one for the best boiler.

An engineer who is finically nice about the neatness of his carpeted boiler room, actually keeps his coil of flax packing for piston rod, valve rods and gate stems, on an uncovered shelf, in the boiler room, on the wall in front of the furnace doors. Nice stuff for stuffing boxes! It would be an excellent material for polish-

Correspondents' Opinions.

This department is set apart for the free use of subscribers in asking or answering questions, expressing opinions, or relating bits of shop practice or experience. The editor hopes to see it liberally employed and promises to enlarge it to any necessary extent to accommodate communications.

Editor Dominion Mechanical & Milling News:

As one who has worked in many of the best shops in Canada and the United States, I have often been struck with the superiority, as a general rule, of American over Canadian mechanics. The American mechanic displays an intelligent interest in his work, and in the best methods of doing things, such as I could wish to see more frequently displayed in this country. How many young Canadian mechanics are there, who, like myself, after serving an apprenticeship of years in this country, have gone to the United States and found that the methods in which they had been instructed, were superseded by others entirely different in other words that they were behind the age? In looking about for the cause of this inferiority of Canadian mechanics, as compared with those in the United States, and the slow process by which they acquire new and improved ideas, I have been led to the conclusion that it is largely because they do not read enough. Most, if not all the knowledge they obtain, is got in the school of experience, which, as a rule, is a slow and costly institution. By the time they have learned in the school of experience all that their fathers knew, they are becoming old men, with a quarter of a century's accumulation of new ideas yet to be learned. American mechanics read literature bearing upon the business they are engaged in, imbibe every new idea that comes forward, and if there is anything they don't understand they know that by asking for information through the trade journals, they are pretty sure to find somebody who is able and willing to enlighten them. This is a cheap and quick method of getting knowledge which American mechanics make liberal use of, and which, if adopted here, would do more than anything else to place Canadian mechanics on a par with those across the line. Let us have an interchange of ideas.

Hamilton, Oct. 15, 1886.

MECHANIC.

PUDDLING CLAY.

According to the *Aberdeen Free Press*, Mr. T. Fraser, of that city, has discovered a new method of preparing clay for preventing leakage in reservoirs, water-tanks, etc. Hitherto it has been the general practice, when clay has been used in connection with the construction of waterworks, and for other similar purposes, to apply it in a thoroughly wet and plastic condition. From a series of experiments, Mr. Fraser finds that far better results can be obtained by drying the clay, and reducing it to a fine powder, before applying it to the bed of a reservoir, or to anything which it is desired to render water-tight. A long connection with the brick and tile business led him to study closely the properties of clay, especially when used as a preparation out of which a variety of articles had to be manufactured. Observing that in a wet state clay reaches its extreme point of expansion, and that water would then filter through it, he concluded that if clay were used for puddling in a dry, compressed state, it would absorb a certain percentage of water, expansion would naturally follow, and render the layer water-tight. The greater the pressure of water the more satisfactory the results are said to be. Mr. Fraser began his experiments by selecting his clay from a special bed, out of which he cut a square. The specimen was carefully measured and weighed. After it was thoroughly dried, its dimensions and weight were again taken, when it was found that the shrinkage was ten per cent. Clay in this dry state is extremely hard and compact, and if put into water and not allowed to expand, it would require a long time before water could penetrate to the centre of a three-inch tube.

THE TRANSPORTING POWER OF WATER.

The power which water has to transport or carry increases as the sixth power of the velocity, so that a stream flowing six times as fast as another will be able to transport 46,556 times more matter. The flowing data are often used by engineers in calculating the scouring effects of water on the bottoms of rivers. Fine clay is hardly affected by a velocity of three inches a second. Fine sand is raised by six inches per second, while a velocity of eight inches will raise sand as coarse as linseed. Fine gravel is swept at twelve inches per second, and twenty-four inches per second (one and one-third miles per hour) takes off pebble about one inch in diameter. When the velocity gets up to thirty inches per second, or about two miles per hour—pieces of rock as large as an egg are carried off.

Our Portrait Gallery.

MR. ROBERT McKECHNIE.

Among the names of the leading manufacturers of Canada there is none more familiar than that of the gentleman who fills the title role of this article, Mr. Robt. McKechnie, of Dundas, Ont., a sketch of whose career cannot fail to be read with some degree of profit by all who take an interest in the development of Canadian industries, and especially by those young men who have the future before them wherein to aspire to and achieve that measure of deserved success which has crowned Mr. McKechnie's industrious career.

Robert McKechnie is a native of Glasgow, Scotland, where he was born in 1834, and where he spent the first eight years of his life. In 1842 he emigrated with his parents to Canada, and almost immediately on their arrival the family settled in Dundas. Then for some time the subject of our sketch was a pupil of the late Hon. Robert Spence, public school teacher, but later on Postmaster General of Canada. In those old days Mr. John Gartshore, of Dundas, was one of the leading manufacturers of what was then known as Western Canada, and as young McKechnie had proved himself a bright boy at school, with a mechanical turn of mind, he naturally sought and obtained, in the largest establishment available, an opportunity for the development of his budding abilities. He turned his attention to pattern-making, and before he was of age he had already spent a year as a journeyman in the department to which he had apprenticed himself. From the Gartshore foundry Mr. McKechnie went to the works of Holt & Co., then a well-known "valley city"



MR. ROBERT McKECHNIE.

firm, where he remained for two years. Like all ambitious young men he was desirous of learning more than was to be acquired in his own immediate vicinity, and consequently he went to New York State, where he remained a summer working in the West Point foundry. But Mr. McKechnie was then, as now, a genuine Canadian, and he soon tired of his voluntary exile. Returning to Dundas he occupied a position with the firm of Billington & Forsyth for two years. Then came the turning point in his career—or, rather, he turned the point. In 1861 he took what was at the time regarded in the town as the bold step of "starting for himself," which he did in a modest way upon a portion of the site of what is now known far and wide as McKechnie & Bertram's Canada Tool Works. Three years later Mr. McKechnie associated with himself in the business his present partner, Mr. John Bertram, and the two have ever since been connected and identified in the conduct of their business, which has taxed to the utmost their united energies. As the pioneers in Canada of the manufacture of iron and wood-working machinery they made no slight venture, but the venture has been more than justified by the results. It has been no unrequited thing for them to employ at one time as many as 160 skilled artisans. That these artisans have been the best that good wages could secure goes without the saying. Their work speaks and has spoken for itself. There is to-day no firm of the kind upon the continent which enjoys a higher reputation for good work, efficient management and fair dealing than that of which Mr. McKechnie is the head. To illustrate the meaning of this statement it needs only to be said that their machinery has borne off more than a fair share of honors, not merely in their own country, but under pressure of the most severe competitive tests that the world has supplied during the past twenty years, including the great Centennial Exhibition of 1876

and the contemporaneous Colonial and Indian Exhibition in London.

Mr. McKechnie has not permitted his extensive business relations to occupy all his attention. At the request of his fellow-citizens he has frequently made time to discharge public duties, and always acceptably. As a young and rising mechanic he naturally gravitated toward the Mechanics' Institute, of which he was several times president, and many a graduate of the Dundas manufactories can recall with pleasure profitable hours spent in the Institute while Robert McKechnie sat at "the head of the table." In the municipal field Mr. McKechnie has enjoyed every honor in the gift of the people, having been five times elected as reeve and four times as mayor. It was his good fortune never to have been defeated in a contest for municipal honors.

In the broader field of national politics Mr. McKechnie has also played a courageous and creditable part. Living in a constituency pronounced in its opposition to what he believed to be for the best interests of the country, he never courted popularity through any abnegation of principle. He had early become convinced that protection to home industry was the proper policy for Canada, and he was one of the first among the younger generation of Canadians to accept and defend the then not popular teachings of Mr. John McLean (now of the *Toronto World*), and the late Mr. David McCullough, of the *Hamilton Spectator*, upon that point. In vindication of the views he held, in 1872 Mr. McKechnie ran as the candidate of the protectionist Liberal-Conservative party against Mr. Bain, developing unexpected strength, and being beaten by a majority of only a little over 100. In 1882 he again carried the party banner, and failed of victory by the nominal majority of three votes. But Mr. McKechnie's political labors have not been confined to election campaigns. He was for years a leading spirit in the Dominion Board of Trade, to which he was repeatedly elected as a delegate, and of which he was vice president in 1879. During the session of that year—the most important in the history of the organization—he took a leading part in the Board's debates. He also took an initiative part in the formation of the Canadian Manufacturers' Association, was twice president thereof, and is still prominent in its councils.

These facts speak for themselves, and fully sustain all that was said at the outset with regard to the completeness and instructiveness of Mr. McKechnie's career.

TUNNELS.

As we have already pointed out in these columns, says the *Building World*, tunnels are likely to rank high among the greatest engineering achievements of the century. Only lately we drew attention to the proposed tunnel to connect Scotland with Ireland, and now we hear that Mr. Alexander Rothe, an engineer formerly engaged at the Panama Canal works, has submitted to the Danish and Swedish Governments plans for a railway tunnel under the Sound, between Copenhagen and Malmo, in Sweden. The tunnel is to have a total length of seven and a half miles, two miles between Amager and the small island of Saltholm, and five and a half miles between Saltholm and Malmo. The ground to be worked is stated to much resemble that in the English Channel between Dover and Calais, and to offer no difficulty in the execution of the work. The cost of the construction is calculated at about £1,200,000. This sounds, it may be thought, a very moderate outlay for such a work. There can be no doubt whatever but that such a tunnel could be fraught with many beneficial mercantile results to the several Scandinavian kingdoms. The resultant "through" railway communication, for instance, could not fail to have important results in the way of increase of trade. Obviously, these new departures in submarine tunneling we are so often hearing of will be likely, as the world moves on, to find development, tending, in point of fact, to greatly change existing geographical conditions of many of the countries of the world.

