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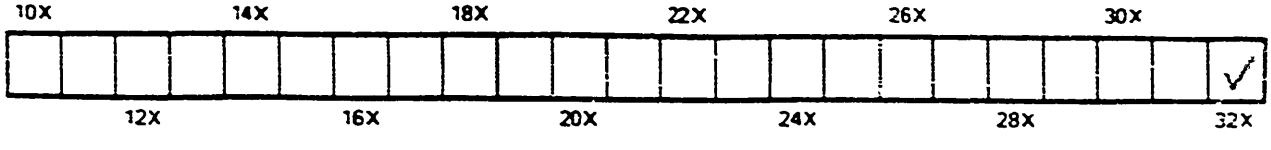


DOMINION MECHANICAL & MILLING NEWS

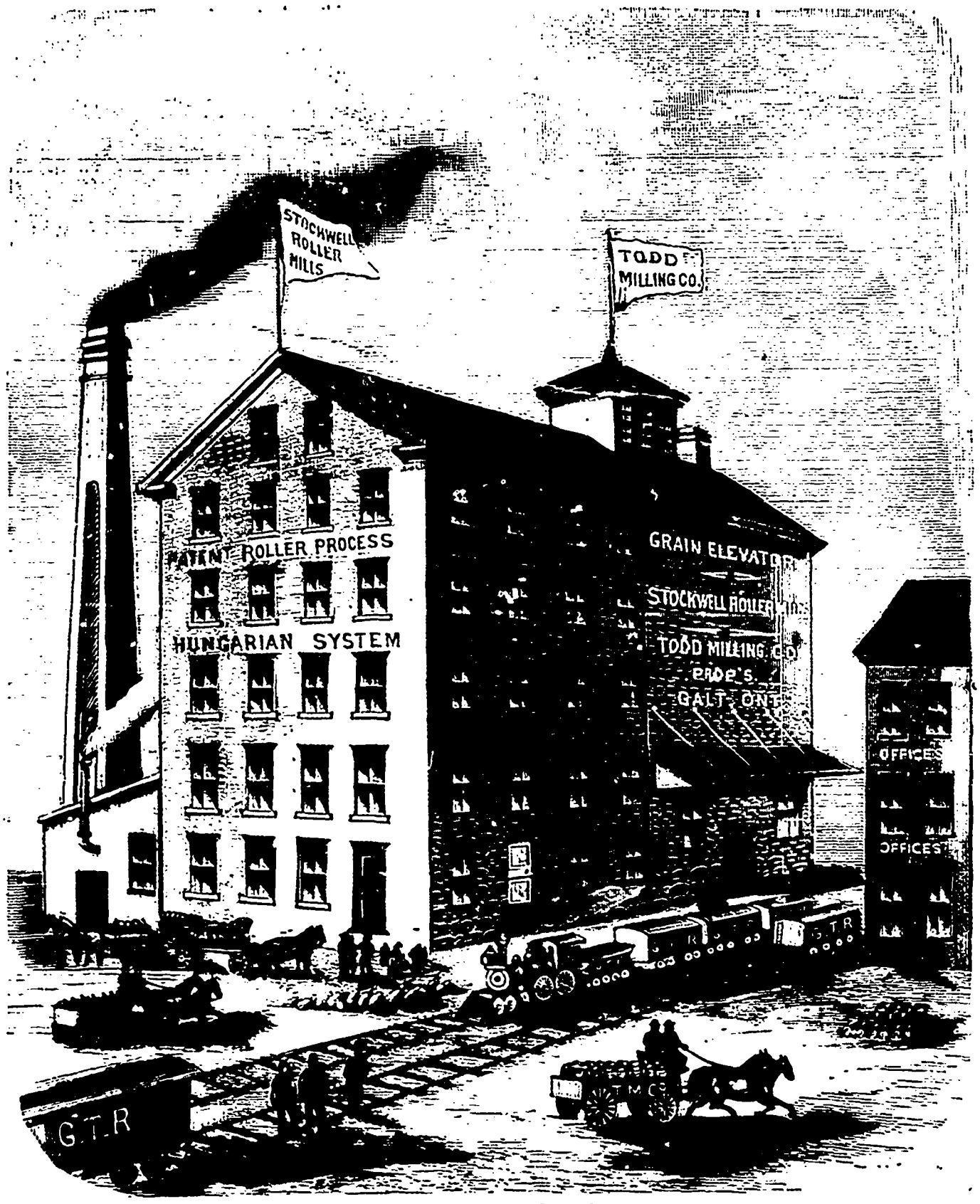
VOL. VII.—NO. III. TORONTO, ONTARIO, DECEMBER, 1886. { Price, 10 Cents $1.00 PER YEAR.

THE STOCKWELL MILLS, GALT, ONT.

WE present to readers of the MECHANICAL AND MILLING NEWS this month an illustration of the Stockwell Mills at Galt, Ont., which, after several years of inactivity, have been thoroughly refitted and started in operation again by the Todd Milling Company. These mills are admirably situated close to the track of the Wellington, Grey & Bruce division of the Grand Trunk railway, providing unsurpassed receiving and shipping facilities. The building is of stone, large and substantial, embracing the mill proper, five storeys high, with basement, engine and boiler house, and a commodious grain storehouse, with nine large hopper bins, giving facilities for keeping each grade of wheat separate, and mixing as desired. There is also an automatic weigher for weighing grain before passing into the rolls, and a track scale will be erected shortly by which bran and middlings can be spouted from the bins without handling and weighed in the cars.

On obtaining possession of the property the company decided to remove the entire flouring plant then in the building, and to remodel the mill in accordance with the highest standard of milling improvement now reached. They awarded the contract for the work to the well-known engineers and flour mill builders, Messrs. Goldie & McCulloch, of Galt, who have executed the undertaking in a manner worthy of their reputation, while the interior arrangements, after plans prepared by Mr. J. E. Wilson, their foreman in this department, are so obviously complete and well adapted to the ends in view that the proprietors are justified in claiming that they have now one of the model mills in the Dominion.

The driving power is furnished by a fine Goldie & McCulloch automatic cut-off engine, 150 h. p., with three large boilers, air pump and condenser. In the basement is the main line of shafting with pulleys, one large Galt improved separator, one Galt improved cockle machine and one large Galt improved smutter, two sets of large wheat brush machines, shoes and elevators for handling screenings and wheat from farmers' scales. Above, on the first floor, are four runs of millstones, twenty-four pairs of Galt improved roller mills, three Galt improved flour packers and three weigh scales. On the second floor are five purifiers, one Galt improved centrifugal



THE STOCKWELL MILLS, GALT, ONT.

bolt, two Galt improved middlings dusters and flour and middlings bins. On the third floor are four purifiers, four centrifugal bolts, three chests of scalpers and one Galt improved middlings duster ; also a series of flour, middlings and wheat bins. The fourth floor embraces four of Wilson's patent dust collectors and three four-reel bolts, the conveyors of these, as of all the other bolt chests throughout the mill being fitted with an ingenious device, the invention of Mr. Wilson, to prevent choking up, and also as a safeguard against fire, which is frequently caused by friction in the conveyor boxes. On the upper storey are two two-reel bolt chests and one single reel chest ; also the elevator tops, the latter being all on this floor, and fitted so as entirely to prevent any accumulation of dust on them, another frequent cause of fire in flouring mills.

The fitting up of the mill has been under the superintendence of Mr. John E. Wilson, who is also the patentee of improvements on a number of the machines specified. Its capacity is 350 barrels per day, and it will be run to its full strength for some time to complete the orders now on hand, and which we understand amount to somewhat over 8,000 barrels.

Mr. Anthony Marshall, who was lately in charge of the leading mill at Blenheim, Ont., and who enjoys an excellent reputation, occupies the position of head miller.

[For the Dominion Mechanical and Milling News.]

MANITOBA CORRESPONDENCE.

The wheat markets here have been rather sluggish of late, and since the close of navigation, shippers have shown little activity. The cost of shipping all rail to Montreal or Toronto is about 7 cents higher than by the Lake Superior route, though this amount is reduced somewhat by the extra elevator handling via the lakes. It was therefore to be expected that prices would rate lower after the close of navigation, unless in the meantime outside markets should show a stronger feeling. Prices in Manitoba have ruled considerably lower than last season. No. 1 hard sold in Winnipeg during last winter for 80c. and 82c. for a greater portion of the time, and for a while as high as 85c., but this year 62c. has been the best price obtained for the same grade, which price ruled steadily up to the close of navigation, when a decline of 3 cents occurred. The movement of wheat up to the time of writing has not been very heavy, though a fair quantity was brought to market. The low prices have no doubt influenced farmers to hold to a considerable extent, and plowing, which was going on up to the middle of November, also kept farmers at home. However, the heaviest movement last winter did not take place until well on in the winter, and in keeping with last year the movement to date has been very good, though not to say heavy.

I see the Ontario papers report that large quantities of Minnesota and Dakota wheat are being taken to Emerson, Manitoba, where, after paying the duties, the wheat brings a better profit than it could be sold for in the States. One paper puts the price at 64c. to 70c. at Emerson. This is wrong, as 59c. was the highest price paid at Emerson this season. Some wheat has been hauled to the Emerson market by farmers living just across the boundary in the States, but the quantity has not been large. However, prices in Manitoba compare favorably with the prices paid in Dakota. Before the close of navigation the prices paid in Manitoba markets were based on current values at Duluth. For instance, the prices paid for wheat, say at Brandon, would be the same as those ruling at Duluth, less the cost of freight from Brandon to Port Arthur. The same rule was adopted at all provincial points in Manitoba, except at Winnipeg. In Winnipeg prices rule several cents higher than at outside provincial towns, owing to the fact that the amount of wheat delivered here by farmers is not large enough to supply the local consumption in flour. Wheat has to be brought in by rail from outside towns, and farmers who deliver here are paid the same prices as it would cost to bring in the wheat by rail. Of course, a good deal of wheat is brought to Winnipeg from country points, ground here and shipped to Eastern Canada as flour, but on this flour a rebate in freight is allowed to cover the cost of bringing the wheat to Winnipeg. Were this not the case Winnipeg millers would not be able to compete with country millers who are able to obtain their wheat at a cost of from 8 to 10 cents less per bushel than the wheat can be laid down here for

Your correspondent has lately had an interview with the senior partner in a large grain and flour commission firm, of London, England. The gentleman in question was on a visit to Manitoba to investigate into the wheat and flour trade of the country, with a view to engaging in future operations in connection with the same. The gentleman described the milling trade in England as in rather a pitiable condition at present, owing to the great competition to which they have been subjected of late by the Minneapolis millers. The Minneapolis men, he said, were placing their lower grades of flour upon the English markets at figures with which the English millers were unable to compete. The profits made by the Minneapolis manufacturers upon their patent and strong bakers' grades, from their home trade, enabled them to cut very fine on their low grades for export. The only hope for the British millers was to obtain cheap hard wheat, for mixing with their soft varieties, which would enable them to turn out a better quality of flour than they have been able to do heretofore. With this object in view they were looking to Manitoba for a supply of our farmers' No. 1 hard. The difficulties which now stand in the way of attaining this end were said to be the length of haul by rail, which necessitated heavy freight charges. It was also claimed that hard grades of wheat shipped from the Northwest were generally doctored before leaving New York or other eastern seaboard ports, and arrived in England greatly reduced in quality. Under these circumstances English millers were reluctant to invest in Northwestern wheat, not knowing that they would obtain the same wheat as graded at the point of shipment.

You in Eastern Canada are not great admirers of our proposed railway route to Hudson's Bay, to connect with lines of steamers for Europe ; but the English gentleman previously referred to is a firm believer ... the ultimate successful working of the route. In this route he professed to see the salvation of the British milling interests. With this route in operation, he believed British millers would be able to obtain unlimited supplies of the choicest hard wheat, at figures which would enable them to compete with American millers, and thus relieve them from the pressure which is now crowding them out of their own markets. Be this as it may, it is safe to infer that, if the Hudson's Bay route should prove such a success for the shipment of wheat, it would also be equally available for the export of flour. Thus, instead of the English millers being relieved from competition through being furnished with cheap hard wheat, they would be subjected to new competition from the millers of Manitoba, who would then be placed in a position to compete actively for the British flour trade. It is therefore difficult to see how the English millers will be greatly benefited by the opening of the Hudson's Bay route Of course, we in Manitoba, millers included, are all firm believers in the Hudson's Bay route, and whilst we would be quite willing to ship our surplus wheat to England via this route, we would prefer to ship our wheat in the form of flour. Undoubtedly our flour manufacturers would make a strong effort to compete in the British markets. and cheap transportation facilities are all our millers require to enable them to hold their own against the world.

British Columbia has attracted the attention of our millers to a considerable extent since the completion of the C. P. Railway to the Pacific coast That province has heretofore relied upon Oregon manufacturers for a supply of flour, and long before the C. P. R. was opened for traffic, it was concluded that the British Columbia markets would at once fall into the hands of the Manitoba millers, as soon as our transcontinental railway was in a position to do its share of the work. However, when the road was opened it was found that the rates of freight were too high to enable our millers to compete with the Oregon men in regard to prices, and the superior quality of our product not being known to the Columbians, they refused to pay more for our product than they could obtain the Oregon flour for. However, the C. P. R. officials finally recognized the desirability of giving the Manitoba millers rates sufficiently low to enable them to compete with the foreigners in the British Columbia markets. As soon as this was done, the Oregon millers cut low on their product, and for a time there was keen competition, which did not result in any large amount of our flour going to British Columbia. But at last the Manitoba millers seem in a fair way to come out ahead. A trial of the flour soon convinced the Columbians of the superiority of the Manitoba article over the flour made from the soft wheat grown on the Pacific coast The movement of the Manitoba product toward British Columbia has now commenced in earnest, and with a further reduction in freight rates, the complete control of the flour markets of the Pacific Province is assured to our millers. A representative of a Winnipeg milling firm now in British Columbia has been very successful in placing orders there for a large number of car lots.