All well constructed roller mills have, says the *Modern Miller*, convenient devices for tightening drive belts. When a machine, from any cause whatever, checks up, or runs irregularly, the first thing thought of is to set up the tightener to tighten the belt. Now, says our contemporary, the belt may be stretched to the utmost extent of its coherent capacity, and greater tension only serves to injure it or to start a quick destruction of its desirable elasticity. Experience should teach early the operative when a belt is tight enough to perform designated duties, and in this direction he should apply himself to gain a perfect knowledge. Then knowing that the belts are adjusted to perform all that should be required of them, he may at once know that the fault lies elsewhere.



PUBLISHED MONTHLY.

CHAS. H. MORTIMER,

Office, 31 King Street West,

TORONTO, - - ONTARIO.

ADVERTISEMENTS.

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

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

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

SUBSCRIPTIONS.

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

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

Subscribers may have the mailing address changed as often as desirable. When ordering change, always give the old as well as the new address.

Failure upon the part of subscribers to receive their papers promptly and regularly should be notified at once to this office.

EDITOR'S ANNOUNCEMENTS.

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

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

Mill-owners and manufacturers requiring help, and millers and mechanics in search of situations, may make their wants known through these columns, free of charge.

THE Prince of Wales has decided that the present Colonial and Indian Exhibition shall close on the evening of Wednesday, November 10th.

THE Napanee Express appeared on the 1st of October as a 20-page sheet. It is a wide-awake local paper, creditable alike to its publisher and the town which accords it such liberal support.

THE attention of manufacturers is directed to the advantages claimed for the Diamond Anti-friction Metal, advertised in the MECHANICAL AND MILLING NEWS this month. Mr. Thos. Rathbun, of this city, is the agent.

THE increased carrying trade done by the two great Canadian lines of railway, the Grand Trunk and Canada Pacific, during the last three or four months, is one of the best indications we have of the general improvement in business.

WE are indebted to the Parry Sound North Star for the following complimentary remarks concerning this journal: "Mr. Charles H. Mortimer, has purchased the Toronto MECHANICAL AND MILLING NEWS and is making extensive improvements in it. The paper is a credit to the Province and should receive a very liberal support."

FARMERS and others in the Canadian Northwest should profit by the experience of the present year in the matter of prairie fires. These fires, having their origin in many instances in the carelessness of the inhabitants, have swept over vast areas, and destroyed thousands of bushels of grain, besides other valuable property.

WE take the liberty of publishing the following extract from a letter received recently from Mr. Walter Thomson, President of the Ontario Oatmeal Millers' Association: "You show a large amount of push and energy in the editing and publishing of your paper, and it is a medium through which millers in the Dominion can get the rust brushed off their old conservative ideas."

INDICATIONS point to the early amalgamation of the Northern Railway with the Canadian Pacific. This is another step toward placing the whole railway business of

the country in the hands of two immense corporations—the Canadian Pacific and the Grand Trunk. When that is accomplished these two great corporations may be expected to put their heads together and fix freight rates at any standard they may choose, while shippers can do nothing but submit to them.

WE are glad to observe that the C. P. R. has dealt justly by the Manitoba millers. At a conference between the Winnipeg Board of Trade and Mr. G. Olds, traffic manager of the C. P. R., recently, relative to freights, Mr. Olds said the millers of Manitoba must have the British Columbia business, and added that they had been given the rates they asked for to reach that market. Mr. A. Ogilvie said the millers had cheap enough rates now, and Mr. Nairn said the rate on oatmeal, being the same as that on flour, was also low enough.

MOST people will be ready to admit that Sam Small's judgment concerning wheat speculations and speculators, as expressed in a sermon in this city, on the 24th ult., is none too severe. He said: Our grain speculations, our wheat speculations, are but the methods of the gambling room, that have been refined down to the point where honorable men think they can engage in them. It would be well for them to look sometimes and see if they are not building their houses with the wages of unrighteousness, and withholding from him that hath done the work his proper and just dues.

A CORRESPONDENT, whose letter appears in another column, makes a comparison between American and Canadian mechanics, and declares his belief that the latter are as a rule inferior to the former, because they do not read and exchange ideas through the technical press, as Americans do. On this subject of the exchange of ideas, the American Machinist very truly remarks that those who furnish practical information from their own experience for open publication, are conferring far greater public benefits than the authors of the finest essays and entertaining articles in daily newspapers and monthly magazines.

THE MECHANICAL AND MILLING NEWS wishes to remonstrate with some of its advertisers, who have fallen into the habit of neglecting to send in their changes of advertisements until nearly the close of the month. We venture to say that they could just as easily comply with the rule and have them in by the 22nd. The violation of this rule causes delay in the issue of the paper and expense and trouble to the publisher. Therefore, while desiring as far as possible to accommodate advertisers, we want it to be understood that unless changes of advertisements reach this office by the 22nd day of the month, they will not be attended to.

WHILE every sensible person must admit that the world is too full of mean, carping critics, whose chief business seems to be to find fault with everything and everybody, honest criticism, the purpose of which is the improvement of men and ideas, is always entitled to respect. Since the October number of the MECHANICAL AND MILLING NEWS appeared, we have heard considerable criticism, favorable and otherwise, of the essay on "Transmission of Power" printed in our "Prize Essay Department" last month. This criticism will doubtless also be extended to the winners of future prizes. To this nobody has a right to object. It is only fair to the subject of such criticisms, however, that they should be made publicly through this journal, so as to admit of reply. We shall be pleased to grant a reasonable amount of space for criticism of this kind, provided those who may desire to use it are prepared to give reasons for their objections, couch their remarks in becoming language, and not wander from the points at issue.

THE Royal Commission on Railways established under Mr. McCarthy's Railway Act of the last session of the Dominion Parliament met in the Board of Trade rooms in this city on Thursday Oct. 21st. The Commission is composed of Sir A. T. Galt, Collingwood Schrieber, Chief Engineer of Government Railways; E. R. Hurpee, St. John, N. B.; Thos. E. Kenny, President of the Merchants' Bank, Halifax; George Moberly, Barrister, Collingwood, Ont.; and M. S. Lomeran, Advocate, Montreal, the latter being the Secretary of the Commission. The duties of the Commission are to make enquiry and report as to the advisability of establishing a Court of Railway Commissioners to arbitrate in matters in dispute between the public and the railway companies. A number of lead-

ing grain and flour handlers in this city and outside, as well as merchants and others doing business with the railways have been examined before the Commission, and the majority of them strongly oppose any interference with present arrangements, which they claim to be in the interest of farmers and dealers. Three or four gentlemen, however, prominent among whom was Mr. G. A. Chapman, grain merchant, of this city, complained of discriminating freight rates, and thought a Court to deal with railway matters was a necessity.

OATMEAL MILLING IN CANADA.

OATMEAL milling is at present attracting a good deal of attention in Ontario, and has already become quite an important industry. Two leading causes have been at work in bringing this about. One is the degenerated condition of the wheat lands of Ontario, and the consequent poor returns to the agriculturist for his labor, which have in many instances led him to turn his attention to the growing of oats and other cereals in place of wheat. The other is the unprofitableness of flour milling, owing to low prices and the expensive machinery which the changes in milling systems have rendered necessary. We know of quite a number of owners of small stone mills who have lately turned their attention to oatmeal milling because they were unable to compete with the roller mills in their neighborhood, and were equally unable to expend the amount necessary to obtain all the improved machinery required to make a good article of roller flour. If the thing is not overdone, this exodus from the ranks of the flour millers into the ranks of the oatmeal millers is likely to prove beneficial to the country and to the millers. It will tend to develop a new industry, for which, as yet, there seems to be ample room, and it will give more "elbow room" to those engaged in flour milling. We would like to warn millers, however, against the idea that there is a bonanza in oatmeal milling for all who choose to engage in it. The market for oatmeal is a narrow one compared with that for flour, and although the profits are a great deal larger, the fewer number of sales must also be taken into account.

The process for making oatmeal is not very widely understood, and those Canadian millers who have become initiated into the secret, are by no means willing to share it with others. It is, therefore, difficult for a flour miller who desires to engage in oatmeal milling to gain the practical knowledge of the business which is indispensable to success.

Wide differences of opinion are expressed by writers on this subject as to the amount of machinery necessary for an oatmeal mill, and the cost of the same. An American authority sets forth the requirements of an oatmeal mill as follows:—"In the first place it requires a good warehouse cleaner to clean the oats, which costs \$160. A good cockle machine, to take out cockle and seeds, costs \$350. Three pans, to dry the oatmeal in, cost at the works \$555, without freight. The setting up of the pans in the brick work costs about as much as the pans do. It requires besides, two pairs of hulling stones, with spindles, curbs, and driving gear or pulleys; further, two separating fans, to separate the hulls and dust; a good brush machine, to scour the groats before cutting; two good cutters: one grading bolt, with suction fans and shakers, to make rolled oats; one set of smooth rolls and fixtures; shafting, pulleys, gears, elevators, driving belts, and a host of other things, to make a complete oatmeal mill. It requires all the different machines to make twenty-five barrels of meal that it does to make 100 barrels, only on a smaller scale."

Another American authority holds that all the machinery required to turn out fifty barrels of first-class oatmeal per day is "two drying pans, two run of hulling stones, two cutters, one set of rolls and the grading and separating machinery necessary for grading and separating the meal during the process of manufacture," the cost of which he places at \$2,400. With such a wide divergence of opinion among experts, the miller who thinks of embarking in the oatmeal business will encounter difficulty in finding out what his plant is going to cost him; but, if he is wise, he will satisfy himself on that point first of all before proceeding further.

WE are pleased to note the formation of an Association of oatmeal millers for Ontario. It is a step which, as much as any other, will decide the future of the oatmeal industry in Canada. Cutting prices has seriously injured this industry in the United States, where, for want of an organization such as we have, the millers have sacrificed their profits to the grocer. We shall be pleased if millers interested in this subject will discuss the various features of it through these columns. Such discussion would be found to be mutually beneficial.

LONDON MACHINE TOOL CO.,

LONDON, - ONTARIO,

MANUFACTURERS OF

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

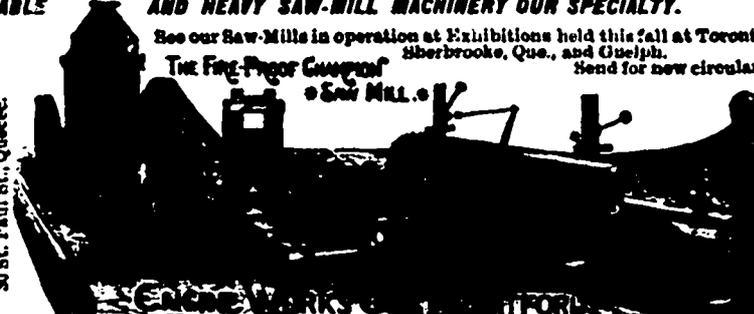
L. A. MORRISON, with A. R. WILLIAMS, General Agents, TORONTO, ONT.

PORTABLE AND HEAVY SAW-MILL MACHINERY OUR SPECIALTY.

See our Saw-Mills in operation at Exhibitions held this fall at Toronto, Sherbrooke, Que., and Guelph.

THE FIRE-PROOF GUARANTEE
Saw Mill.

Send for new circulars



BRANCH WORKS - WINNIPEG.
SASKATON OFFICE: 144 St. James' St., Montreal.
30 St. Paul St., Quebec.

ENGINE WORKS - TORONTO

J. L. JONES

WOOD

ENGRAVER

TORONTO

PATENTS

PROCESSED in Canada, the United States and all foreign countries, Claims, Trade-Marks, Copyrights, Assignments, and all Documents relating to Patents, prepared on the shortest notice. All information pertaining to Patents cheerfully given on application. ENGINEERS, Patent Attorneys, and Experts in all Patent Cases.

RONALD C. RIDOUT & CO.

ESTABLISHED 1857
22 KING STREET EAST
TORONTO

C. A. MASTEN,
BARRISTER, SOLICITOR, &c.
Special attention given to
Patents, Trade Marks and Copyrights.
Room 21 York Chambers, No. 9 Toronto St., Toronto
Ont. Telephone No. 309.

THE BOILER IN PECTIO N & INSURANCE CO.
OF CANADA.
CONSULTING ENGINEERS AND
SOLICITORS OF PATENTS
Experts in patent cases. Assistance to inventors in making drawings and completing their inventions.
Office, Free Library Building, Toronto.

HOWLAND & ARNOLDI,
BARRISTERS, SOLICITORS, ETC.,
Canada Life Assurance Chambers, 46 King Street West, Toronto, Ont.

FRANK ARNOLDI. O. A. HOWLAND.
Also Patent Solicitors--Correspondents in Foreign Countries.

TO FLOUR MILLERS.
AN EXPERIENCED FIRM OF BROKERS, doing business in Halifax, N. S., desire an agency for a first-class flour milling establishment. Best of references. Address
WM. ACKHURST & CO.,
Halifax, N. S.

MACHINE KNIVES

Of every description, for
Planing,
Moulding,
Shave Cutting.

SEND FOR PRICE LIST



TORONTO BAG WORKS.

DICK, RIDOUT & CO., Proprietors.
FACTORY: Esplanade St., (formerly occupied by R. Hay & Co.) OFFICE and WAREHOUSE
-- NOS. 11 & 13 FRONT STREET EAST, TORONTO. --



--- MANUFACTURERS OF ---
COTTON, JUTE, AND LINEN BAGS, JUTE AND LINEN TWINES,
MESSIAN, BUCKRAM, TAILORS' CANVASSES, &c.

STORAGE, Bond and Free. Customs Entries and Forwarding promptly attended to at lowest prices.

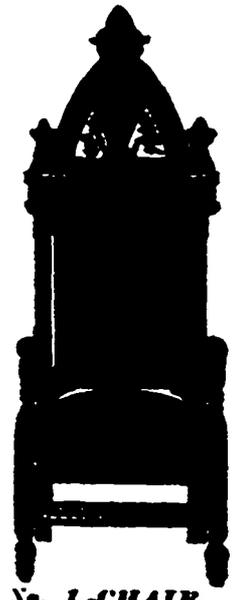
W. STAHLSCHEMIDT & CO.

PRESTON, ONTARIO,

MANUFACTURERS OF

Office, School, Church and Lodge Furniture.

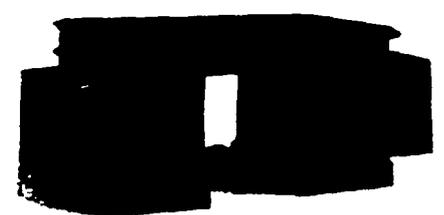
SEND FOR CATALOGUES. SEE ACCOUNTS OF OUR EXHIBIT AT TORONTO EXHIBITION.



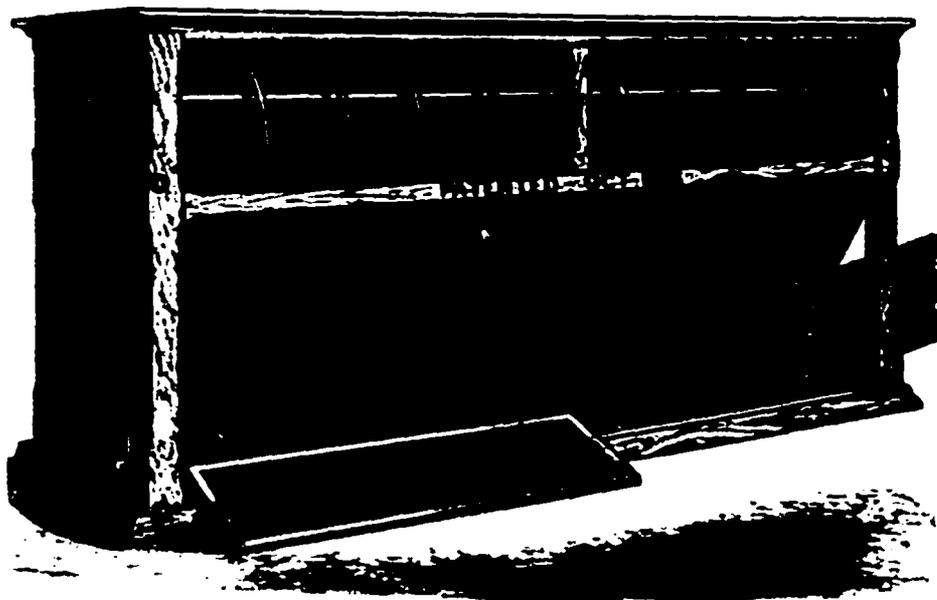
No. 1-CHAIR.



No. 51 ROTARY OFFICE DESK.



No. 50 ROTARY OFFICE DESK.



PLEWES PATENT BOLT

Millers desirous of improving their entire bolting system, should enquire into the merits of this Bolt. It is

Simple in Construction,
Easy Running,
Occupies but Little Space,
DOES ITS WORK IN THE MOST PERFECT MANNER,
HAS IMMENSE CAPACITY.

And is sold for less money in proportion to the quality of the work it performs, than any other Bolt in the market. Send for descriptive circular to

ISAAC W. W. PLEWES
ESPLANADE (Between Bay and Lorne streets) TORONTO, ONT.

BURNING EDGINGS AND OTHER REFUSE.

BY JAMES F. HOBART.

WHERE one mill uses a dust-burner now, ten mills used them ten years ago. With some mills using water as a motive power it may be necessary to burn refuse in order to get rid of it, but before ten years have passed, the writer expects to see every particle of waste wood utilized for making steam. Even if not needed to furnish power for the mill, it would pay some enterprising manufacturer to locate beside the sawdust chute of a mill and depend thereon for fuel. In many mills where dust is now used for fuel the conveniences for getting it beneath the boilers are very crude and are often found to be nothing better than a three-bushel basket and a shovel. Dust may be easily handled or conveyed by spouts 12 inches wide and 3 or 4 inches deep, having an endless chain running therein and buckets one inch thick at distances varying from one to four feet, according to the quantity of dust to be conveyed. The links of this endless chain may be made of 1 x 1/4-inch bar iron, 10 inches long, joined together by links of 1/2 or 1/2-inch round iron 5 or 6 inches long. Let square pulleys be used for carrying the conveyer chain, the sides being wide enough to receive the flat links, while the round ones are received by corners of the pulleys, which are chamfered off 3 or 6 inches to receive them. The buckets can be riveted into the flat links and the buckets being made 9 inches wide and tapered to 3 or 4 inches at each end, straight edge running forward, they will stand a large amount of hard usage before going to pieces.