But the Pacific Province is not the only direction in which it appears Manitoba millers will have to fight for a market for their product. It would seem from recent reports that the competition at Montreal and other eastern centres between the Minneapolis and Manitoba millers promises to become very keen. The Minneapolis men have heretofore enjoyed almost a monopoly in the high grades of flour. Last season the Manitoba millers were greatly handicapped owing to the damaged condition of our wheat from the exceptionally early frost, which blighted a large portion of the crop of 1885. This year, however, the wheat is an excellent sample all over the province, No. 1 northern being about the lowest grade coming to market. Our millers are, therefore, enabled to turn out a superior article of flour, and, indeed, as one leading miller expressed it in conversation with your correspondent, "it is almost impossible to turn out poor flour with such wheat as we have this year." Our millers are therefore in a position to compete with the Minneapolis producers on a more favorable footing, and this has been followed by some close cutting in values in order to drive the Minneapolis men out of the eastern markets, if possible. What the immediate outcome may be it is hard to predict, though if it comes to a close contest it is not likely the Americans will yield up very gracefully. The foreigners have something of an advantage in freight rates, but the duties upon the imported article should tell eventually in favor of the home manufacturers.

Referring to last year's crop of damaged wheat reminds me that the frosted stuff was cleaned out far better than was expected earlier in the season. Of course, a great deal of the wheat was very slightly injured and made very fair flour without any trouble ; but there was a large quantity which required very careful handling to make even a passable article, and still another portion which was fit for little but feed. Many buyers expressed their doubts at the commencement of last season as to their ability to get rid of this stuff, but when the new wheat commenced to come in this fall, it was found that there was but a very small quantity of last year's wheat in the country. A few thousand bushels remained in the hands of millers, which was speedily cleaned out as soon as the new wheat commenced to arrive in the market, and the season's grind was commenced on the new wheat entirely.

As yet there have been no practical steps taken toward organizing a millers' association for Manitoba. This is not to be wondered at, when it is considered that milling is yet in its infancy in this province. It is but a very few years since the first roller mill was put in operation in Manitoba. Still, the importance which the milling interest has assumed during the past few years would warrant the formation of an association of millers. There are now fifteen roller mills in the Northwest, about ten of these having been put in operation for the first time on last season's crop. There are now in course of construction a half dozen or more new roller mills, which will be ready to grind during the winter, and some within a few weeks. These figures will show the great progress which the milling industry has made within a very brief time in this country. In addition to the roller mills, which are all new, there are quite a number of stone mills scattered over the province and territories. The latter are generally located at points more distant from the railways, and are used only for custom gristing Some stone mills that were located where roller mills have since been erected, have been closed down, and the machinery moved away to more distant points, where it will do service for a time, but only for a time ; for eventually these districts will be opened up by railways and the roller mill enemy will again have to be contended with. Thus the old stones which have done service, and good service, for so long a time, are rapidly being driven northwards, toward the limit of the wheat family. This reminds me that the northernmost mill on the continent of America is now being erected at Lac la Biche, north of Edmonton, Saskatchewan Territory, by the R. C. mission authorities. The machinery which will be used in this mill formerly did service in the days of the Red River settlement. But I have wandered from my subject, namely, the formation of a millers' association. In conversation with several provincial millers during the past summer, I learned that they were all anxious for the formation of an association for Manitoba, but they seemed to think that the Winnipeg millers should take the first steps toward such an object. All that is required, then, is for the Winnipeg millers to take the initiative, and the provincial millers will at once fall into line. The milling industry is undoubtedly destined to become the great and most powerful interest in the Northwest, and it already distances all other manufacturing interests. It would therefore seem fitting that such a thriving industry should have some association or bond of union existing between those interested in the business, whereby matters affecting the industry could be considered and acted upon harmoniously. I hope soon to be able to announce the formation of the Manitoba Millers' Association.

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 considered 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 bona fide 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: "What Constitutes Good Management in a Manufacturing Establishment?"

"HOW POWER IS LOST AND MAY BE SAVED."

BY "SINE."

WHETHER the "power" mentioned as the theme refers to losses in production, or in consumption (transmission), the writer does not know. Yet, as power, applied either theoretically or through the metamorphosis of the pocket book, begins the moment the fire is built under the boiler furnace, or the water applied to the wheel, it will not be out of place to follow an increment of it from its inception to the point of consumption in the machine to which it may be applied.

The production of power with water motors, of whatever kind, involves interesting conditions; yet as they pertain to the province of dynamical mechanics, mostly beyond the control of an operator, they will be passed by. With steam, however, it is different; the intelligence of the operator is quickly manifest in great increase of work, as the want of it is as quickly perceptible in failure to perform the wonted task. The application of power means, in the first place, the most perfect combustion of fuel obtainable, and its application to the work to be done by the most perfect appliances, so that the least percentage of loss shall occur during transmission.

Very simple, and, to the careless attendant, trivial things, greatly affect the production of power in the steam boiler. A lamp will "smoke" either if the draft from beneath or above the chimney be obstructed, if the oil (the fuel) be low, or if the wick fails to deliver it evenly or in quantity. The production of too much smoke in a boiler furnace is a certain indication of imperfect combustion—either imperfect draft or so much fuel that the air cannot supply sufficient oxygen for complete combustion. Smoke is carbon in a state of fine subdivision, capable of producing great heat if it be raised to a sufficiently high temperature for oxygen to unite with it. This temperature cannot be raised if fuel be added too rapidly or in great quantity. The energy of the fire is taken to raise the fresh fuel to the temperature of combustion, and but little is left for other work.

Nothing will take the place of brains in producing steam economically. Two furnaces apparently similar, will give very different results through some trivial and perhaps unnoticed defect in the setting, that the intelligent operator will easily remedy. Two similar furnaces with similar settings will develop enormous differences when operated by an intelligent or an ignorant or careless man. One will keep his flues clean, will see that a minimum of scale is deposited on his boiler sheets, that his chimneys are open, and that his hearth is clear, and especially will feed his fuel little at a time, spread it well over the fire, and exhibit vigilant watchfulness over all the details of his work. The other will neglect all these, fill his furnace full, and read novels between fires. Between the accumulation of ashes on the grate, and the mass of cold fuel on the top, oxygen has precious little chance for work. The glowing bed of incandescence that the successful fireman will aim always to have under his water, is had only occasionally, and then in such a way as to endanger the boiler.

The engine is the next place where the resultant effect of the power in fuel may be conserved to advantage, or wasted, as may be; but as much of this is dependent upon the engine builder, it will only be necessary to mention the necessity of cleanliness, the reduction of friction, keeping ports and valves clear, and the arrangement of "cut off" so that the greatest amount of power will be developed by using steam expansively, with a minimum of actual boiler pressure, consistent with the load, or power to be developed. Much has been written on this subject, and considerable difference of opinion yet exists as to the best practice. But various engines vary curiously in their effect in this relation, and similar engines of the same make behave differently, so that experiment only may determine the best point. Such experiments, however, should only be made by accomplished engineers. The casual mechanic, or the tyro who is usually in charge of engines now-a-days, should leave the valves alone, as it is a fair presumption that the builders have already determined the best arrangement, and interference by all but the most accomplished, will usually result in making matters worse. Much loss of power in many mills and shops may be traced to the impertinent curiosity of those in charge, whose first impulse, when there is a day or two of "shut down," is to take everything to pieces, and see how it is made; and there be few who do not imagine they can improve upon the maker's work, and are surprised, when the change has been made, to "see how that engine eats up steam" to carry a three-quarters load. The maker is blamed, and his machine condemned, for the result of the ignorant curiosity of the person in charge. The writer lays stress upon these points from a memoir of his own early experience.

A great loss of power results in cases where the heat from the exhaust steam is not utilized in heating the water before it enters the boiler. This lack, of course, is due to no fault of the engineer or fireman. It is a drain upon a treasury, however, that no prudent manager will permit, as the most casual will perceive the folly of burning coal to heat water, and then pouring in cold water. It is unnecessary to more than refer to the advantage of providing measures for prevention of scale, both for the preservation of the boiler and an economical use of fuel. It will suffice to state that a scale one-half an inch thick will require fifty per cent. more fuel to raise a given quantity of steam.

But leaving boiler and engine, and proceeding to where the force is utilized, it will be found the rule, not the exception, that badly aligned shafting, gummy and often gritty journals, and above all, slovenly, loose and uneven belting, absorbs fully one half of the force imparted from the engine. The more machinery that is in use, and the greater subdivision there is in the transmitted power, the more pronounced and destructive is the loss of it. And when, to great subdivision of the power, there is added to each piece moved a belt hanging by one corner, and sagging so loosely that it slips over the pulley fully one half of its revolution, the waste of power is so enormous that where there is much machinery to be moved, it becomes a matter for wonder how such concerns keep out of the bankrupt courts—that is, if they do. The worst of this is that these cases are not rare, but rather the rule. With many it would seem that the driving belt is the only one deserving attention. Yet it should be clear, as the driving belt is but a convenient intermediary between the motive power and the working machine, that if it should transmit the force substantially as received, the most of it will be lost if the main and lateral shafts, pulleys and belting, are not in proper running order; or, given the main-driving and the main and lateral belts in proper "trim," the power may still be lost by careless attachment to the machine where the objective resistance lies, and where the work is to be performed. It will simplify the problem if the mechanic who has charge of a mill or factory will consider the two extremes—the one the motive force, and its economical production; the other the resistance, and the power required to overcome it. If the motive force could be applied directly to the machine where the resistance is met, as, for instance, by a positive transmitter, as gearing, it is clear that the motive force will be transformed into work, less only the loss by friction in the parts of the motor, the parts of the gearing, and the parts of the machine doing the work. As with ordinary machinery this loss by friction would, say, represent a loss of 15 per cent., it is clear that the remainder would be applied directly to the production of useful work. But separate these two elements by an endless chain of transmission devices, and on every journal there is a new element of friction. But these elements are not of high value, unless the shafting "binds" in the journals. But the spider's web of belting at best represents considerable lost power, and when carelessly hung, absorbs it in great quantities. If a belt is so loose as not to affect materially a driving pulley, it will affect a driven pulley just as little, and but little work can be done with a machine driven by it—the power will run to waste. This trouble will diminish exactly as the belt responds to the movement of the pulley; and, within certain limits, this responsiveness will increase exactly as the belt is tightened and other properties of the belt increased so that slipping shall not occur. The limits referred to are in stress on shaft gearings, and weakening of the belts through strain.

It being true that the nearer the motive power is brought to the work the less loss there will result through the friction of multiplied parts, very much of the effective power of a mill will depend upon how it is planned, and it follows that the location of machinery with reference to the motive power should be such, that the power may be applied to the work with the fewest changes in the matter of transmission. A great many mills grow by a process of evolution, and machines are perforce placed wherever they will go, and not where they should go. With these, the only cure is a new building; yet very many new mills have a needless and wasteful application of shafting, counter shafts, quarter twists and the like, that absorb power and perform no commensurate office.

Where, among a hundred and more belts, such as would be required by an average shop or mill, not half a dozen will be found running either properly tight or true on the face of the pulley, whether used as transmitters or as parts of a machine itself, the waste is due to carelessness, for one can hardly assume that ignorance of such patent facts could be so general as to include a whole working force. A slack foreman, or a parsimonious and penny-wise proprietor, is the probable cause of the insidious, continuous waste that enters the boiler furnace as good money and dissipates into thin air before it reaches its work. The principal remedy is vigilance, and sufficient time to immediately repair any slackness observed. A parsimonious proprietor will begrudge oil to keep his belting pliable and capable of taking firm and full pulley contact. He will likely forbid a stoppage to take up a slack belt, especially if it be one of the mains, or pay a man some extra to do it out of time, although the fault will affect every machine connected with it. He may, as some I have known, even refuse proper lacing, and compel his men to use such scraps as they can find. The man, seeing his superiors do not care, sees no reason why he should feel solicitude, and so the trouble grows worse, and gradually extends throughout the mill. Probably he will insist that a ragged, twisted old belt, pieced until there is a great hump of lace leather every yard, shall continue to be used, although a piece of link belting would do nearly as well.

Effective transmission requires pulleys true and smooth of face, well balanced, tightly keyed onto straight shafts, that must run true and level in line. If good material be bought, the question of oversight is one of keeping truth in the shafting, good belt contact, flexibility in movement of belts, even lacing and proper tension. Journals must be kept free from dirt and well supplied with lubricant, and every element of friction reduced to the utmost limit.

I have not the space in this paper to outline the details of lacing, lining shafting, or the tricks of firing and engineering. Vigilance, industry and good keen sense, are the principal requisites. I have endeavored, however, to impress a few first principles, which, if held in mind, will simplify details, which, in fact, will occur to any mind intent upon success.

WANTED—THE MILL FURNISHER.