Another method of conveying dust is by means of a blower. When shavings are made in the mill and can be mixed with sawdust, the blower will work first-rate, but with sawdust alone considerable pressure of blast is necessary to move the heavy stuff along. In a mill where shavings are made there are usually edgings to get rid of which must be got under the boilers by some means. It is poor policy to make a fireman keep the furnace doors open while he throws in hundreds of edgings which he must first pick out from a tangled mass of edgings, shavings and sawdust, lying altogether just as it was dumped into the boiler room. In some mills all the edgings are tied into bundles about six inches in diameter by ordinary tarred strings, such as are used in bunching lath. The trouble with this method is the time consumed in bunching and tying up, also in engineering a bundle into the furnace. Often the string will burn off, letting the front end of the bundle spread out like a fan, and render it almost impossible to get the edgings where they are needed. Long edgings also cause trouble. They are bunched with the short ones, and the bundle has to be shoved up over the bridge wall, in order to shut the furnace door. The best way to fire edgings is to run them through a "breaker," and then shovel them into the furnace with the dust and shavings. The breaker consists of a strong frame with which is connected a spout for putting the edges into. If the breaker can be placed on the floor below where the shavings are made, they will feed themselves by gravity into the breaker. In the frame just below the spout, a 6-inch feed-roll seizes the edgings as they come down. A fluted roll is the correct thing, but in one machine built by the writer this kind of a roll was not attainable, so an ordinary smooth feed-roll about 12 inches long was used, and its surface was drilled full of 1/2-inch holes and steel studs were driven therein and allowed to project 1/4 to 1/2 inch and filed square across their projecting ends. Just below this feed-roll, which revolved about 200 revolutions per minute, the breaker itself was hung. This part of the machine was simply a casting mounted on a 3-inch shaft. The casting had four projecting arms or lugs, say 2 inches thick, 4 inches drill and 12 inches on the whole length of casting, long. As the edgings were carried down by the feed-roll, the lugs on the breaker caught and broke them into short pieces by cramping them against an iron made fast to the frame between the breaker and the feed-roll. The breaker runs 375 or 400 per minute, and, allowing for strips of edgings by the feed roll, will break edgings into pieces 3 inches to 8 inches long. When in this condition they are easily shoveled into the furnace with sawdust, shavings or any other refuse.

Pine, spruce, black walnut, hemlock, cedar, and in fact all the soft or brittle woods may be easily broken with one of these machines, but for oak, hickory, maple and other hard woods, the writer has been in the habit of making an automatic sawing machine to cut the edgings and little slabs into short pieces. For this purpose an inclined spout was built pitching from 30 to 60 degrees, according to location and available space where it was to be built. A number of line-rolls were placed in this spout, and also three line tops or pressure-rolls of large diameter, all geared together. The top rolls were

hung in frames and had a vertical movement of 6 inches. A ratchet-gear received motion from a swinging lever carrying a disk, and each movement of the lever advanced the surface of the feed rolls about 6 or 8 inches. An ordinary swing or railroad saw was mounted to cut at the end of the spout, and motion was given to the saw-frame by a crank and lever so that it cut while the ratchet-lever was on its dead-center. By a set of cone or stop pulleys this saw was made to take 20, 40 and 60 cuts per minute, and it was found most convenient to use the 40 speed on soft wood, reserving 20 for harder kinds. Doubtless a rig of this kind could be made to work well, dispensing with the line feed-rolls altogether, by placing the saw horizontally under a perpendicular spout, and rigging a rest for the edgings to bear upon, a pressure-bar to seize the edgings while the saw is cutting, and mechanism to remove the rest to one side while the pressure-bar holds the edgings to be cut while the saw is travelling up and back. It stands for some enterprising builder of wood-working machinery to build some of these machines and place them on the market. A demand would at once be made for them.

THE CANADIAN NORTHWEST AND ITS WHEAT.

This journal has never underrated the Canadian Northwest and the possible effect which its excellent wheat may, in the future, exert upon the foreign markets for American flour. The item quoted elsewhere from a London paper that even frosted wheat from Manitoba sells well in Mark Lane is, perhaps, a point from which a possible forecast may be made. At the Colonial Exhibition in London the hard wheats of the Canadian Northwest have been the subject of much enthusiastic praise from visiting millers. Prof. John Macoun, the distinguished Canadian botanist, referring to the favor with which these wheats have been regarded, says that the only obstacle in the way of a large development of the export wheat trade of Canada is the doubt as to whether the wheat can be sent across the Atlantic without imbibing too much moisture. He says:

"The very essential feature of the Northwest grain is, of course, its hardness, and the admission of any moisture must lessen, if not destroy its superior value. I have my fears as to the possibility of excluding moisture, unless, of course, the grain were shipped in hermetically sealed tanks, and I am therefore inclined rather to look to the export flour than to the export wheat trade, the grain being ground in the Northwest itself. There is no question as to the possible milling facilities there. Look at Rat Portage, on the Lake of the Woods, midway between Port Arthur and Winnipeg. It is directly on the main line of railway from the Northwest to the seaboard, and possesses water power and natural facilities second not even to those of Minneapolis. As to the demand for the flour there can, I think, be no doubt whatever on that score. It is flour of great strength, and will take therefore a great deal of water. This is, of course, of great importance to the baker, for he can obviously make so many more loaves to the sack of flour."

There is no need of fear on the point of moisture. The difficulty is not in the wheat, but in the means of getting it from the wheat fields to the seaboard. If the matter of transportation could be arranged satisfactorily, there would be no trouble in building up a large export trade in the hard wheats of the Northwest. But there is another point to be considered, and that is that milling facilities will go hand in hand with improved means of transportation. There is one side to the prospect, however, which is not reassuring to our Canadian and English friends. The farmers up there have largely become discouraged by the "frosting" of their wheat, and have been casting about for varieties which will mature earlier. These are, without exception, softer wheats, and with their production the desirability of Northwestern wheats will vanish.—*American Miller*.

MECHANICAL EXPANSION.

Every way has been studied out, and carefully tested, to make an arbor or a mandrel a little larger in diameter, and the screw tap and expansion reamer have been very successful in this respect, and if the same features could be applied to the driving pulley of a machine it would make one of the best means for making a variation in speed. It has been applied to the cross-head of an engine by having the cross-head pin made to expand by internal wedge-key work, that will take up for wear at this end of the connecting rod, but the cross-head pin only needs a small portion of an arc on opposite sides to be provided for. Something of this kind may yet be applied to the crank pin, as it is said that this portion of an over-hang crank is likely to get out of round and pinch in the boxes if keyed up to take out all the thump

and pound. When a plug tap and a fluted reamer is made so as to be expanded, they must be handled with care, as the most of them, when in one solid piece, are none too strong for the average workman, yet they are handy tools, and the reamer needs grinding on centres to keep it anywhere near accuracy. If the expanding mandrel was not subject to such a heavy duty it would be just the thing around a repair shop to handle the different gear wheels that must be provided for; then a wheel blank could be bored out at once just the exact size and held on centres without turning down an arbor for the occasion. A slight degree of enlargement is all that is required to meet the demand of a number of sizes that are used. One trouble has been to make one size do all the work, making a very compact device for a small bore, and a very inaccurate machine for heavy work. It is much better in providing for the enlargement of every appliance to expand a little, and do it well, than to be spreading all out of semblance with no dependence to be placed on anything. If an expansion shaft pulley were to receive some such attention it would be received with welcome, as it would put an end to soft-wood lagging, and the demand for old belting to test some of the recipes for cementing leather to cast-iron pulleys, or the paper-mache arrangement for winding on a lagging in a moment.—*Boston Journal of Commerce*.

MORE HONORS FOR A MONTREAL MANUFACTURER.

Messrs. Robin & Sadler, the well-known leather belting manufacturers of this city, have just received from Toronto a silver and a bronze medal for their very fine exhibit at the late exhibition there, consisting of leather belting, fire engine hose, leather fire buckets and lace leather. One very noticeable feature of their exhibit, and which attracted a great deal of attention, were two mammoth belts, the largest ever made in the Dominion—one, made for the Royal Electric Company, of this city, is 35 inches wide and 111 feet long; the other for the Messrs. Ogilvie's new roller flour mill, the Royal, now building in this city, is 36 inches wide and 235 feet long. These belts are double thickness and one solid piece in width, and 175 very large steer hides were used in their construction. It speaks well for the enterprise of this firm that belts of this size, that formerly were all got from the United States, can now be made here. Messrs. Robin & Sadler also made an excellent exhibit of their wares at the Dominion Exhibition at Sherbrooke last week, where they were awarded highest honors for their leather. Messrs. Robin & Sadler have probably the largest collection of gold, silver and bronze medals of any firm in their line in the country, all of which have been awarded at the various exhibitions throughout the Dominion the last few years.—*Montreal Witness*.

STICK TO IT.

If a man is in a calling he has no aptitude for and makes no headway in, the best thing he can do is to step down and out, and get into something his natural abilities are better suited to. This is dangerous advice, if taken in a certain way, for it seems to encourage the rolling stones to keep on rolling, and never stop long enough to gather moss in any place. We do not say this. What we do say is that it is useless for a man to try to be a musician without an ear for melody, or to be a painter when he is color-blind; he cannot be an engineer if he is heedless, careless and without an aptitude for mechanical matters, and under these circumstances attention to such calling is time thrown away. Of all other things a young man just starting out in the race for fortune and fame should find out what he intends to do, and then do it with all his might. A one-idea man is sometimes reviled, but he is a bigger man every way if his one-idea is good, than the man of many ideas and many aims who fritters his efforts away in a hundred different directions without reaching anything positive or certain. "Everything by turns and nothing long" is what makes the jack-of-all-trades, and Jack gets mighty poor wages, scant consideration and no social position or respect from his neighbors, in our experience. The future of this country lies in its young men, and according as their aims are correct and their efforts are well directed will be the result. The individual man is not looking out for the future of the country so much as he is for his own, and the best way to insure this is to find his best hold and never let go. No matter what happens, let our ambitious young friend stick to his calling and it will stick to him. Any honest industry, humble though it may be, will bring handsome returns to those who follow it, if intelligently prosecuted.—*Milling Engineer*.

The London Steel Works lately paid 15c. on the dollar as first dividend to creditors on a debt of \$91,000.

PAGE

MISSING

PAGE

MISSING

JAS. JONES,

MANUFACTURER OF

CORRUGATED ROLLER MILLS,

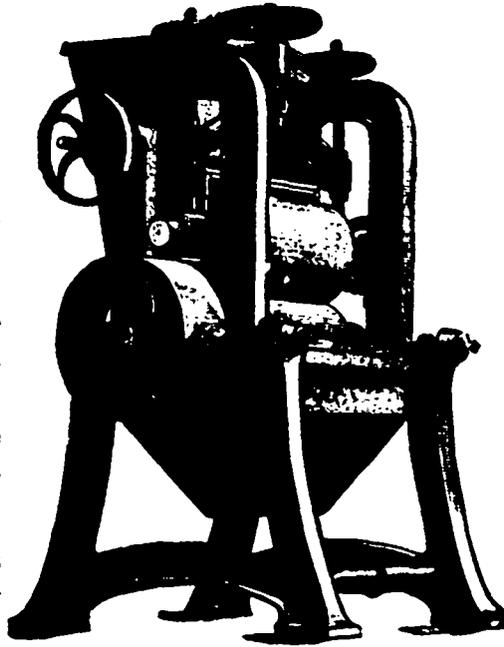
Smooth Rolls, Roller Disc Mills, and Stone Rolls for Middlings.

THOROLD, - - - - - ONT.

ESTIMATES GIVEN FOR BUILDING MILLS, OR RE-MODELING THEM TO THE ROLLER SYSTEM.

MY LATEST IMPROVED ROLLER MILL

Is the best Roll made in the Dominion. It is made in two parts: In the lower part of the frame is set the stationary roll, and in the upper part is the adjusting one. The top roll is kept true to the lower one by means of set screws at the four points at the end of the frame, thus making it an easy matter to keep the rolls true to their work. The adjustment for setting the roll to its grinding point is the threaded rod with hand wheel attached. This rod is attached to a slide bearing, which allows the adjustment of the roll to the grinding point. This roll commends itself to all practical millers as the best one in the market. Concerning my first and second break machine, there is nothing better in the market. It splits the wheat and prepares it properly for succeeding breaks.



MY STONE ROLL FOR PURIFIED MIDDINGS

Will produce better results than any iron roll can. It has more than double the capacity of iron rolls, and will produce a granular flour that cannot be equalled by any other process of grinding. This stone roll will also handle the fluffy material made in full roller mills, preparing it for bolting or purifying as no other machine can. Isaac Warcup, Esq., of Oakville, Ont., whose judgment and experience in milling is second to none, says of this Stone Roll that he likes it well, and that he can make a larger yield out of the material he is using it on than could possibly be made on any other roll, and the flour will be more granular. Nine of these stone rolls are used in the Welland Mills, Thorold, where it is said the best results in milling are obtained. BUCKWHEAT GRINDING.—Send for information about the new Buckwheat Grinder. It has great capacity and will grind damp buckwheat when a millstone will not, and the flour made will be superior to any other process. For further information, apply to

JAMES JONES, - - - - - THOROLD, ONT.

GOLDIE AND McCULLOCH, GALT, - - - - - ONTARIO.

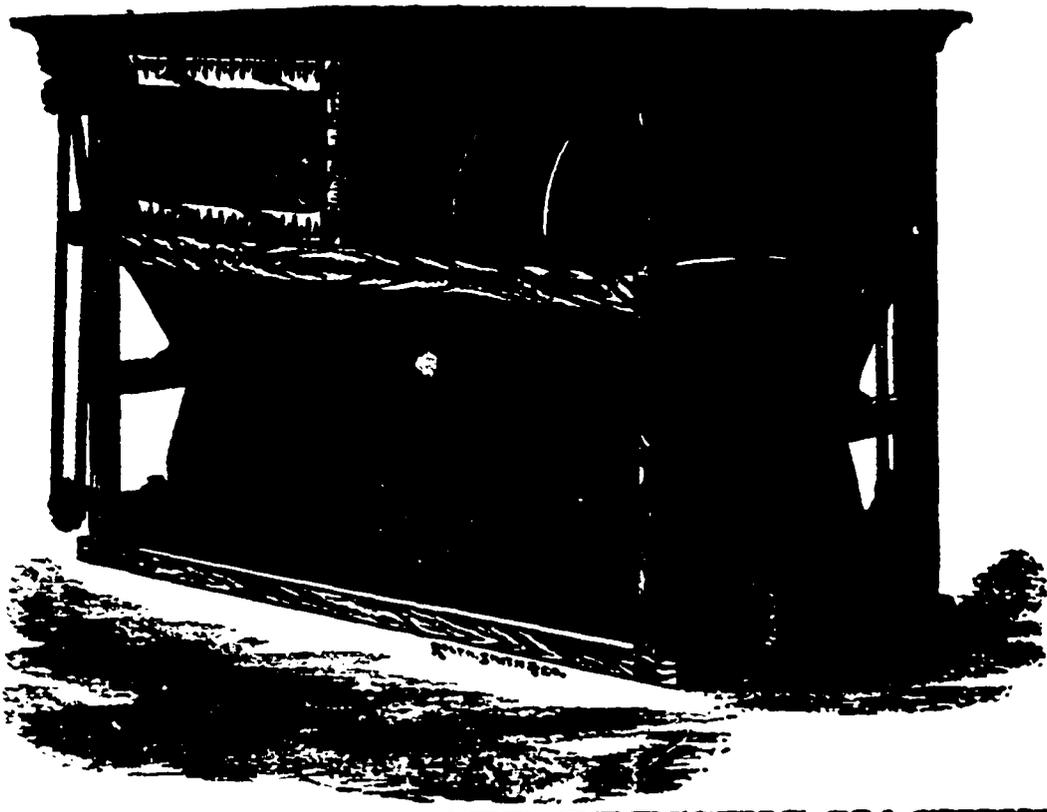
TO PARTIES WHO CONTEMPLATE

BUILDING OR RE-BUILDING FLOUR MILLS,

On the full or combined roller system, we are prepared to furnish estimates or specifications, using a full line of our machines—*NONE IMPORTED*—manufactured under Canadian Patents controlled by us.

IF ALL WHO INTEND TO MAKE CHANGES WILL DO WELL TO SEE US BEFORE DOING SO.

THE WHEELLOCK AUTOMATIC ENGINE,
WOOD WORKING MACHINERY,
Shingle and Barrel Machinery
WOOL MACHINERY.
Special Price Lists furnished on application.



FIRE AND BURGLAR PROOF
SAFES
V. A. UTILITY DOORS, & CO.
First Floor Amherst, Toronto, 1882, 1884.
CORRESPONDENCE SOLICITED AND ORDERS PROMPTLY ATTENDED TO.

CENTRIFUGAL FLOUR DRESSING MACHINE

Our Centrifugal, as shown above, contains important improvements covered by Canadian Patents which we control. Parties purchasing elsewhere, will do well to look out for infringements. All our machines are made under our own immediate supervision, of the best materials and workmanship. Satisfaction guaranteed.

GOLDIE & McCULLOCH.

BARTER MANUFACTURING COMP'Y

TORONTO, ONTARIO.

MANUFACTURERS OF

Flour Mill, Elevator and Warehouse Machinery.

Mitchell Roller Mills, Aug. 10th, 1886.
 BARTER MANUFACTURING CO., Toronto.
 GENTLEMEN: In reference to your enquiry about the Duo Collector which I have been using for nearly a year, I would say: The power used is not noticed on the mill and cannot be much for the reason that when the machine was started it was driven with a new 4" belt which has never been tightened since, and for cleanliness there is not an accumulation of 24 lbs. of dust from it in a week's run. Am perfectly satisfied with the working of the machine. These are the facts. If you can use them to your advantage you are at liberty to do so.
 Yours very truly,
 S. R. STUART.

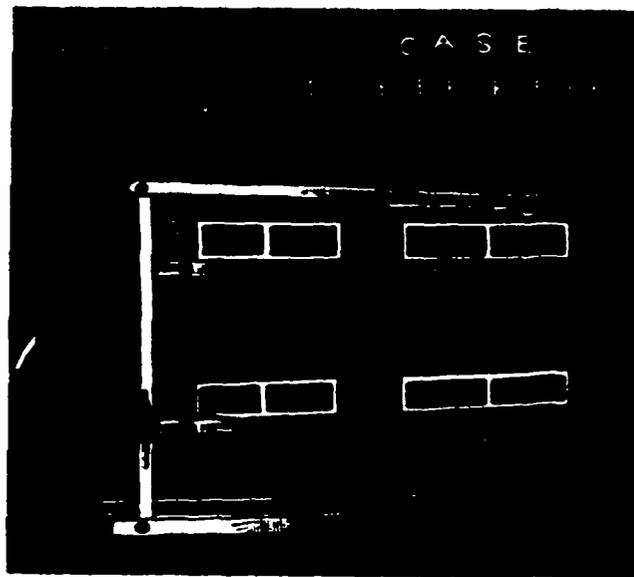
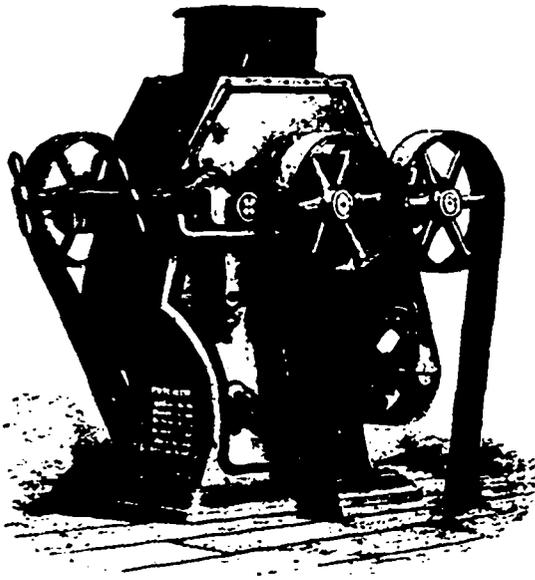
Kirkton, Ont., Aug. 27th, 1886.
 BARTER MANUFACTURING CO., Toronto.
 GENTLEMEN: As to how I like the mill you built or me would say I think it can not be beat for making first-class flour. As to the machinery I like it very much indeed. The purifiers work first-class; can't be beat, no matter where they are made. Would say all these separate machines work well, and I say this after running the mill one year.
 Yours truly,
 I. B. SPARLING.