THERE is a chance for Canadian mill furnishers to capture a share of the New South Wales trade. Judging from the following remarks of a N. S. Wales miller in the New York *Millers' Journal*, there is a golden harvest out there awaiting the mill-furnisher's sickle. Hear him:—"In New South Wales there is not a store where the best milling machinery is kept in stock, and this is a great drawback to millers, as we have no choice at hand, only what we read of, and then get someone to import. We, therefore, generally do the best we can without. It is a wonder that some of your American makers do not send their machines to some good business firm in Sydney—not to Victoria or Melbourne, which is 500 miles away. If next season is a good one our millers must spend thousands of pounds on their mills to bring them up to the mark. The machinery required is, we think, packers, wheat cleaners, centrifugal mixers and such as are always in use in little mills for labor-saving, &c. The want of these and the great price charged here for them and fitting them up make us continue in the ways of our forefathers. We trust you will do your best in furnishing us with the matter required and get here, or send to reliable agent in New South Wales, so that we can do business with less expense."

The Millers' *Gazette*, London, Eng., says: In the High Court of Justice on Monday last, in the case of the Germ Milling Co. v. Robinson, an appeal was made by the Germ Milling Co. for a new trial in this case, on the ground that the plaintiff had made certain mistakes in his evidence at the recent trial before Mr. Justice Sterling. Sir Charles Russell, Q. C., Mr. Aston, Q. C., and Mr. Chadwyck Healey appeared for the plaintiff, and the Attorney-General, Mr. Romer, Q. C., and Mr. Carpmael for the defendant. In consequence of the absence of Lord Justice Cotton, Lord Justice Bowen and Lord Justice Fry declined to hear the case, and it now stands postponed to a day to be agreed upon, when a full Court will be sitting.

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.

A HINT TO TURBINE BUILDERS.

Editor Dominion Mechanical & Milling News

British made turbines are again making their way to the front rank. For many years this continent has been looked upon as the home of the turbine water-wheel. The following testimonial is a timely warning if they wish to retain their laurels. Mr. Hett, the well-known engineer, of Lincolnshire, England, has received the following unsolicited testimonial from a South American buyer: "The workmanship of the turbines we consider *good* and better than the American; we are glad to be able to state this." He has several contracts on hand for Asia, South America, Australia, &c.

Yours truly,

CANADIAN.

THE PERILS OF STEAM PIPES.

Editor Mechanical and Milling News

From an article on "Danger of Fire from Steam Pipes" in *Glaser's Annalen*, the following account of the process of kindling wood under such circumstances is extracted: "After wood has remained a long time in contact with steam, hot-water, or hot-air pipes, the surface becomes carbonized. During the warm season the charcoal absorbs moisture. When again heated, the moisture is driven off, leaving a vacuum, into which the fresh air current, circulating round the pipes, rapidly penetrates and imparts its oxygen to the charcoal, causing a gradual heating and eventually combustion. The rusting of the pipes contributes also to this result, inasmuch as the rust formed during the hot season may be reduced by the heat of the pipes to a condition in which it will absorb oxygen to the point of red heat." The same article also states that "a building was set on fire by pitch distilled out of a plank nearly 3 in. above a steam pipe, which dropped on the pipe and took fire." Trusting that the information contained in the above will prove valuable to some of your readers, I remain,

Yours truly,

STEAM PIPE.

AMERICAN VS. CANADIAN MECHANICS.

Editor Dominion Mechanical and Milling News.

Will you grant me space to say a few words anent the remarks made by "Mechanic" in your November issue? With part of "Mechanic's" letter I cannot agree. With the other part, I am fully in accord. I think he presents the American mechanic in too favorable a light as compared with his Canadian brother. While the number of skilful mechanics may be larger in the United States than here, "Mechanic" should remember that the U. S. is a much greater country in point of population, and was engaged largely in manufacturing many years before Canada had any manufactures worthy of the name. Thus mechanical knowledge was being diffused, and the American mechanic got the benefit of it long before the Canadian mechanic. Consequently the latter has been working at a disadvantage, which "Mechanic" in his criticism entirely overlooks. In spite of this, however, the superior workmanship displayed on Canadian manufactures at the various Expositions, indicates clearly the fact that some of the best mechanics in the world are to be found in Canada. There is much truth, however, in your correspondent's remarks *regarding the benefits* which accrue to mechanics from reading technical journals and making use of the columns of such journals to exchange ideas on matters relating to the business in which they are engaged, or along the lines of general mechanical knowledge, and I hope to see this practice more generally adopted in Canada.

Yours very truly,

JUSTICE.

London, Ont.

GUARANTEEING RESULTS.

Editor Mechanical and Milling News

A writer in the *Millers Gazette* says the practice amongst milling engineers of guaranteeing results is to be deplored and should be discountenanced, except within certain limits. No milling engineer, for instance, should guarantee a certain quality of flour except he designate the quality of wheat, and unless he has full control of the mill himself. A miller, too, who orders a new plant, should not insist upon its being erected against time. In most cases he will suffer in one way or another as a consequence of so doing. A little more liberty granted to the engineer, and a little less stint of machinery, would ensure the miller a much more satisfactory plant than if he ties the engineer down to certain hard-and-fast lines and conditions. The practice of blindly guaranteeing anything and everything appears to be popular in France and Belgium, and is becoming largely so in Canada. A case recently decided at Brussels shows what disastrous results occasionally follow this practice. A certain milling engineer agreed to build a mill at a given price, to produce a certain number of sacks per hour, of a specified quality. When the mill was finished, disputes arose and a fresh agreement was entered into, by which the engineer was to put in more machinery to obtain better results. More disputes arose, and two experts were called in to arbitrate, the result being that the matter was brought before the Brussels Tribunal, the engineer being the plaintiff and the millers the defendants. The award of the arbitrators was that the plaintiff should reimburse to the defendants the sum of 199,740 francs ($39,950) with interest at 6 per cent. from the time the payment was made. The engineer, too, is condemned to take all his machinery back within two months, and pay the cost of transport, as well as the cost of arbitration. This should prove a warning to Canadian mill-builders.

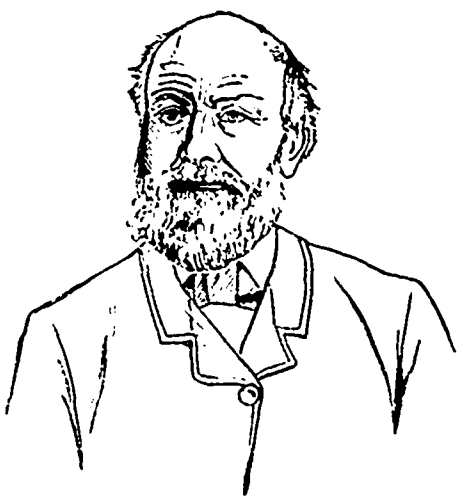
Yours truly,

OBSERVER.

Our Portrait Gallery.

MR. J. H. KILLEY.

Prominent on the list of Canadian manufacturers and skilled mechanics to-day, stands the subject of our sketch, Mr J H. Killey, of the Osborne Killey Mfg. Co., Hamilton. His career, as briefly traced in



MR. J. H. KILLEY.

the following paragraphs, indicates what may be accomplished by every intelligent mechanic who is willing to set his mind to study, and employ his spare moments in acquiring knowledge that will qualify him to fill some of the high and honorable positions in the mechanical world.

Mr. Killey was born in Castletown, Isle of Man, and received his education in the grammar school in that place. At sixteen years of age his parents sent him to Liverpool, where he was apprenticed in one of the large foundries. For more than twenty years he resided in Liverpool, working in various capacities as apprentice, journeyman, foreman, and mechanical partner. On the termination of the American war he came to Canada, and filled the position of foreman in Hamilton and Toronto. For a time, he took charge of an engine on one of the lake steamers, and during the Fenian raids and the Red River rebellion served the government on board the gunboat "Prince Alfred."

Fifteen years ago, Mr. Killey designed a marine engine and boiler for the composite steamer, "Adelaide Horton." This machinery, which was built in Hamilton, was very much admired at that time. After its completion, the subject of our sketch went to Lockport, N. Y., and worked there for some time, but afterwards, by advice of some of his friends, returned to Hamilton and started a small machine shop, where he built several engines for the oil wells. His business increased so rapidly that he was soon compelled to go into larger premises. He built the Hamilton and Kingston steam road rollers, weighing 18 tons, and a stone breaker, both of which proved to be perfectly successful. He then built an engine and boiler for the Hamilton high level pumping station, the cost of repairing which has not exceeded $10 per annum. Five years ago he built the now celebrated London, Ont., pumping engine. In addition to this, he has constructed a large number of steam engines for general purposes, ranging in capacity from 300 h. p. downwards. Two hundred and fourteen of these have been automatic cut-off engines.

The firm with which Mr. Killey is now associated, the Osborne-Killey Co., is located in extensive premises on Barton Street, Hamilton, having all modern appliances for turning out work of the heaviest class. They are now engaged in building two pairs of compound condensing pumping engines to the order of the city of Hamilton. These engines will have a capacity of 10,000,000 imperial gallons 200 feet high in six hours, and a guaranteed duty of 10,000,000 foot pounds of water per 100 pounds of coal.

The Company do a large amount of boiler work, and have an extensive scale factory in connection with their other business. They give employment to nearly 100 men, and their business is steadily increasing.

(FOR THE DOMINION MECHANICAL AND MILLING NEWS.)

A RETROSPECT OF THE PROGRESSIVE SCIENCE OF FLOUR MILLING.

BY "DUSTY."

If we look at the great antiquity of the miller's art, and the very early use of bread among civilized peoples, we must admit it is surprising that an industry of such vast and universal importance could have remained for ages in such an antediluvian and unscientific state, altogether destitute of any true or generally accepted technical or scientific basis of operation. It may be said, and with perfect truthfulness, that, with few exceptions, milling has only of late years been placed on a scientific basis, and all the principal discoveries and inventions in connection with the art are of the present century. We use the term scientific in its fullest and strongest sense, as we do not wish it to be supposed that the rule-of-thumb stone millers of old were unskilled in their vocation in their day and generation, or that they were indifferent as to the quality of the flour then made. Nothing of the kind. The ancient Romans, to say nothing of Greece, from whence came the first and best millers of the pagan world, paid very particular attention to the color of their flours, and to the peculiar dress of the millstones to produce them. Their graduated sieves, too, were but a very rude approximation to the modern flour bolt. That these ancients had advanced far in this direction is beyond dispute, and can be verified from records extant, as also the fact that they reckoned a variety of different grades of flour, such as similago, simila, pollen, flos, and cibarium—names not at all synonymous, but signifying different grades of flour from the same wheat, obtained by repeated sifting and grindings—a rude fore-shadowing of modern gradual reduction. We think it is beyond dispute that they were excellent millers, bearing in mind the entire absence of scientific or chemical investigation, and that theirs was a mere mechanical operation.

We find, also, in Pliny's writings, that the Roman millers wetted their wheat to facilitate the separations of the kernels from the husks; and the kernels were again soaked with a view to render them brittle and easier pounded into meal or flour. No doubt much of the milling of the old world was extremely rude, rough-and-ready, and wheat cleaning, as now practiced, utterly unknown, while "crease dirt," would have been looked upon as crazy man's talk.

We find that the French millers, also, at an early date, practised the passing of the meal from the stone through a series of sieves and regrinding by which they produced a finer flour, but they, too, were only groping in the dark. From the records available, it appears that it was first in Austria-Hungary, then in England, and subsequently on this continent, that the new era of purely chemical and scientific milling began. The whole theory and practice of contemporary flour milling may be stated to consist in taking the wheat berry, and, as we have shown above, by very elaborate methods eliminate all extraneous material, seemingly with a special view to postpone as far as possible the production of flour while everything that would discolor the flour is cleared away; whereas by the new process, the end in view is to produce the largest percentage possible of clear flour, with the broadest bran; or, to put it in another form, the best ancient miller was the man who made the largest percentage of bread flour, and smallest of semolina or middlings, while the best modern miller makes the largest percentage of middlings or semolina and the smallest of bread flour. It might here be stated, however, that the first to discover that semolina had a marketable value, was some Austrian millers in the neighborhood of Vienna, who may be said to have begun the era of the roller as early as 1807 by the manufacture of "Wiener Gries." So successful were the mills which saw the birth of this new departure in milling by high-grinding, that a company at Pesth altered and changed their mill, which, under the denomination of the "cylinder mill," was the first to de-

velop in Hungary the system of grinding which has since become equally historic and famous. It will thus be seen that an advanced form of scientific milling was practiced in the Austrian Empire fully three quarters of a century ago.

A writer of authority, an Austrian miller himself, tells us that this early style of high grinding was simple enough. First, the wheat kernels were broken by the millstones, the meal being transferred to a bolting chest. At the end thereof a man held a riddle, and separated the bran from the semolina. Another miller then separated the semolina. Standing between open windows or doors in a draught he shook a sieve, and thus the bran and shorts were blown away, the remaining substance, semolina, after being reground, was again bolted, and behold the "Wiener Gries." This was milling made easy (not to modern millers), and proved to be the precursor of one of the most scientific forms of milling yet extant.

But if we refer to Professor Kick, we find that he gives a description of the gradual disintegration of the inter and gluten cells as made on the Hungarian plan, and gives as standard samples, the first reduction between stones 1-12 of an inch apart; 2nd reduction, between stones 1-16 of an inch apart; 3rd reduction, 1-24 of an inch apart, thus obtaining a finer product by contracting the space of the stones. This shows us that the present system was not the invention of one miller, but of successive improvements made upon the Austrian "Gries."

PERSONAL.

Items of personal intelligence from or concerning persons engaged in the various branches of mechanical industry represented in Canada will always be welcome to this column, with the stipulation that the name of the sender be given, not for publication, but as a guarantee of good faith

Miller W. A. Park has removed from Minneapolis to Lynden, Ont., where he has a position in Thompson's mill.

Mr. James Goldie, Guelph, Ont., has lately returned from a visit to Chicago and other points in the Western States.

The widely known firm of McKechnie & Bertram, proprietors of the Canada Tool Works, Dundas, has been dissolved, Mr. McKechnie retiring.

Miller Alex. Clifford, of Kirkfield, Ont., has lately recovered from a serious illness, to which, at one time, it was thought he must succumb.

Alex. Gibsen, who has been running the Cambray, Ont., mills for Mr. Berkley for a year past, has removed from that place.

Mr. Wm. Wood, an employee af Marsh's mill, Lobo, Ont., died from a shock sustained by having four fingers of his right hand severed by a circular saw.

Master Geo. H. Watt of Bleinheim township, Ont., has left the plough and entered the Greenfield mill as an apprentice.

Mr. C. M. Palmer, publisher of the *Northwestern Miller*, has been appointed manager of the Minneapolis Exposition of 1886-7. The Exposition is in good hands.

W. D. Wise recently had his hand and arm badly lacerated by a circular saw in Lawrence's factory at Watford, Ont.

Chauncey Botsford, son of Mr. Timothy Botsford, of Newmarket, Ont., met his death in the Michigan lumber woods recently.

J. Millon Williams, a pioneer miller and lumberman, of Arden, Ont., is dead. The grist mill is now owned and conducted by his son.

Thos. Little, of the firm of Guggisberg Bros. & Co., furniture manufacturers, Galt, Ont., has withdrawn from the business and gone to Chicago. Mr. Little has been a resident of Galt since 1847.

John Hickens, late superintendent of the Clyde, Ont., woolen mills, was presented on his leaving with a gold watch chain, as a mark of the respect and esteem with which he was regarded by the employees.

M. John Henderson, who holds a good position as a machinist in the Geo. T. Smith Co.'s works at Stratford, Ont., was warmly welcomed on paying a visit to his home in Lindsay, the other day.

The firm of J. & J. Livingstone, may be termed the backbone of the village of Baden, Ont. They conduct linseed oil works, flax mill, foundry, grist mill, and general store.

Edward Blodgett, a lad employed in Mr. Waterhouse's woolen mill at Palmerston, Ont., had his hand crushed so severely as to render amputation of one of the fingers necessary.

Mr. Robert Clapp, who spent many years of his early life at the milling business, has been nominated by the Conservatives of Picton as a candidate for Parliamentary honors. Mr. Clapp is personally very popular in the constituency where he resides.

The many friends of Mr. John E. Wilson, with Messrs. Goldie & McCulloch, Galt, Ont., will learn with regret that for a considerable portion of last month he was confined to bed by illness. He is now, we are glad to know, on the road to complete recovery.

Miller Wm. Fee, who spent many years in the employ of Sadler, Dundas & Co., at Lindsay, Ont., has removed to Kingston and assumed the position of head miller of one of the large mills there. Mr. Fee has had many years experience in roller-process milling in Lindsay under first-class tuition and is in every way qualified to fill his new position.

Mr. Dilman Snider, foreman in Snider & Steckle's mill at Plattsville, Ont., met with an accident which might have resulted seriously, but for great presence of mind and prompt assistance. He was putting the elevators in motion when his foot slipped, his arm being caught and drawn in to the shoulder. He shouted loudly for help which soon came to his assistance and released him from his perilous position. He escaped with a torn coat and bruised arm.

A Clinton organ factory has an order from Bogota, South America.

The Lansdowne woolen mills have been removed from Brooklin to Markham, Ont.

The work of removing from Lindsay the machinery of the late paper mill is going on.

Bungay's foundry, in Norwich, has received an order from New South Wales, Australia.

The Messrs. Patterson will begin removing their works from Patterson to Woodstock shortly.

A Toronto firm are putting in the necessary machinery for a system of water-works in Napanee.

The Massey Mfg. Co., of this city, lost $6,000 by the recent destructive fire at Calgary, in the Northwest.

The Arkell woollen mills near Guelph, Ont., were destroyed by fire on Nov. 14th. Loss, $7,200; insurance, $3,200.

A new locomotive, the first of eight which are being built at the Kingston Locomotive Works for the Northern & Northwestern Railway, has been satisfactorily tested.

Broad & Sons' axe factory, St. Stephen, N. B., has lately received a large amount of new and costly machinery, making their establishment second to none of its kind in the Dominion.

On the morning of Thanksgiving day a fire broke out in Noxon's foundry and machine shops at Ingersoll, Ont., but was fortunately discovered and extinguished without much damage being done.

The Rathbun company has purchased from Folger Bros. the charcoal works at Sharbot Lake. The machinery, retorts, etc., will be removed to Deseronto, where the experiment of charcoal making will be tried.

A St. Catherines correspondent writes. The Riordan and Lincoln Paper Mills are running day and night. Price Bros., of the St. Catherines Knitting Co., have sold out to Beaty & Henderson, late of Streetsville. The Merritton Cotton Company are erecting large additions to their mills.

An impression prevails among some engineers that boiler plates are stronger when hot than when cold. This is not so, as Fairbairn's experiments prove. He was an eminent English engineer who tested plates carefully up to 400° temperature, and found no difference whatever in the strength of the plates.

A mouse got into the sand mould prepared for a large lathe casting at the London Machine Tool Company's works, and ran all over it, burrowing here and there. The pouring was done in the morning, but on opening the whole casting was found to be spoiled, involving a loss of $50. The burned skeleton of the mouse was found in the face of the casting.

Since the incorporation of the Niagara River Hydraulic Company sufficient land along the river has been secured, surveyed and apportioned into mill sites fronting on the river, and on the line of the proposed tunnel, with ample streets and dockage, affording facilities for approach by rail and water to accommodate 238 mills of 500 horse-power each, or 119,000 horse-power in all, which is the engineer's estimate of the capacity of the proposed tunnel. Some idea of the effect of this tunnel may be had from the fact that it will develop a power largely in excess of the combined power in use at Holyoke, Lowell, Minneapolis, Cohoes, Lewiston, and Lawrence, and it will not cost more than one-tenth of the outlay for the development of the power at the places designated. The company expects to found a manufacturing town at Niagara Falls, and each one interested to make a fortune out of it.

The following particulars of the leather belting for driving the machinery in the electric light department of the Inventions Exhibition, held in London, Eng., last year, may be of interest, as giving the velocities and powers in a particular case. No. 1 belt, 70 ft. in length, 10 in. wide, running at 2,585 ft. per minute, transmitted 120 indicated horse power; No. 2 belt, 73 ft. in length, 15 in. wide, running at 2,585 ft. per minute, transmitted 170 indicated horse power; No. 3 belt, 60 ft. in length, 16 in. wide, running at 3,270 ft. per minute, transmitted 200 indicated horse power; No. 4 belt, 86 ft. in length, 24 in. wide, running at 2,585 ft. per minute, transmitted 350 indicated horse power; No. 5 belt, 86 ft. in length, 15 in. wide, running at 2,585 ft. per minute, transmitted 170 indicated horse power; No. 6 belt, 86 ft. in length, 15 in. wide, running at 2,585 ft. per minute, transmitted 170 indicated horse power.

If Mr. Blue, Secretary of the Ontario Bureau of Industries, will only come up to Newmarket, says the *Era*, and have a few minutes' conversation with the proprietors of our leading manufacturing industries—men who are politically in accord with the Liberal party, he will find his notions regarding the difference between capital and labor entirely changed. According to his figures, out of a *net product* of $509.03, manufacturers and employers of labor receive $276, while the workmen only receive $233.03. Now let us work this out in detail Take the Wm. Cane & Son Manufacturing Co. of this town, which we presume to be a fair sample of reasonably prosperous manufacturing establishments throughout the country—and see how the figures will tally with Mr. Blue's calculation. This firm employs an average of 125 hands, and pays out weekly an average of $700 or $36,400 per annum. According to the above calculation, and supposing Mr. Blue to be correct, the above company should have an annual net profit, over and above the cost of raw material, of over $19,700. If this were true the company would be money kings in a few years. There possibly may be isolated cases where Mr. Blue's figures will hold good—but like angel's visits, they are few and far between.

Boilers are sometimes charged with sins they are not guilty of, and water in the cylinder is one of these sins. All water therein is supposed to be carried over from the boiler, but this is not always the case. Steam pipes can be so erected and run that they will trap a good deal of water in a short time; this collects wherever there is a chance for it, and when sufficient in quantity, dragged or blown through with the steam into the cylinder. It makes its presence known there by rattling the piston packing, squirting out of the glands, and, if the clearance is small, threatening to knock out the cylinder-head. Steam pipes should be run as direct as possible, but under no circumstance should any part be lower than the main line. This depression constitutes a trap, for steam is generally saturated to a greater or less degree (high dried or superheated steam is rare with most boiler settings,) and water is carried over by it in the vesiculer (small bubblas) form. This collects as before stated, and is charged to faults in the boiler. If from any local cause a steam pipe cannot be run direct, and depressions are unavoidable, a small pipe should be attached to the lowest point, and run into the steam pipe again at a still lower point, in order to drain the depression. This would prevent any great amount of water being trapped in the pipe at one time.—*American Mechanical Engineer.*

A BUSY TOWN.

Deseronto is a town of about 2,500 inhabitants, situated on the banks of the Bay of Quinte, eighteen miles from Belleville and Picton, thirty from Kingston and about seven from Napanee. There is no place twice its size in Canada doing the business that is done there, all managed and directed by the well-known firm, the Rathbun Co. The large mill employs about three hundred men and boys and turns out each day 225,000 feet of lumber, 100,000 lath, heading and pickets. It is superintended by J. W. Dexter. The mechanical engineer is James Davis, who has charge of all steam boilers of the different departments, steamboats and locomotives. The engineer of the big mill is James Martin, assisted by Isaac Scrimshaw. The large blacksmith shop comes next with seven large furnaces running the year round on repairs for the different establishments. Mr. Prickett is foreman in this department. The machine shop comes next with several lathes repairing and doing new work for all departments and railroads belonging to the firm and steamboats also. This is managed by James Whitton. The sash, door and blind factory employs about one hundred men and boys, turning out 200 doors, besides blinds, sash, stair-railing and nearly every fancy work in wood. It is managed by Wm. Irvine. The cedar mill next turns out 40,000 feet of lumber per eleven hours, 1,500 ties, 3,000 fence posts, 15,000 lath, paving blocks, pail blocks, pickets, etc., 100,000 shingles, 5,000 heading. It is superintended by P. Roach, jr. The shingle department is managed by Mr. W. Bick, the well-known shingle maker, lately of Bobcaygeon, and the yard department by Mr. E. H. Cooke. The flour mills turn out about 200 barrels each day. This mill runs day and night and does a tremendous business. It is superintended by Mr. R. Rayburn. The chemical works are making extensive repairs, building charcoal furnaces, suppyling gas to different mills and the village main streets. Mr. French manages these works. The big store has a wonderful trade. This store is managed by A. A. Richardson. There are steamers running from Picton, Trenton, Belleville, Kingston and Napanee, touching here twice each day, namely, the Quinte, Gipsy, Hero, Varuna, Reindeer, Annie Cuthbert and Armenia. The two steam barges owned by the Rathbun Company run to Oswego three times each week. The Reliance carries 175,000 ft. and the Resolute 350,000 ft. each trip. With sailing vessels there have been over one million feet b. m. handled there in one day. The Bay of Quinte railway runs out of Deseronto, making sharp connections with all trains on the Grand Trunk, and the number of loaded cars leaving there each day is surprising. One day recently they turned out sixty-two cars heavily loaded, principally with railway ties.

The Collingsby, Ont., flour mill is undergoing repairs.

Canada will have about 5,600,000 bushels of wheat for export.

Mr. Thos. Elliott is improving his mill property at Hampton, Ont.

The Virden mill, N. W. T., is now running full power night and day.

The Roman Catholic mission authorities are erecting a grist mill at Lac la Biche, N. W. T.

The Ogilvie Milling Co. will erect an elevator at Griswold, in the Northwest.

P. Barclay, of the Birtle, Man., stone flour mill, is giving up business.

The milling firm of Carsen & McIntosh, Pilot Mound, Man., will give up business.

A large amount of grain has been shipped from the elevator at Midland, Ont., this season.

Upwards of half a million bushels of grain were handled in one week at Kingston recently.

The new roller mill at Westport, Ont., will be in operation a fortnight hence.

A complete portable grist mill was shipped from Brantford to British Columbia recently.

The Atherston Mills at Port Newcastle, Ont., are now in full blast, with John Elliott as miller.

Seven thousand bushels of wheat are being marketed daily at Brandon, in the Northwest.

The grist mill at Milverton, Ont., has resumed operations after undergoing changes and improvements.

J. Stewart is now at work on the grist mill at Port Ellice, Man. The municipality gives a bonus of $2,500.

A large roller flour mill with which is connected a woolen mill will soon be in operation in Rapid City, Man.

The new grain elevator which was in course of erection at Boissevain, Man., collapsed and will have to be rebuilt.

Messrs. Taylor & White have purchased the Pilot Mound, Man., grist mill from Messrs. Carson & McIntosh.

Mr. W. Hastings has fitted up the drill shed at Crosshill, Ont., as a mill and is said to be doing a thriving business.

Tett Bros. lately started in operation their grist mill, at Bedford Mills, Ont., and are reported to be doing a fine business.

Mr. James Taylor is expending about $12,000 in repairs to the White Mills, at Whitevale, Ont., which he purchased last spring.

It is reported that the Erie & Huron Railway Co. will shortly commence the erection of a 240 000 bushel elevator at Sarnia, Ont.

The new elevator in connection with the Hudson's Bay Company's mill at Winnipeg, is completed, and is being rapidly filled with grain.