Lucan, August 11th, 1886.
 BARTER MANUFACTURING CO., Toronto.
 GENTLEMEN: The Purifier we got from you works well, the suction from the fan being on the tail end of the purifier, where the heaviest middlings are, it does not take the good middlings into the blast. We also like the CORN CRASHER you use. They keep the cloth clean. We have no trouble with it, and can recommend it to any miller wanting a purifier, as we believe they cannot do better in this or any other country.
 Yours, etc.,
 BREWER & CO.

THE above are sample letters received from some of our customers, of which a host are in our possession, referring in similar terms to our various Milling Machines. All parties intending to build, refit, or buy special milling or cleaning machines, are invited to correspond with us before purchasing elsewhere.

BARTER MANUFACTURING CO., TORONTO, ONT.

CASE SYSTEM GRADUAL REDUCTION MILLING.



INGLIS & HUNTER,

No. 6 Strachan Avenue,

SOLE LICENSED MANUFACTURERS FOR CANADA OF

TORONTO.

CASE'S CELEBRATED ROLLS AND MILL MACHINERY.

-SPECIALTIES-

Corliss, Westinghouse and Marine Engines, Stationary and Marine Boilers,
 Wheat Cleaning and Flour Dressing Machines for Flour and Grist Mills.

Plans and Specifications for fitting up new and changing over old Flour Mills on the Most
 ADVANCED SYSTEM, furnished at reasonable cost.

All Descriptions of Gearing, Shafting and Pulleys, Brass and Iron Castings.
 Write for Prices and Catalogues. Correspondence solicited. Prompt attention to orders.

To Mill Owners and Manufacturers.

USE

PHOENIX BELT OIL,

THE ONLY PERFECT BELT DRESSING.

TO BE HAD ONLY OF

F. E. DIXON & CO.,

— MANUFACTURERS OF —

PAT. LAP-JOINT LEATHER BELTING STAR RIVET

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

70 King St. E., Toronto.

RUPTURE.

AS proof that I can cure or permanently benefit all kinds of ruptures, and even keep back every large rupture in safety and comfort, the undersigned have kindly consented to give full particulars regarding me. Their well-known social standing, independent position, etc., place them above the possibility of a bribe. I select them out of scores successfully treated by me. Some of them have been cured in two or three months:— Hon. Mrs. King, age 74; Mrs. Mone and Mrs. Frank, Orillia; Mrs. Willis, 6 Catharine street; Mrs. E. P. and Mrs. H. K., Front street; Mrs. Pittman, 206 Argyle; Mrs. James Graham, Huron street; Mrs. William Patten, 209 Huron street; Mrs. Charles Arkison, 13 Ontario street; Mrs. J. Waugh, 163 Wilson avenue; S. Nash, Jeweller, Queen street; Mr. F. Kolling, 99 Elin 10th street; C. Goddard, Esq., stone manufacturer, 27 Sherbourne street; T. P. Esq., 181 Jarvis street; Mr. J. Lawrence, 118 Eastern avenue; Mr. T. Jones, 60 St. Vincent street no 10. Other private references (both sexes) in and out of Toronto. City doctors who send me patients can testify I have succeeded in all cases entrusted to my care. You can (except in every severe case) attend your daily labor as usual. No fast time pain or danger. Charges moderate. SPECIALIST 11 Elm Street, five doors from Yonge. Can pass every few minutes.
 N. B.—Those who must wear Trusses should call on me before purchasing.

THE GEO. T. SMITH MIDDINGS PURIFIER COMPANY

OF CANADA [LTD.]

BOWMANVILLE, Oct. 18th, 1886.

S. S. Heywood, Esq., General Manager
the Geo. T. Smith Middlings Purifier
Co., Stratford, Ont.

DEAR SIR: In accepting my mill from you I take pleasure in saying that the contract entered into with your Company last July has been carried out on your part to my entire satisfaction. The mill, as magnanimous by your Mr. Everett, started up without a spout or cloth being changed, and the machines located by your draughtsman, Mr. Olsen, were placed to the best possible advantage, and the millwright work, which was put in by your Mr. McKay, was done in so thorough and workmanlike a manner, that the mill is absolutely dustless, and not a choke-up since it started. You have given me the finest line of special machinery I have ever seen in a mill, and the quality of their work is as fine as their appearance. I do not think the quality of the flour could be improved, but my customers say the offal will have to be made richer or I will not be able to sell it.

Yours respectfully,
J. C. VANSTONE.



COWANSVILLE, Que., Sept. 28th, '86
The Geo. T. Smith M. P. Co., Stratford
Ont.

GENTLEMEN: Your favor of the 20th inst. was duly received, and in reply beg to say that on referring to our contract I find you are correct, and that I agreed to pay the freight from factory. I now enclose you my cheque for the balance, \$18.45, which please acknowledge. I have not got a roller miller, and do not intend to have any more than my present millers, for the simple reason that I do not need one. I put in all my machinery myself, and have always been engaged in the milling business and claim to have a "square head"; and the machines you furnished me with are so perfect, and you took so much pains to make everything plain, it was next to impossible to make a mistake.

After writing you the last time, I made some little change in my Purifier cloth, and we have been running splendidly since. In fact I believe there is not a mill in Canada or the United States of America, with which I would be afraid to put up \$500 for a test on a straight grade of flour and good yield. The machines work so complete that I now trust my common miller to run them, and he has no trouble in doing so. I write this as you know without any solicitation on your part, but think it nothing more than my duty to men who have treated me so gentlemanly.

Truly yours,
G. K. NESBITT.

The GEO. T. SMITH, M. P. CO., (Limited)
Stratford, Ont.,

LONDONDERRY, September 25th, 1886.

GENTLEMEN,—We have our mill which you built for us in operation on the full Roller and Centrifugal system, and we are very much pleased with the working of the same. The separations are good and the flour very nice, and the offal well cleaned. Our trade is picking up, our flour is giving good satisfaction, and my prospects for a good business are good. I believe that I have a mill that will do 10 or 15 lbs. more than it was rated by you.

Yours truly,
E. HUBER.

Dundurn Roller Mills,
HAMILTON, Oct. 16th, 1886.

G. T. SMITH CO., Stratford, Ont.

GENTLEMEN,—It gives me much pleasure to inform you that my mill is running very satisfactorily and has done so from the first start. The capacity is fully 60 lbs. and the work is done as well as a small mill can do it, and there are but few mills that can compare results with me. I am receiving very great praise for my flour from all quarters, and as you know I have the flour from many mills to compete with in this city, and I haven't yet had any compared with mine that has been any better, and only one flour that was equal to it. I am thoroughly satisfied with the way you carried out and completed the contract. It was done in a thorough mechanical and business manner without any nonsense or unpleasantness, and all went on merrily from first to

last. Your machines are really first class and the finest I have seen. They are handsome and beautiful as well as strong and durable. Mr. Murray your foreman millwright is a thoroughly reliable and competent man in all respects, and has carried on the work in a very satisfactory manner. He has done a good job, and one that can be compared with any mill without being laughed at by the most jealous competitors; and you have many of them. It also affords me much pleasure to say a word for your expert miller, Mr. Black, who started up the mill. He was the right man in the right place, and if a mill don't run right it will not be his fault. While you have such men in your employ and treat your patrons as you have done me, I am sure you will receive a very liberal patronage, and I certainly must say to the millers of Ontario, give your orders to The Geo. T. Smith Co. and save all humbug and vexatious and expensive delays, such as I know many have had to endure from other Ontario firms. I cannot close without saying that my mill was diagrammed by your Mr. Everett. He certainly knows his business thoroughly and there is no experimenting with him. No spouts to change, and cloths to cut and alter, but every reduction and separation is made at the proper time and in the proper place and consequently the results are clean offals and first-class flour without any muddling or mixing.

Wishing you every success in your future business career, I am, gentlemen,
Yours respectfully,
W. B. ROBINSON.

P.S.—My mill is open for inspection to any person that you may send or desire to see it, and I shall be glad to give any further information that they may require.

W. B. R.

MESSRS. R. & G. STRICKLAND'S mill at LAKEFIELD, Ont., was burned October 8th. We built this mill last Spring and it has been running about six months. BEFORE THE RUINS WERE COOL, he closed contract with us to REBUILD, and the only guarantee he asked was that we would give him as good a mill as he had before.

We have under contract and in process of construction the following mills upon the full Roller and CENTRIFUGAL system:—

W. S. KINSMAN, Canton.	Daily Capacity	60	bbls.
JAMES WYLIE, Almonte,	"	75	"
R. & G. STRICKLAND, Lakefield.	Daily	75	"
JOHN HULL,	"	125	"
TAVISTOCK MILLING CO., Tavistock.	do	125	"
JOHN MOODY & SON, Dunnville.	do	200	"

With the exception of Mr. Hull's mill, these are all new buildings. For four of them we furnished the building plans, two of them the Waterwheels, and one of them a Brown Engine and Boiler.

If you wish to know anything more about the kind of mills we build, call at the office of any of the gentlemen whose letters we publish herewith, and we are sure you will receive the same courteous treatment that we so pleasantly recall.

Rolls re-ground and re-corrugated at short notice.