A correspondent writes that Mr. Robert Armstrong's new mill at Janetville, Ont., will soon be in operation and will be a great boon to the villagers.

The Alberta Milling Company will erect a grist and saw mill of forty horse-power each at Red Deer Crossing, Sask., this fall and at Edmonton next season.

John P. Davenport bookkeeper for the Fulton Grain and Milling Co., N. Y., has skipped over to Canada with $3.000 of his employers' money.

The citizens of Shoal Lake, in the Northwest, have passed the by-law to grant a bonus of $5.000 for the erection of a roller process flouring mill.

A joint stock company has been formed at Birtle, in the Northwest, for the erection of a grain warehouse. The work will be gone on with at once.

Winnipeg papers charge that the Canadian Indians have not only been fed on inferior flour, but have been made victims of short weights.

The mill at Morden, in the Northwest, which was closed down for want of water, has resumed work, a deep well having been put down.

The United Kingdom imported nearly sixteen million hundred weights of flour in 1885. This is three times the amount imported in 1875 and twice the amount in 1878.

Mr. Denne is adding new machinery and making extensive improvements in his mill at Newmarket, Ont., which, when completed, will give it a capacity of 250 barrels.

The frame of the Fort Lince, N. W. T., flouring mill has been raised to admit of new machinery which is on the way thither. The mill will have a capacity of seventy barrels per day.

Messrs. Cole and Cook have begun the erection of a hundred and fifty barrel grist mill and elevator at Wolseley, N. W. T. The municipality gives them a bonus of six thousand dollars.

Oak Lake, a station on the C. P. R., a short distance beyond Brandon, Man., has made considerable progress since Messrs. D. Moore & Son started their new roller flour mill there in April last.

Mr. Ley is rigging up the old flour mill at Moorefield, Ont., for the purpose of doing chopping for the farmers. The people of the neighborhood are trying to persuade him to put in rolls for grating.

The Portage la Prairie *Liberal* says the Assiniboine mills have secured a carload of Galt coal for the purpose of making an experiment in order to ascertain whether coal or wood is the cheaper to use in the mills. They have not yet decided but say that the coal is giving good satisfaction.

One of the best grain towns in Manitoba is Carberry, situated 105 miles west of Winnipeg, which has no less than five grain elevators and warehouses.

Wm. Brown, an experienced miller, is negotiating for the purchase of the Emerson, Man., grist mill. If his negotiations are successful he will fit up the mill in first-class shape and operate it.

A number of Illinois millers have lately sent to the Red River valley for shipments of No. 1 hard direct, claiming that what they received from the Minneapolis elevators was mixed with soft wheat.

The Grand Trunk Railway Co. are having plans drawn for a grain elevator to be built on their property, foot of Griswold St., Port Huron. The dimensions of the main building will be 58x161 feet.

The Birtle Grain Warehouse Co., just organized in the Northwest has elected John Walley as President, A. Doig and F. G. Lewis, directors, and G. S. Hallen secretary-treasurer. The work of building will be commenced immediately.

The roller process flour mill at Balmoral, in the Northwest, owned by Geo. Buckpitt, has received a bonus of $4 000 from the same municipality which granted a like sum to the mill at Stonewall.

During the week ending October 30th the price of wheat at St. Vincent, Minn., and Pembina, D. T., was 54 cents per bushel. At Emerson and Gretna, Man., the average price at the same date was 59 cents.

Ladley & Waugh's grain storehouse at Omemee, Ont., was destroyed by fire recently, with its contents, amounting to between twelve and thirteen thousand bushels of grain. The loss is covered by insurance.

The Manitoba and Northwest Railway have announced their intention of purchasing the purest of Red Fife wheat for seed and delivering it to farmers along the road at cost. No charge will be made for carriage to any of their stations.

Thos. Wallace has the contract to make the plans and rebuild the oatmeal mill of E. D. Tillson, of Tilsonburgh, Ont., on the American system. It will be the largest oatmeal mill in Canada, and will be the first to adopt the new process.

Two roller process flour mills have been erected during the past summer at the town of Moosomin, Assiniboia district. One has a capacity of 125 barrels per day, and will have an elevator in connection, the capacity of the other is 75 barrels.

The NEWS regrets to chronicle the death of Miller F. N. Haney, who was caught in the machinery in Haney's roller flouring mill at Dunnville, Ont., a couple of weeks ago, and fatally injured. He leaves a wife and two small children.

On the morning of Sunday, Nov. 7th, Mr. P. Sennett's grist mill at Lindsay took fire from some unknown cause, and being built entirely of wood, was altogether consumed in spite of the firemen's efforts. The building was insured for $2,000.

Messrs. McCaul, McNichol & Riley's grist mill at Moosomin, N. W. T., which has been inoperative for some time, has resumed operations. The firm intends to bring its grain from the east in car lots. It is expected that the mill will be running most of the winter.

St. Thomas *Journal*: During the month of October the Campbell Mills shipped 8,000 barrels of flour to the Maritime Provinces. During the same month they purchased at their mills here, over 60,000 bushels of wheat, at prices ranging from 70 cents to 72 cents per bushel.

Messrs. F. Merner & Co., are putting a new water-wheel and other machinery into their flouring mill at New Hamburg, Ont. Mr J. Bowman, late of Blair, has charge of the mill, and under his efficient management and with the new machinery the mill will take first rank.

The Canada Atlantic Railway Company has made arrangements to hire 500 American cars to be used in the transport of foreign grain from Chicago to Owen Sound, thence to Boston via Ottawa and the Canadian Pacific Railway. This route is eighty miles shorter than any other.

The Ogilvie Milling Company are at present shipping dozens of carloads of flour from Manitoba to Masawa, North Bay, Du Riviere and Sudbury for consumption by the shanty men. The contracts were made with Ottawa lumber firms, which have depots established at those places.

Mr. A. Mitchell, the Montreal grain buyer, has issued a circular stating that he is prepared to buy wheat at all stations on the line of the Canadian Pacific and the Manitoba and Northwestern Railways, delivered at the Port Arthur and Fort William elevators. The freight from places of shipment will be defrayed by him.

The town of Virden, in the Northwest, has two large elevators, and a roller flour mill capable of turning out 100 barrels daily. The mill was first put in operation early last spring by Willing & Dier, but it has since passed into the hands of Koester, Craig & Co., who will operate during the fall and winter to the full extent of its capacity.

According to the November report of the Ontario Bureau of Industries, wheat, barley, oats, rye and peas were reaped and housed in fair condition, and the final report of yield differs but slightly from the August estimate. The wheat crop is about 3,600,000 less than the average of five years, barley is only 50,000 bushels less and oats is 3,530,000 more. Rye is diminishing in breadth and yield.

Mr. Edwin Carswell, of Nicola Lake, British Columbia, Henry Woodward, and Mark Rulledge, have purchased from Mr. Geo. Fensome his saw mill, grist mill, three dwelling houses and 917 acres of timber land, together with shingle mill, turning lathes, trucks and sleighs, all in good working order. The saw mill has a capacity of six thousand feet per day. The sum paid was $12,500. Mr. Carswell, who has for five years been engaged by Mr. Fensome as head miller in the mill, and boss sawyer in the saw mill has been appointed manager of the new company, which will hereafter be known as the Nicola Milling Company. Mr. Carswell was formerly a resident of Oshawa, Ont.

The shipments of wheat from the Australasian ports, in October, were nil, and those of flour only 100 tons; in the 10 months ended October 31, only 50,000 qrs of wheat have been exported, against 1,057,000 qrs last year, and 1,200 tons flour, against 4,200 tons last year. The outlook for the new crop is, however, sufficiently favourable to lead to the hope that next year will witness increased exports.

The following was recently pinned on one of the bulletin boards on 'change in Chicago:

There's one thing in wheat that I can't understand,
'Tis this, that when cables are strong,
And I buy, (or when weak, and I sell) that I find
The transaction is most always wrong!

The Wentworth oatmeal mills at Dundas, Ont., owned by Mr. John Wilson, were almost destroyed by fire on the morning of the 27th ult. The fire was discovered about 5 a. m., proceeding from the oatmeal kiln, where no doubt it originated. It had been burning for a considerable time when discovered. The whole building was gutted, the machinery and contents being almost completely destroyed. There was very little insurance on either the building or contents.

Mr. Tillson's new oatmeal mill at Tilsonburg, Ont., will be 127x40 feet on the ground, and 74 feet high from the ground to the roof. The main building will tower five stories above the ground, and the elevator, which will have a capacity of 75,000 bushels, will be still higher. The capacity of the mill will be 250 barrels of oatmeal per 24 hours—about twice the capacity of the old mill. A feature of the building is its substantiality. The walls are 30 inches thick at the base and 18 inches at the top, and the timber work is all very massive.

On the night of the 27th ult., a fire broke out in elevator "Q" at Duluth, communicating soon after to the newly erected annex to elevator "A" and finally to elevator "A" itself, destroying both buildings. Elevator "Q," owned by the Duluth & Western Elevator Co., was valued at $130,000 and contained 400,000 bushels of grain. Elevator "A," owned by the Union Improvement & Elevator Co., was valued at $125,000 and contained 350,000 bushels of wheat, 112,000 bushels of corn, and 11,000 of flaxseed. The total loss will be about $850,000. Out of four men who were in the elevator, only one escaped.

The Montreal *Star* says the firm of A. W. Ogilvie & Co. are now in correspondence with firms in Cuba concerning shipments of flour to that country, and there is every appearance of a large business being transacted. Shipments will be made via New York during the winter and direct in summer. Being asked as to whether flour shipped to those hot climates had to be manufactured during the hot months here, Mr. W. W. Ogilvie said it made no difference; wheat could be ground here at any time of the year, and the flour immediately shipped if necessary. This was due to improved milling processes. This new opening of trade is due to the Spanish treaty recently ratified between Great Britain and Spain, by which Canada comes in also under the most favored nation clause.

Vancouver (B. C.) *News*: "Mr. W. W. McMillan, owner of the large flouring mills in Winnipeg, Qu'Appelle and other places in the Northwest, arrived in the city on Tuesday and sojourned at the Burrard hotel. During his stay in this neighborhood he disposed of eight car loads of "McMillan's strong baker's flour" at rates as low as those supplied by the Oregon flour mills. It is claimed that this flour, which is manufactured from "No. 1 hard" Manitoba wheat, will produce twenty loaves per barrel more than the Oregon flour. The lowering of the freight rates on the C. P. R. is permitting the flour turned out from the Northwest to be brought to this coast and to compete with our neighbors across the boundary." In this connection it may be stated on authority of prominent C. P. R. officials that the Company is now considering a scheme to give Manitoba millers a further reduction in rates with a view to securing for them the British Columbia trade.

The present season has been one of unusual activity in the grain carrying trade in Canada. Over 9,000,000 bushels of grain have so far, this season, passed over the Northern & Northwestern railway alone, and the other roads have done correspondingly as well. This amount includes through as well as local grain, the greater bulk being through grain from Chicago and Duluth. A prominent railway official, who comes in direct contact with this trade, asserts that this has been the best season in through grain for the past ten years. This he attributes to the interest awakened among American grain shippers in Canadian seaports as points for the shipment of grain for export to Europe. He states further that the Canadian lines can compete favorably with the American trunk lines in this trade, despite trouble entailed in bonding through American grains at Canadian ports, and were those troubles and restrictions removed the greater bulk of grain from the Western States would pass through Canada.

Speaking of the new flouring mill in course of erection at that place, the Moosomin, N. W. T., *Courier*, says: The building of this mill which has been delayed some two months owing to unforeseen circumstances, has commenced again this week. The building is nearly completed, and rollers and all other machinery connected with the patent roller process is expected to arrive in about a fortnight. The engine is set and the boiler placed in position, also the purifiers (3) and wheat cleaning machinery are set in their respective places. Mr. Jas. Miller, who is superintending the work, is having the machinery placed in such a manner that the capacity of the mill can be raised to 150 barrels per day without moving any of the present machinery out of its original place, he expects to have the engine house erected in a few days, and calculates the mill will be in running order in about six weeks from this date, so that it will be opened about the beginning of the new year. For the benefit of farmers and others interested in this district, we may say that the mill will be hurried on to completion as speedily as possible.

Although the movement of grain through the Welland canal and the St. Lawrence route shows an improvement as compared with last year, it is apparent that only a small part of the grain crops of the west are finding their way to the seaboard through that chan-

The total grain receipts at the port of Montreal from the 1st of January last to date were 14,386,481 bushels against 10,406,724 bushels during the same period in 1885. This shows an increase of 3,979,757 bushels or 38 per cent. in receipts of grain during the year as compared with 1885. Shipments during the present year have reached 13,953,783 bushels or 96 per cent. of the receipts, against 9,158,452 bushels or 83 per cent. of the receipts of 1885. This shows an increase of 3,979,757 bushels or 38 per cent. in receipts, or 52 per cent. in shipments during the present year as compared with 1885. Notwithstanding the fact that there has been considerable increase in the movement of grain from the western states via the St. Lawrence route, forwarders are complaining that they are getting a very small proportion of what is being shipped east as compared with former years, and are urging the Dominion government to deepen the canals and remove the tolls now imposed. Until this is done they say they cannot compete with American routes.

Since the opening of the Canadian Pacific Railway up to within a few weeks ago an occasional consignment of Manitoba flour found its way to this coast and to Victoria. At first the rates for transporting the staff of life 1,700 miles across continent were believed to be such as to prevent any satisfactory or extensive trade being done. It is now learned that the Canadian Pacific Railway has conceded such rates to the Winnipeg millers as will enable them to compete successfully with either those of Oregon or California. The quality of the Manitoba article is claimed to be so much superior to that of the American production that bakers here already have taken a decided fancy for the "strong bakers' manufactured by the Messrs. Ogilvie, of Winnipeg. The traveller of that company, while in this city last week, was successful in placing several car loads of his different grades with dealers in Victoria and at other points throughout the province. It is confidently claimed by the Winnipeggers that once their flour is known it will take precedence over all others. Be this as it may, the opinion of those in this city who have tested the Northwest article is decidedly strong in its favor, but the Oregon millers are not to be so easily vanquished, and it is certain they will not surrender the gold without a struggle.—*Victoria Times.*

TRADE NOTES

R. & G. Black, of Thurso, Que., have purchased one of Wm. & J. G. Greey's cylinder cockle machines.

Mr. Alex. Frier, Omemee, Ont., is adding to his mill middlings purifiers manufactured by Messrs. Wm. & J. G. Greey.

Mr. Samuel Campbell, Carlisle, Ont., is putting in additional rolls, supplied by Messrs. Wm. & J. G. Greey.

Mr. L. L. Sage, London, Ont., has ordered separator and other furnishings from Messrs. Wm. & J. G. Greey.

Messrs. Morton & Fennell, Charlottetown, P. E. I., have purchased a Eureka smutter from Messrs. Wm. & J. G. Greey.

J. Fidt, Mildmay, Ont., has placed his order for bolting cloth, iron-work and rolls, with the Geo. T. Smith Co., of Stratford, Ont.

The Geo. T. Smith Co., of Stratford, Ont., have received an order for an improved flour packer from J. E. Ratz, Gad's Hill, Ont.

Mr. T. W. Barnes, Kemptville, Ont., is improving his mill, and has ordered centrifugal reel, &c., from Wm. & J. Greey, of Toronto.

Mr. C. F. Stackhouse, Peverill, Que., is overhauling his mill. Messrs. Wm. & J. G. Greey furnishing the additional machinery, shafting gears, &c.

Isaac Willan, Blytheswood, Ont., has purchased from Messrs. Wm. & J. G Greey, one double set rolls, one purifier, and one centrifugal reel.

The Geo. T. Smith Co., of Stratford, Ont., have received an order for one No. 0 Smith middlings purifier, for N. Dunlop, Arkona, Ont.

The Geo. T. Smith Co., of Stratford, Ont., have sold to Messrs. Heimbecker & Zeigler, of Hanover, Ont., one No. 2 Smith centrifugal reel; also bolting cloth.

Messrs. Inglis & Hunter, Toronto, and John McLaren, Renfrew, have lately purchased improved motion indicators from Messrs. Wm. & J. G. Greey.

Mr. V. Denne, Newmarket, Ont., is improving his mill and is adding one double 9x30 roller mill and other machinery, furnished by Messrs. Wm. & J. G. Greey.

The Geo. T. Smith Co., of Stratford, Ont., have received an order for one double 9x14 Noiseless Belt Drive Roller Machine from P. & J. R. Howard, Hagersville, Ont.

Mr Geo. Easterbrook, Tweed, Ont., has ordered from Messrs. Wm. & J. G. Greey, a Kuhlman automatic scale and other furnishings for his mills and elevators.

The Geo. T. Smith Co., of Stratford, Ont., have booked an order for three No. 1 Smith middlings purifiers and one No. 0 gem aspirator, for the Portage la Prairie Milling Co., Manitoba.

Messrs. Robert Muir & Co., of Winnipeg, have ordered from Messrs. Wm. & J. G. Greey, for Mr. C. P. Brown, one double set of rolls, one No. 2 purifier, one centrifugal reel, scalping reels, &c.

Messrs. Hawkins & Westlake, Aurora, Ont., have placed their order for one No. 0 Smith middlings purifier with Printz dust collector on the same, and iron-work, with the Geo. T. Smith Co., of Stratford.

Mr Isaac W. W Plewes sold during the last month to Mr. C. F. Courtnage, Hartford, Ont., one of his new patent bolting reels, a description of which appeared in the MECHANICAL AND MILLING NEWS for November.

Mr. W. B. Bragg, Rockwood, Ont., sold a few days ago to Mr. A. Groves, Fergus, Ont., a 9x24 3-High Monitor Roller Mill for chopping, and contracted for its erection and to supply the necessary elevators, separator, magnets, belting, &c. The mill will be in operation about 1st Dec.

Mr. E. Colston Bennett, Mountain Chute, Co. Argenteuil, Que., is erecting a 2-bin grist mill with an improved system of bolting, purifying, &c. The entire outfit is from the establishment of Messrs. Wm. & J. G. Greey, of this city.

Mr. Wm. Bell, Lefaivre, Ont., has ordered supplies from Wm & J. G. Greey for the new mill which he is now erecting, situate on the Ottawa River, opposite Montebello, on the C. P. R. Mr B. Wilkinson, of Ottawa, is the millwright.

Wm. & J. G. Greey have closed a contract with Mr. T. H. Wyman, of Hawkesbury, Ont., for a new mill of 125 bbls. capacity on the roller system, and an oatmeal mill adjoining. Plans have been prepared under the supervision of Mr. Lawrie.

Messrs. Robert Muir & Co. of Winnipeg, have placed an order with Messrs. Wm. & J. G. Greey for a 100 barrel roller mill outfit for the Shoal Lake Milling Co., consisting of separators, smutter, rolls, scalpers, bolting chests, packer, dust collectors, hopper and other scales.

The Geo. T. Smith Co., of Stratford, Ont., have contracted with Wm. D. Spence, of Guelph, for a dynamo, lamp and wires, to be used in lighting their shops. They will use the Ball system. The Company have been running their shops over time for three months on orders, and feel that they need more light.

Mr. Frank Merner, of Hamburg, Ont., is putting in a water wheel and changing his mill to the complete roller system. Messrs. Wm. & J. G. Greey, of Toronto, are supplying the rolls, centrifugals, aspirator, and all the furnishings required in the change. Mr. W. S. B. Lawrie will supply the programme and Mr. Merner will superintend the millwright.

LUMBERING

Summers, Smith & Summers, lumber dealers, Toronto, have assigned in trust.

There are about 150 planing mills and other shops making wood finishing materials in Chicago.

J. G. Oliver's saw mill at Battleford, N. W. T., together with some lumber near by, was burned recently.

It is estimated that nearly 10,000,000 feet of lumber will be required at Duluth for elevator building before next fall.

Dick, Banning & Co. will cut three million feet more lumber this winter than last in the Lake of the Woods district.

H. G. Wall's steam saw and shingle mill was burned at Bayfield, N. B., on Oct. 28; loss $1,509. He intends re-building.

Fraser & Co.'s saw mill at Edmonton, in the Northwest, has been closed for the season, after cutting 270,000 feet of lumber.

The Wm. Cane & Sons Mfg. Co., of Newmarket, Ont., recently offered Mr. John A. Sharpe, of King township, $1,000 for fifty-eight pine trees.

Mr. J. R. Booth, of Ottawa, has purchased the interest of Messrs. Barnet & Mackie, in six limits in the Nipissing district, the price paid being $270,000.

W. H. Fraser, late of the firm of Gatliff & Fraser, lumber dealers, Emerson, Man., has gone to Edmonton, where he will go into business with his brother in the saw mill.

On the 19th Oct. at Carswell & Co's mill, Calabogie, Ont., there was cut 100,000 feet of lumber. The gang only carries twenty-one saws thirty-four inches long, with a stroke of twelve inches.

A fire broke out in the extensive lumber yards at Deschenes, Que., on the 5th of November, which destroyed the workshops. The mills were saved through the exertions of the firemen from Aylmer and Hull.

Mr. Dovey's saw mill at Kinmount, Ont., was totally destroyed by fire a fortnight ago. The loss amounts to about $8,000; insurance, $3,000. Through the exertions of the villagers the engine and boiler and a quantity of lumber were saved.

The Ontario Bank are announced as having gone into possession of the lumber business of W. J. Trounce & Co., Port Perry. The bank claims something like $100,000. A settlement that will allow the business to go on is being arranged.

White pine is sent out from Michigan to Germany, manufactured into picture mouldings there, and reshipped to America, perhaps to ornament a picture in the very state in which the wood grew. It is stated that white pine is the only wood that will successfully withstand an ocean voyage in the shape of picture mouldings.

All efforts to get the monster raft at South Joggins afloat, says the Albert, N. B, *Maple Leaf*, have failed so far. Those who are interested in coasting vessels and the preservation of our lumber are undoubtedly pleased at the failure and hope it may prevent further attempts in the same line, but it is doubtful if such will be the case.

Reports from Ottawa state that the lumbering season is just closing, the mills being engaged in working up the last of their stock of logs. The season has been a good one in almost every respect. The output has been large, estimated at considerably over 800,000,000 feet, not including some four or five million feet of square timber. Prices have been fairly good and sales easy to be made, the demand being steady. One of the largest firms state that not only have they sold all of this year's cut, but they have contracted for the whole of next year's output as well. This is not an isolated instance either, as probably two-thirds of next year's cut has already been sold.

The Mississippi Valley *Lumberman* says:—The political contest in the state of Minnesota, which culminated on Tuesday, the lumber fraternity as such, have but little of special importance to them involved outside of the sale of 6,000,000,000 feet of timber in Minnesota, to the Canadians at Government prices $1.25 and a perjurer's oath per acre.

Lumber for sounding boards of instruments is very carefully selected, and air-seasoned for about a year, with six weeks of subsequent kiln-drying in a dry-house at a temperature of not over 120° F. This slow process of drying is necessary for all sounding lumber. After the lumber is planed and edged it is carefully assorted, matched and glued into boards of an average size of four by five feet. The entire board is generally planed three-eighths thick.

The Douglas fir, or "Oregon pine" of British Columbia, grows to a height of some 270 feet, and the trunk is not only very valuable for ordinary lumber, but has a special usefulness for ships' masts and spars, of which cargoes are made up for all parts of the world. Among the ports constantly supplied direct from British Columbia are Marseilles, Sydney, Hong-Kong, Calcutta, besides the naval dock-yards of Great Britain.

Michigan and Canadian lumbermen will be interested in the fact says the *Lumberman's Gazette*, that plans are being made for the deepening of the channel of Niagara river from Buffalo to Tonawanda to 18 feet. There is barely 14 feet at present and the channel is so circuitous that the passage of vessels heavily laden is attended with difficulty and danger. Though it has often been desirable to load boats bound for Tonawanda more deeply than is the present custom, the narrowness and shallowness of the course has deterred owners and shippers.

Lumbermen who have lost largely by the staining of lumber, says the *Lumber World*, will be interested in a simple preventive said to be successfully employed by the Peninsular Lumber Company at Dollarville, Michigan. According to report they lay the bottom boards in the pile as tightly together as possible and sprinkle them liberally with lime. Between the courses lime is freely used. The theory is that the fungus, which is thought to cause the stain, is killed by the lime. This firm manufacture 6,000,000 feet of lumber annually, and during the season the cost of lime was only $150, and they have had no stained lumber. The method is worth experiment.

Somebody thinks that he has discovered that the use of the band saw increases the fire risk by producing saw dust of such fineness that it fills the atmosphere of the mill and is liable to produce explosions and fires by coming in contact with the flame of lamps, &c. This is bad, if true, but it is known or said that wheat dust and iron filings are inflammable and explosive and roller mills are more exposed than the old fashioned burr mills. Nevertheless the roller mills are sweeping the field and the drilling and filing of iron continues apace. The band saw will not mind a little thing like dust and frequent conflagrations. It has come to stay and those who use it will employ the needful precautions if it increases the risk of fire.—*Lumberman's Gazette.*

A case which involves some very interesting points promises to come before the Ottawa courts shortly in connection with the sawdust nuisance in the Ottawa river. The complainant, Antoine Ratte, is a well-known boatman, who purchased property on the Ottawa 22 years ago with the view to make a profitable living out of the renting of boats, &c. Had the river remained in the same condition he claims that he could have more than doubled the value of his property and capital. The saw mill industry, however, has killed off boating, polluted the water and turned the beautiful stream into a stretch of sawdust, slabs, laths, &c. Ratte says his business has been ruined thereby, and claims $74,300 as compensation. He threatens that unless this sum is paid he will enter a suit for damages against the mill owners.

It is reported from Minneapolis that a syndicate of Canadian lumbermen, with partners in Minnesota, have acquired the title to about five hundred million feet of pine timber in North-western Minnesota, and are arranging to gobble up the rest of the vast timber belt on the Northern Slope, an area including about one-half of the entire State. It is charged that the clause in the Sundry Civil bill providing for a commission to treat with the Indians now occupying these lands for their removal to the White Earth agency was secured directly in the interest of this Canadian syndicate. Colonel Walker, a prominent Minnesota lumberman, says that if these treaties should be made and confirmed, ten million dollars' worth of Indian pine will certainly go into the hands of a foreign syndicate, and fifteen million dollars' worth of lumber that Dakota and Minnesota will shortly need will be owned by the same pool.

MR. W. D. COOK, of the Bell Farm steam roller flouring mill, Indian Head, N. W. T., writes: "Please find $1 enclosed for the MILLING NEWS. It is a good paper, and a good paper to advertise in, but I would like to see millers take a greater interest in it by putting in it any new ideas that they may get hold of." Perhaps our Northwest friend will set conservative millers in Ontario a commendable example in the matter of exchanging ideas.

ARNOLD'S NEW STEAM ENGINE.