PROMPT ATTENTION GIVEN TO ALL CORRESPONDENCE.

THE GEO. T. SMITH M. P. CO. - STRATFORD, ONT. AND JACKSON, MICH.



ROBIN & SADLER

Manufacturers of

Leather

Belting

2518, 2520 and 2522
Notre Dame St.

MONTREAL.



ROBIN & SADLER

Manufacturers of

Leather

Belting

129 Bay St.

TORONTO.

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

DEALERS IN

COTTON AND RUBBER BELTING,

LACE LEATHER, BELT HOOKS AND MILL SUPPLIES.

AUTOMATIC GRAIN, FLOUR AND FEED SCALE.

ACCURATE, DURABLE,

AND MOST SIMPLE SCALE ON THE MARKET.

We are Sole Manufacturers of the

ONLY AUTOMATIC FLOUR AND FEED SCALE

In the United States and Canada.

We send Scales on 30 days trial, and guarantee them to weigh absolutely correct and work entirely satisfactory.

J. B. Dutton & Co., Detroit, Mich.

Avros, Ont., May 15, 1886.

GENTLEMEN:—Enclosed find certified cheque in payment for Automatic Scale. We are not in want of any more Automatic Scales at present, but when we want any we will give yours the preference. We consider it strictly reliable, as we test it every week; and what we particularly admire is its simplicity, so little to wear and get out of order.

Yours truly,

N. WENGER & BROS.

Messrs. J. B. Dutton & Co., Detroit.

Wolverton, Ont., March 5, 1886.

GENTLEMEN:—The Automatic Scale we bought of you is a GRAND SUCCESS. We have tested it many times, and in every case found it correct. We made one special test of 5,000 bushels to our entire satisfaction. It is so simple in construction that it cannot get out of order, and requires no attention. We can now take our yields daily and know exactly what we are doing; besides we can always tell just what wheat we have on hand. We consider it indispensable.

Yours truly,

A. WOLVERTON & CO.

Write for Circulars and Best Discounts.

J. B. DUTTON & CO.,

52 Woodward Ave.,

DETROIT, MICH.

THE FENSOM ELEVATOR WORKS,

34 36 AND 38 DUKE STREET,

TORONTO,

SOLE MANUFACTURERS OF THE

Bostwick Steel Gates and Guards

FOR BANKS, WAREHOUSES, PRISONS, VAULTS AND DWELLINGS.

READ THE TESTIMONY.

I can honestly recommend the DOMINION MECHANICAL AND MILLING NEWS to the general advertising public, and believe it to be the best trade paper in Canada.—Jas. Jones, Thorold, Ont.

I consider your paper the best advertising medium in Canada for the mechanical trade.—Frank Wheeler, Toronto.

We cannot speak too highly of your valuable journal as an advertising medium.—Robson Bros., Waterdown, Ont.

The result of my advertisement in your publication has been highly satisfactory. I consider your journal an excellent advertising medium to reach practical people.—W. H. Harvey, Toronto.

BARRON'S LUMBER DRY KILNS.



THE accompanying cut illustrates four Modern Lumber Dry Kilns recently constructed for the Rathbun Company, Deseronto, Ont. These well-known and extensive manufacturers of Lumber, Sash, Doors, Blinds, &c., are always foremost in adding any new invention that will lessen the cost and at the same time improve their production. Their extensive mills are fully equipped with every modern invention in machinery, which, together with their new Lumber Dry Kilns will produce satisfactory results to the consumer and producer, not surpassed by any other mill in America.

Three of the four Dry Kilns here illustrated are now completed and in full running order, and prove to be the finest Kilns yet constructed, and the results are far beyond any others previously built.

Their daily seasoning capacity is about 50,000 feet of lumber taken green from the saw, and the product turns out thoroughly seasoned from the centre to the surface and nearly as white as the paper this is printed upon. Lumbermen would do well to pay Deseronto a visit, and investigate the rapid and excellent work done by these modern Dryers.

Send for Descriptive Catalogue.

A. F. BARRON, Patentee & Builder,

Sarnia, Ont.

THOS. DEAN,

BRASS FOUNDER

AND MANUFACTURER OF

PHOSPHOR BRONZE,

Babbit Metal, &c.,

NO. 158 YORK STREET,

TORONTO.

ELEVATORS

COX & CO., STOCK BROKERS.

Members Toronto Stock Exchange

Have the only Independent Direct Wire giving continuous New York Stock Quotations and which are received **QUICKER THAN BY ANY OTHER LINE.**

Buy and sell on commission for cash or on margin. All securities dealt in on the Toronto, Montreal, and New York Stock Exchanges. Also execute orders on the **CHICAGO BOARD OF TRADE** in Grains and Provisions. Daily Cable Quotations of Hudson Bay and other Stocks.

**26 TORONTO ST.
TORONTO.**

FREED'S BOILER CLEANING COMPOUND

WILL REMOVE SCALE FROM BOILERS WITHOUT INJURY TO THE IRON.

It effects a Great Saving of Fuel, and will not foam.

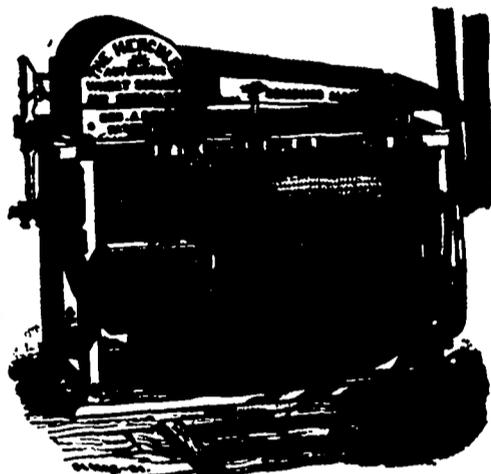
J B FREED Proprietor

68 MARY STREET, HAMILTON, ONT.

PLATED STEEL BOLTING CLOTH For Roller Mills,

TIMOTHY GREENING & SONS, DUNDAS, ONT.

THE HERCULES



Wheat

and

Scourer

Separator

AWARDED GOLD MEDAL AT WORLD'S FAIR, NEW ORLEANS.

In use in Canada, United States and other foreign countries.

The only Automatic Wheat Scourer ever invented.

requires no attention but oiling, and collects its own dust. Of very light draught. Warranted to improve the color and value of flour in any mill. Sent on trial. Circulars, Testimonials and Samples of Work sent on application.

THE HERCULES MFG. COMPANY, PETROLIA, ONT.

MONA : IRON : WORKS.

Osborne-Killey Mfg. Co., Hamilton, Canada.

Hydraulic and Mechanical Engineers, Iron and Brass Founders.

Our latest design AUTOMATIC CUT-OFF ENGINES, with our IMPROVED STEEL BOILERS, give the highest results possible in steam engine economy; they save their cost in fuel alone in a short time. They are so simple that any careful fireman can handle them. They are particularly adapted for Mills, Elevators, Electric Lighting, and all manufacturing purposes.

PATENT EXHAUST STEAM INJECTORS,

STEAM CRANES AND HOISTS,

SEWER PIPE PRESSES,

IMPROVED FURNACE BLOWERS

By use of which tan-bark, saw-dust, hard coal screenings, or any kind of fuel can be used.

SAW AND GRIST MILL ENGINES AND MACHINERY.

Steam Road Rollers. Steam Stone Breakers.

SEND FOR ILLUSTRATED CATALOGUE.

OSBORNE-KILLEY MFG. CO.,

HAMILTON, CANADA

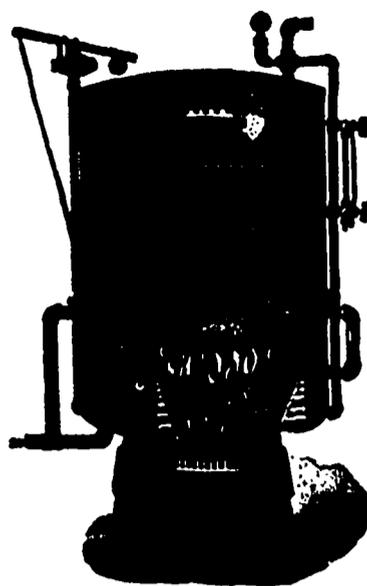
Lefte :- Water :- Wheels.

TWO	17	INCH	WATER	WHEELS,
FOUR	20	"	"	"
TWO	23	"	"	"
TWO	26	"	"	"
TWO	30	"	"	"
TWO	35	"	"	"
TWO	44	"	"	"
TWO	52	"	"	"

All with improved Tight Gates of superior workmanship and guaranteed the best in every respect.

THE JOSEPH HALL MACHINE WORKS,

JOHN LIVINGSTONE, Trustee.



"THE CORTON"

LATEST IMPROVED

House Heating Boiler.

Automatic, Self-Feeding, Wrought-Iron, Tubular and Sectional.

The best and most economical boiler now on the market.

It is first-class in construction, being made of the best refined iron and steel.

Can be used either as a self-feeding or a surface-burning boiler.

Economical in the use of fuel, and requiring no brick or mason work in setting.

Has been thoroughly tested during the past two winters and has given the best of satisfaction.

Can be used for Circulating Hot Water as well as making steam.

Send for Illustrated Catalogue, giving full description and prices.

CORTON BOILER MFG. CO., [LIMITED.]

56 Adelaide St. West, Toronto, Ont. AGENTS WANTED.

MILLERS

—AND—

MANUFACTURERS' INSURANCE COMPANY.

STOCK AND MUTUAL OBJECTS.

To prevent by all possible means the occurrence of unavoidable 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.

METHODS.

All risks will be inspected by a competent officer of the company, who will make such suggestions as to improvements required for safety against fire as may be for the mutual interests of all concerned.