THE MECHANICAL AND MILLING NEWS takes pleasure in presenting to its readers this month an illustrated description of a new steam engine recently invented by Mr W. S. Arnold, of Chatham, Ont., and which differs very materially from any of the engines at present in use. So far as the working piston and crank are concerned, this engine is constructed exactly the same as an ordinary engine. The cylinder differs in the fact that the heads are not bolted on, but are like the working piston, with metallic packing that will make them steam tight. The admission valve is a flat plate, and has no exhaust cavity whatever, so that it can only control the admission of steam. The exhaust is opened and closed by the two pistons forming the cylinder heads, which are externally connected.

As the working piston moves forward from the commencement of its stroke these two heads move at the same time and in the same direction, for a portion of the stroke, and in doing so the one behind the main piston covers the exhaust port while the one in front uncovers one. These heads are driven by a small double crank (*l*) which receives its motion from a cam attached to the shaft. When this crank has made a half turn it stops on the center and remains in that position until the remainder of the stroke is completed. The throw of the heads is about one-eighth of the stroke, and steam is admitted at that point; the exhaust at the opposite end being open and remaining so until the commencement of the return stroke.

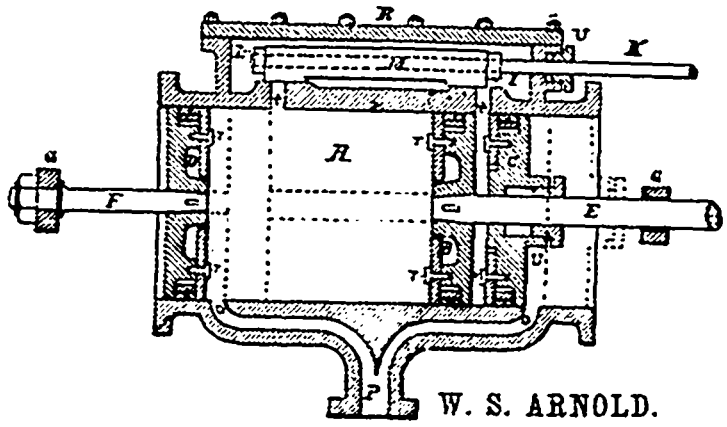
It will be noticed, then, that about one-eighth of the stroke is made before admission begins, the object being to allow the crank to get to about the position in which the piston of an ordinary engine must be in order to start.

The claims made for the device are, that supposing steam of 100 pounds pressure were being used, and the cut-off with an old style of engine occurs very early, then the point of maximum pressure is passed before the crank gets into the position where the exertion upon it is most effective; whereas with this device the pressure is the highest where it has the most effective purchase upon the crank.

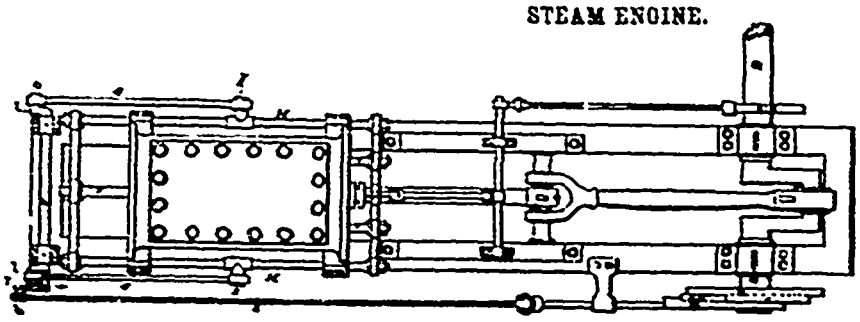
As to the remaining details of the construction, it will be seen by reference to the cylinder section that the back piston has a rod projecting back for a distance sufficient to clear the back of the cylinder when the head is at its extreme inward travel, and is attached to a crosshead connected with the external rods coupling the two heads. The front head has two such rods and is also furnished with a stuffing box and gland through which the main rod works. The connecting rod, crank, crosshead and other main connections, including the valve gear, are in all respects, except the valve itself, exactly like those of an ordinary engine.

In ordinary practice, steam entering cylinder partakes of the nature of a shock, and the higher the rate of expansion the greater the evil simply because it has no power to rotate the crank, but will force crankshaft over to opposite side of main bearing, and, if there is any looseness, so that it can ram, there is danger of a breakdown. With the new engine it is different. The crank is in position to recede from force of steam and there is nothing of the nature of a shock. The pillow blocks with all other parts are relieved from that excessive strain at beginning of stroke. Between initial and terminal pressure there is a wide range of temperature. With the ordinary engine, the first portion of the stroke the piston moves very little while the crank is making quite a travel. Here is where a good portion of the time is taken up, and hot steam is held in contact with cylinder surface much colder than entering steam. With this engine the time is shortened so that the waste of heat cannot be so great. After the steam has pressed the piston to end of stroke, the small remaining pressure is utilized to assist in moving cylinder heads. There being no compression on this engine, all the force of steam is used to push the machine ahead.

Mr. Arnold has secured patents in Europe and America for his invention, and has had an engine after this pattern built by Messrs. J. F. McKough & Co., of Chatham, which, on being tested, is said to have worked satisfactorily.



W. S. ARNOLD.
STEAM ENGINE.



ARNOLD'S NEW STEAM ENGINE.

The Ontario Car Works have received another contract from the Canadian Pacific Railway for ten flat cars. The company have just finished a large consignment of passenger cars for the Manitoba and Northwestern Railway.

FLOUR AND MEAL INSPECTION.

The annual meeting of the delegates of the Board of Examiners of the Dominion for flour and meal, took place on Nov. 3rd at the rooms of the Montreal Board of Trade. The following delegates were present:—From Toronto, W. Galbraith, W. Stark, and J. M. Peer; London, C. B. Hunt, James Slater, and J. D Saunby: Ottawa, William Scott; Quebec, Thomas Brodie, F. Kerouac, and John Gross; Montreal, Edgar Judge, H. Labelle, and A. E. Gagnon. On the motion of Mr. F. Kerouac, seconded by Mr. J. M. Peer, Mr. Edgar Judge was unanimously chosen chairman. Mr. Geo. Hadrell, Secretary of the Montreal Corn Exchange Association and of the Board of Trade, was appointed Secretary. The Examiners next proceeded to the work of selecting the standards of flour and meal for the coming year, the object for which the meeting was called, in accordance with the Dominion Inspection Act.

The following resolutions were adopted:—

Resolved,—That inasmuch as the system of making flour has been materially changed by the introduction and use of rollers in its manufacture, it has become necessary to make provision for the grading of such flours. This Board, therefore, recommends that the Inspection Act be so amended as to allow roller flours to be graded, and that the grades be as follows:—Patent winter wheat, spring wheat, patent, and straight roller. And further, that inspection by sample should be permitted, the inspector using samples instead of graded samples, and simply inspecting for regularity, weight, and soundness.

Resolved,—That the Government be asked to amend clause 34 of the Inspection Act so that the designations of different qualities or descriptions of flour shall be as follows:—Patent winter wheat, patent spring wheat, straight roller, strong bakers', extra, superfine.

A SUBSTITUTE FOR WOODEN RAILWAY TIES.

A new and important discovery has recently been made in Russia, in the substitution of ozokerite for wood in the manufacture of railroad ties Ozokerite is a yellow vegetable wax of fibrous structure and wonderfully light specific gravity. It is found in great quantities in Austria, Moldavia, the Caucasus and the Caspian sea. In its natural state it will melt rapidly. It is extensively used in the manufacture of ties for the Transcaspian Railway, now in course of construction between Oschabat and Merv, in the province of Turkistan. A portion of the route traverses a treeless waste near the shore of the Caspian sea. Kyra, the local name for ozokerite, is found there in thin layers of seven-inch thickness. In its primitive state, it contains a certain percentage of decayed matter. To remove this, the ozokerite is melted in large caldrons, the refuse sinks to the bottom and the pure ozokerite collects to the top. This purified ozokerite, melted and mixed with 75 per cent. of fine gravel, gives a very good asphalt, which is pressed in boxes shaped like railroad ties. Notwithstanding the high temperature, which reaches 48 degrees R. (140 degrees Fahr.,) the ties retain their shape and hardness. These asphalt ties are used all along the road, except at the ends and centre of every rail, where as yet wooden ties are employed. In this way about $800 a mile is economized.

USEFUL INFORMATION

A LOOSE PULLEY LUBRICATOR.—A new lubricator for loose pulleys has been devised and consists of a font or reservoir completely surrounding the hub of the loose pulley or drum and coupled to it for the purpose of revolving with it. The font is constructed with a scoop that is submerged at every revolution of the hub and thus ejects the lubricant into a channel of the latter.

A FUSIBLE ALLOY.—A new alloy, melting at the low temperature of moderately hot water and considerably below that at which the magic spoons of long ago were fused in a cup of tea, consists of 48 parts of bismuth, 13 of cadmium, 19 of lead and 20 of tin. It resists considerable pressure and is especially adapted to many important uses.

It is well known that iron screws are very liable to rust, more especially when they are placed in damp situations. When they are employed to join parts of machinery, they often become so tightly fixed that they can only be withdrawn with considerable trouble—a fracture sometimes resulting. In order to avoid this inconvenience, screws are generally oiled before being put in their places, but this is found to be insufficient. According to the *Moniteur Industrielle*, a mixture of oil and graphite will effectually prevent screws from becoming fixed, and, moreover, protect them for years against rust. The mixture facilitates tightening up, is an excellent lubricant, and reduces the friction of the screw in its socket.

The statement that a 12x12 inch beam, built up of 2x12 plank spiked together, is stronger than a 12x12 inch solid timber will strike the novice as exceedingly absurd. Every millwright and carpenter knows that it is so; at least he has been taught to believe that it is so, whether he ever tested it by actual experience or . The inexperienced will fail to see why the timber will be stronger simply because the adjacent longitudinal portions of the wood have been separated by a saw, and if this were the only thing about it, it would not be stronger, but the old principle that a chain is no stronger than its weakest link comes into the consideration. Most timbers have knots in them, or are sawed at an angle to the grain, so that they will split diagonally under a comparatively light load. In a built-up timber, no large knot can weaken the beam, except so much of it as is composed of one plank, and planks in which the grain runs diagonally to the outside cut will be braced and strengthened by the other pieces spiked to it having the grain running in a different direction.

An eminent German physicist recommends for the extinguishment of fires in closed places where the use of water and other liquids would be likely to do great damage, a dry compound, which, by its burning, absorbs the oxygen and quickly renders combustion impossible. The compound is composed of powdered nitrate of potash (saltpetre), 59 parts; powdered sulphur, 36 parts; powdered charcoal, 4 parts; colcothar (brown-red oxide of iron), 1 part. This preparation is one that can be cheaply made. It is recommended that it shall be, when thoroughly dried and mixed, put up in tight pasteboard boxes, holding about 5 pounds each, with a quick fuse in the side of the box—protruding 6 inches—with four inches inside—to facilitate and insure lighting it.

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.

LUBRICATING OILS.—The question as to what kind of oil is the best for lubricating journals depends largely upon what the pressure is. In journals where the pressure is not more than 200 to 300 pounds per square inch a light fluid oil is preferable. In cases where the pressure runs up to 1,000 or 1,500 pounds per square inch a much heavier oil or grease is preferable.

Steam as compared with water occupies 1728 times as much space. A cubic inch of water will make 1728 cubic inches of steam at atmospheric pressure. Now if this steam is compressed into half the space it occupies at atmospheric pressure it will be double that pressure or 15 pounds above the atmosphere; it will then occupy only 864 cubic inches. If reduced again to half its volume it will occupy 432 cubic inches and will have 30 pounds pressure. Reduced again to half the volume the steam will occupy 216 cubic inches, and will have 60 pounds pressure to the square inch. We can go on reducing in this way until we find that a cubic inch of water turned into steam and compressed into a space of three cubic inches will have the enormous pressure of 3840 pounds to the square inch.

In the construction of fireproof buildings, a difficulty has always been to find a cheap and incombustible floor. It has been suggested that this trouble may be overcome by placing a layer of ashes, 2 in. or 3 in. thick, in each floor. The ashes should be sifted and packed tightly between timber floors, which may then be destroyed, as far as the planks are concerned, without the fire being communicated from one floor to another. The estimated cost of this work is from 32/ to 40/ per square of 10 feet.

Metal in use undergoes curious changes in crystallization or arrangement of atoms. A saw running rapidly for a great length of time at last breaks "without any apparent cause," as the operator often puts it. Careful examination with a powerful microscope will reveal the cause of the breakage in the disarrangement of the atoms of the metal. The disarrangement at last becomes so great that it weakens the cohesion of the atoms, and under the strain they part.

Proctor's Points.

IN mechanical operations this Canada of ours is sadly in need of men—men that are true to the instincts and aspirations of their being, men who will make an effort to be better mechanics than their bench mates, men that will get away from the "good enough" *habit of* doing work intrusted to them, and understand that in mechanical operations, nothing is "good enough" that can be done better.

* * *

In the MECHANICAL AND MILLING NEWS for November, your correspondent, "Mechanic," touched upon this subject, and speaks of the superiority as a rule of American, over Canadian mechanics, claiming that American mechanics display more interest in their work, and in the methods of doing their work than do Canadian mechanics. Now, unfortunately for "Mechanic's" argument, this statement is not fully correct, because I think quite as large a proportion of New England mechanics fail to appreciate the importance of application and study in their work as of Canadian mechanics. The manager of one of our Canadian manufacturing concerns went to Boston, *Providence*, and New York not long ago, looking for some first-class mechanics, and was met every where with this statement, "It is a very *difficult matter* to get first-class mechanics in this country." One firm in Boston told him, "We are open to hire all the first-class mechanics we can obtain, at any reasonable wages ranging from $2.50 to $4.00 per day. Another manufacturer stated to him, "I guess you Canadians have an idea that all our New England mechanics are first-class mechanics, but the fact of the matter is, not one out of ten of our mechanics apply themselves so as to become really first-class workmen."