Much dependence will be placed upon the obligation of members to keep up such a system of discipline, order, and cleanliness in the premises insured as will conduce to safety.

As no agents are employed and the company deals only with the principals of the establishments insured by it, conditions and exceptions which are so apt to mislead the insured and promote controversy and litigation in the settlement of losses will thus be avoided.

The most perfect method of insurance must, in the nature of things, be one in which the self-interest of the insured and the underwriters are identical, and this has been the object aimed at by the organizers of the company.

W. H. HOWLAND, JAMES GOLDIE, Vice-President. President.

HUGH SCOTT, Managing Director.

Applicants for insurance and other information desired, please address MILLERS AND MANUFACTURERS' INSURANCE COMPANY, No. 24 Church Street, Toronto.

McKEE & MARWICK,

Engine Builders

—AND—

STEAM

PUMPS,

Petrolia, Ont.

BOLTING CLOTHS



IMPORTANT TO MILLERS.—Agent for the Dominion for the Celebrated Madzer Het Anker Bolting Cloths, furnished by the yard, or made up to order. Full stock of all numbers on hand. R. WHITELAW, Woodstock, Ont.

B. GREENING & CO.

Wire Manufacturers

—AND—

Metal Perforators,

VICTORI WIRE MILLS,

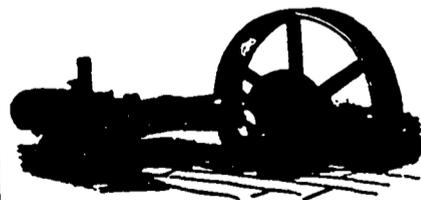
HAMILTON, ONT.

—|—

Send for Catalogue, mentioning your requirements.

BUCKEYE

AUTOMATIC ENGINE.



The Simplest, Most Durable and Most Saving in Fuel of all the Automatic Engines Made.

HAS NO SUPERIOR AND FEW EQUALS

— ALSO ALL SIZES OF —

Boilers and Every Description of Mill Machinery and Furnishings.

R. WHITELAW,

Oxford Foundry - - Woodstock, Ont.



17 Adelaide St. East, Toronto.

AN EXTRAORDINARY OFFER TO AGENTS.

We want Live, Energetic and Capable Agents in every county in the United States and Canada, to sell a patented article of great merit, *on its merits*. An article having a large sale, paying over 100 per cent. profit, having no competition, and on which the agent is protected in the exclusive sale by a deed given for each and every county he may secure from us. With all these advantages to our agents, and the fact that it is an article that can be sold to every house-owner, it might not be necessary to make an "Extraordinary Offer" to secure good agents at once, but we have concluded to make it to show not only our confidence in the merits of our invention, but its salability by any agent that will handle it with energy. Our agents now at work are making from \$150 to \$600 a month clear, and this fact makes it safe for us to make our offer to all who are out of employment. Any agent that will give our business a 30 days' trial, and fail to clear at least \$100 in this time *above all expenses*, can return all goods unsold to us, and we will refund the money paid for them. Any agent or General Agent who would like ten or more counties, and work them through sub-agents for 90 days, and fail to clear at least \$500 *above all expenses*, can return all unsold and get their money back. No other employer of agents ever dared to make such offers, nor would we if we did not know that we have agents now making more than double the amounts we guaranteed, and that but two sales a day would give a profit of over \$125 a month, and that one of our agents took 22 orders in one day. Our large descriptive circulars explain our offer fully, and these we wish to send to everyone out of employment who will send us a one cent stamp for postage. Send at once and secure the agency in time for the boom, and go to work on the terms named in our extraordinary offer. We would like to have the address of all the agents, sewing machine solicitors and carpenters in the country, and ask any reader of this paper to send us at once the name and address of all such they know. Address at once.

RENNER MANUFACTURING CO., 216 Smithfield St., Pittsburgh, Pa.

The 3-High Monitor Roller Mill



FOR
Wheat and Rye Milling, for Granulated Corn Meal, and the reduction of Oats, Barley, Screenings, Rice, Hominy, Oflal, Malt, &c.

Built in Sizes, 6x12, 6x15, 6x18, 9x18, 9x24.

GUARANTEED TO HAVE DOUBLE THE CAPACITY OF STONE WITH THE SAME POWER

By using the Monitor elevators are saved to give stock such as chop and coarse grains two grindings.

The Best Roller Mill in the World.

Satisfaction Guaranteed or No Sale.

The Jonathan Mills Universal Flour Dresser,

DIAMETERS, 20, 26 AND 36.



The principal features in favor of this machine are that it has a slow motion, is easy on silks, requires little power, has a capacity equal to any centrifugal of same size and makes a cleaner flour, has a close finish, and is low in price.

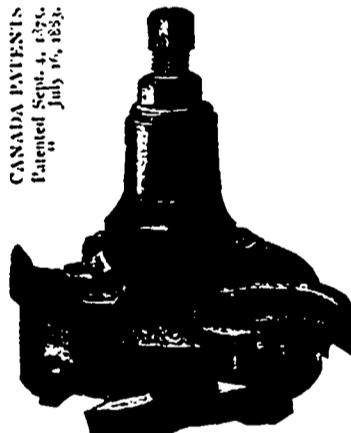
THE BEST MACHINE IN THE MARKET.

FOR DESCRIPTIVE CIRCULARS AND PRICES OF ABOVE MACHINES, ADDRESS

W. B. BRAGG,

BOX 103, ROCKWOOD, ONT.

CANADA PATENTS
Patented Sept. 4, 1886.
July 16, 1883.



The SHIMER MATCHING HEADS

Have been awarded

A World-Wide Reputation

By actual Every Day Work in Almost every Planing Mill.

UPWARD OF 11 000 NOW IN USE.

The Cheapest. The Strongest. The Most Durable.

—AND YET THE—

LIGHTEST AND EASIEST RUNNING

Matcher Heads in the World.

TONGUE HEAD.

TEV FINISH DARD

Cross-Grained & Knotty Lumber

Neatly, showing Clean Edges, and often

Save their Cost in One Day's Run.

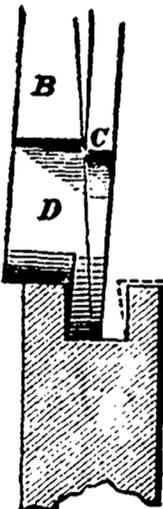
SAMUEL J. SHIMER,

(Successor to SHIMER & CO.)

MILTON, PA., U.S.



FIG. 1—A NEW CUTTER.

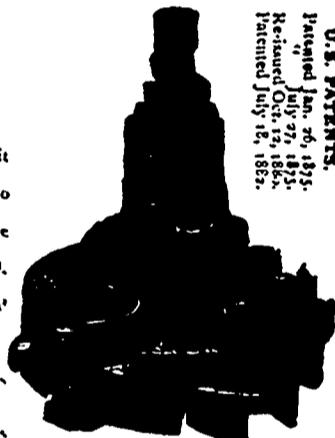


THIS diagram represents a bit (D) in the position it occupies when making a cut (the bit 'C') which follows to complete the work is given in outline. This explains the division of cut and the free and easy working of the Tool. The bits are arranged in upper and lower series, and secured to a Head having seats alternately inclined for the purpose of giving the side clearance to their cutting points. This



FIG. 2—CUTTER NEARLY USED UP.

explains why these bits hold their shape and turn out standard work until used up; the entire circle of bit being the cutting edge—see Figs. 1 and 2. The Head carries its weight low down and in line of cut, and runs like a Top.



GROOVE HEAD.

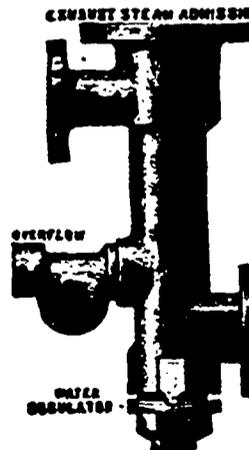
U.S. PATENTS.
Patented Jan. 26, 1875.
July 27, 1875.
Re-issued Oct. 12, 1880.
Patented July 15, 1883.

SELLING AGENT,

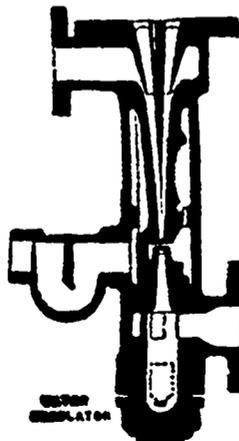
A. R. Williams, - - - Toronto

The PATENT EXHAUST STEAM INJECTOR,

WORKED BY EXHAUST STEAM ONLY.



The most economical boiler feeder in existence and at the same time the simplest and most durable, operates both pumps and feed-water heaters, and by condensing the exhaust steam, removes the back pressure, and consequently increases the power of the engine; utilizes a power heretofore thrown away; works automatically at a steam pressure of less than half a pound. The exhaust steam, in passing through the Injector, heats the feed-water to a temperature of 190 degrees F., thus effecting a saving over any other Injector of from 15 to 25 per cent. in fuel.



FOR FURTHER PARTICULARS, APPLY TO

WILLSON & GATES, - - - HAMILTON, ONT.,

Sole Licensees for the Dominion of Canada.

THE DETROIT SAW WORKS



CIRCULAR, CANG, MULAY, DRAG AND CROSS-CUT SAWS, Milling and Planing Knives, French Hand Saws, Emery Wheels and General Mill Supplies.

We guarantee to make a better Saw for the same or less money than any Saw manufacturer in the country. It will pay you to send for our catalogue and prices. 66, 68, 70 & 72 Fort St. East, DETROIT, MICH.

FAVORITE MILL BUCKETS



Manufacturer and Dealer,

JOHN RADIGAN,

68 Mary Street,

HAMILTON, ONT.

SEND FOR PRICES