* * *

Quite a number of things can be learned by any mechanic in however crude a shop he may be employed, if he is willing to search for information and improve his stock of knowledge. The writer often finds mechanics in little country shops who are better posted than many workmen in shops with very much greater privileges.—This, however, may be said in favor of the mechanics who work in the larger manufacturing concerns of the country, that they are performing the same operation on the same machines and on similar castings, month after month, and therefore have not the same opportunity that workmen in smaller shops have, to get posted on the details of a number of lines of manufactured goods, and the best processes and ways of constructing them.

* * *

Nearly all the first-class mechanics who are foremen or tool men in the large shops, are the ones who began the battle of life in adverse circumstances, and especially in poverty and low wages, and the reason why they occupy the positions they now do while some of their bench mates who began mechanical life with them are still plodding away at the same wages from year to year, lies in the fact that the former determined to know all about what they were doing, and the best way of doing it, and became so useful to their employers, that they were only too glad to have their services in a higher position.

* * *

The writer remembers a mechanic who under particularly adverse circumstances, began his apprenticeship in 1881, whose employer, as an inducement to the young man to study, gave him gratis a copy of the *American Machinist*, and he began at once to study mechanical points. Chordal was then writing his very interesting notes for the *Machinist*; and our young friend in studying up Chordal's letters and other matters was not ashamed to ask questions when he did not understand. He undertook to master along the line of Chordal's suggestions, the relative proportions and advantages of a good engine lathe and studied on the matter night times until as he said to himself, "The lathe became to *him* not only as a whole but in every part and particular of its construction in detail, a regular nest of interrogation points." That young man to-day is the Mechanical Superintendent of a large machine works in the west, and is receiving $5.00 per day for his services, while two or three young men here in the City of Toronto that began their apprenticeship with him, and who had very much superior privileges and advantages, are still plodding away at $1.50 to $1.75 per day, and their wages probably fairly cover their value as mechanics to the firms who employ them.

* * *

It would be an excellent thing if the mechanics in any one of our towns or cities would form mechanical institutes for purposes of practical usefulness, and develop lines of mechanical knowledge, having one of their number give lessons of mechanical drawing, and so on. Of course, I quite understand that there are Mechanics' Institutes in quite a number of towns and cities over this country, but they are at present carried on so as to be of very little use to our young mechanics.

PROCTOR.

SHORT MILLING.

"X. Y. Z." writes from Michigan to the *Milling World* as follows:—In your issue of October 11 I noticed an article under the caption, "Short Milling in Ireland," stating that a Mr. McAdam had obtained letters patent for a system of stone milling which will give the same results as the roller process. I would like to tell him that his process is not new, at least to me. I have been practically acquainted with the same style of work for the past five and twenty years and have used it when I was obliged to, by competition with rolls or to get up a trade. At other times I did not think it worth while to bother with it. Still, it is a fact that it can be done easily. I have sometimes in a joking way told roller men that I could beat them with a millstone yet in spite of all their blow, and their answer has been: "You are behind the age," or "behind the light" etc." Of course, being but a working miller and having learned my trade across the Atlantic, I did not know anything much and so I let them have their own way. To prove my statement I shall describe in a few words my way when I use it. To grind I dress the buhrs thus:

I give them from 4 to 6 inches face on the skirt hollowing out the portion inside from one-fourth of an inch in the eye to nothing. See the diagram. Then the furrows I make as wide as the lands and sink them one-fourth of an inch for every inch they are wide. The principle involved is this, that by keeping the furrow as above you grind evenly and your chop is not mauled in its passage out, making dustings and rolling your bran up in the flour and pasting it all over. In a little custom mill with but two runs I have made an article fully up to straight grade flour and I can do it again any time. This knowledge I have kept to myself and used, as I before stated, when obliged to and not otherwise. Of course, it is understood that the cleaning machinery must be good and the bolting facilities up to the standard. Seeing what I had known and used for many years made the subject of a patent is my excuse for speaking.

[For the DOMINION MECHANICAL AND MILLING NEWS.]

THE LOSS BY CONVERTING WHEAT INTO FLOUR.

BY "ECONOMY."

Few, if any, millers have failed to notice that in the process of reducing wheat to flour, there appears to be a disappearance of substance, which it is almost impossible to account for. But as there is in nature no such thing as destruction of matter, the question arises: How is it that the total weight of the products of grinding, including screenings and sweepings, falls short of the weight of the wheat? I have often discussed this with millers and with milling experts. Some have told me there was no such thing as a loss, except such as occurred from the inaccuracies of weighing. Others say it is caused principally by evaporation of moisture. How much of this mysterious waste can be accounted for in this way I don't know, but certainly some of it can. Some again say it blows out at the mill doors and windows, and settles on all the machines, walls and rafters. In many cases this is true, and although the loss from any of these sources may seem very small, in the aggregate it amounts to a great deal. I am satisfied myself that I can grind a thousand bushels of wheat with less than five pounds of wheat unaccounted for. Of course to do that I must make sure that all machines are run empty, and every particle of dust caught. But it can be done. It has been done, and it can be done again if proper dust collectors are used. This gives a loss of less than one hundredth of one per cent., which can be attributed to evaporation safe enough.

The Geo. T. Smith Co., of Stratford, Ont., have an order from Messrs. J. G. Campbell & Son, Kingston, Ont., for a No. 3 Smith Centrifugal reel and a No. 1 bran duster.

GENERAL NEWS ITEMS

The annual production of the United States is about $8,000,000,000 and the loss by fire about $160,000,000.

In his last report on the chemistry of American cereals, Professor Clifford Richardson alludes to the immense amount of the best food elements of American soil which are yearly taken off and exported away. Much land is thus rendered permanently poor.

According to the *Echo*, Fort William is to be the iron centre of Canada, and in place of the old grain sheds of the C. P. R. large chutes will probably be constructed for shooting the ore into the hold of the vessels which will do the shipping trade of the Northwest.

The new St. Clair tunnel at Sarnia will be of brick, circular in shape, with walls 30 inches thick. It will have one track, and will be one mile in length, of which 2,300 ft. will be under the river, 1,600 feet under the ground in Canada, and 1,600 feet under the ground on the American side.

Conversation was recently carried on over the Bell Telephone wires between Toronto and Montreal, a distance of 350 miles. The result was fairly successful. If copper wires of a larger size were used it would be quite satisfactory. On such wires conversations between Boston and New York (230 miles) are successful every day.

The *Port Arthur Herald* says another event has happened in the mining world of considerable interest to the people of that district. This is the fact that some Cleveland iron operators have taken an option to the iron discovered by the McKellor Brothers. It is understood that the parties who contemplate making the purchase are considering the advisability of constructing a railway from the iron ore deposit to the C. P. R. at Savanne.

It is said that the crank shaft of the famous Confederate cruiser, the Merrimac, is now doing duty peacefully in a flour mill at Richmond, Va. After the vessel was sunk the machinery lay in the water for several years, but was raised in 1885 and the iron-work sold for scrap. The crank shaft bears deep evidence of its long immersion in the water of Chesapeake Bay, being badly corroded and pitted. This shaft is 15 inches diameter and 27 feet long and shows evidence of rather crude workmanship.

The New York *Chronicle* prints a record of 2,119 accidents (not a complete one) that occurred in the United States in the months of June, July, and August of this year. Of this number nearly one-half were fatal; and of the whole number 85 occurred in mills, factories, etc. The number of accidents from boiler explosions was 133. Of the classes injured, there were 59 engineers, 26 mill hands, two millers, and one mill owner (this classification is a little uncertain), besides 25 machinists and 21 mechanics. There is a lay sermon in these figures.

It has been sanguinely predicted that within five years the magnesium light will be as familiar a light in many places as the electric light is to-day. Only the high cost of magnesium has hitherto kept it from extensive use, and its price, which was $40 a pound a few years ago, is said to have been reduced to $8 a pound by a new German process, with the prospect of still further cheapening. A wire of moderate size equals the light of seventy-five stearine candles, making the cost at present but little more than that of gas, while no expensive works or street mains are required for its use. The magnesium is simply burned in lamps provided with clockwork movement to feed the ribbon of metal regularly. There is no danger as with electricity.

The opinions of Chas. S. Eschweiler, M. E., of Milwaukee, and Mr. Richard Crow, mine superintendent of the Beaver mine, both mining men of long and wide experience in this and other countries, are recorded in most favorable terms respecting the true veins to be seen in both the gold and silver portions of the Thunder Bay District. The present summer has witnessed a faith in these mines never before experienced, and the presence of capitalists and experienced mining men, who have all gone away well satisfied, and who will come again. It has also witnessed the display of our mineral resources at the Colonial and Indian Exhibition, which has done so much to bring the district into prominence as a mining field.

It is proposed to hold next year an art and industrial exhibition at Manchester in commemoration of the jubilee of Her Majesty's accession. The object of the exhibition will be to illustrate as fully as possible the progress made in the development of arts and manufactures during the Victorian age. A site has already been chosen at Old Trafford, adjoining the Botanical Gardens, which it is proposed to incorporate with the exhibition. The latter will cover in all about 32 acres, but it is understood that more ground can be covered if necessary. A special annexe, separated from the main by a roadway 70 feet in width, but connected with it by a covered fireproof gallery, will be devoted to the machinery in motion department.

American Machinist:—"If the increase in taxes in the large cities in this country continues as it has been doing, manufacturing in such places will in the main have to be abandoned. In many instances there are advantages in such locations, but as taxes work along up they more than neutralize these advantages as compared with other places where taxes are lower. There is scarcely a city in the country where the rate of taxation is not felt in the way of a burden to manufacturers. Competition is close and the profits are small; it is not to be expected that they will ever be as large as they were a few years ago. Manufacturers are obliged to look closely to their expense account, and when they find this swelled by a city level about equal to the current rate of interest, the prospect of competing with rivals located where the art of extreme taxation has not been learned is not encouraging. Prospective manufacturers will be more likely in the future to scan the tax levy of the city before investing money in manufacturing enterprise."

DOMINION MECHANICAL & MILLING NEWS

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BY

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ADVERTISEMENTS.

Advertising rates sent promptly upon application. Orders for advertising should reach this office not later than the 20th 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 ensure 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, 40 cents for one insertion, or 75 cents for two insertions. If over five lines, 10 cents per line extra. Cash must accompany all orders for advertisements of this class.

SUBSCRIPTIONS.

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

The price of subscription may be remitted by currency, in registered letter, or by postal order payable to C. H. Mortimer. Money sent in unregistered letters must be at senders 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.

MR. RICHARD QUANCE, a well-known miller, has received the Conservative nomination in South Wentworth for the Dominion Parliament.

IT is understood the Dominion Government has appointed John F. Wylde to proceed to the West Indies and report to the Dominion Government upon the best methods of developing trade relations between the West Indies and Canada.

BEFORE another number of the MECHANICAL AND MILLING NEWS appears, Christmas, with its many hallowed and joyous associations, will have come and gone. We therefore take this early opportunity of wishing our readers the compliments of the season.

STEAM users will find something to interest them in the improved patent furnace blower advertised this month by the Osborne Kilbey Mfg. Co., of Hamilton, Ont. The manufacturers claim that by the use of this blower a saving of 30 per cent. in fuel may be effected. This statement will bear looking into.

THE *Canadian Exhibitor*, printed and published at the Colonial Exhibition, London, reproduces from the MECHANICAL AND MILLING NEWS, the sketch of Mr. Thomas Cowan, of Galt, with the object, as it declares, of "showing the way in which young Canadians of humble birth rise to places of distinction."

THE people of the Canadian Northwest are dissatisfied with the slow rate at which immigrants are arriving in that country. According to the Dominion Government returns the immigration to the Northwest for 1886 amounts to only ten thousand. At this rate it would take half a century to settle the country, and there would be plenty of elbow-room even then.

A LAW that shall provide for the extradition of the army of U. S. defaulters who have found refuge in Canada, will be a good thing for both countries, but especially for the Dominion. Many honest, energetic Canadians, have gone to the United States and proved themselves valuable adjuncts to the prosperity of that country; while a majority, perhaps, of those who have come to Canada from the other side have been fit inmates for the penitentiary. Reciprocity of this kind is altogether too one-sided.

MR. WM. BARKER, No. 81 St. Francois Xavier Street Montreal, a gentleman well-known in business circles in that city, will in future represent the DOMINION MECHANICAL AND MILLING NEWS in Montreal and vicinity. Any favors accorded him will be duly appreciated by the publisher of this journal.

AT a meeting of manufacturers held in this city on the 30th ult., the effect of the Workmen's Injury Act and the Factory Act which recently came into operation in this Province, were discussed. The date at which the meeting was held prevents the publication in this issue of any further particulars concerning it.

MR. I. W. W. PLEWES advertised a new flour bolt in the November number of the MECHANICAL AND MILLING NEWS. As a result he has already received numerous enquiries regarding the machine from different parts of the Dominion, and a proposition from a gentleman in Quebec to purchase the right to manufacture in that Province.

"MECHANIC'S" remarks in our November issue anent the exchange of mechanical ideas, appear to have had a beneficial effect, judging from the contributions which appear under the heading of "Correspondents' Opinions" this month. It rests with mechanical men throughout Canada to make this department both interesting and valuable.

"PROCTOR'S" advice to young mechanics, which will be found in another column, to establish institutes in their respective cities and towns for purposes of mutual improvement along the line of mechanical knowledge, should be acted upon. In the years to come winter evenings thus spent will be found to have been far more profitable than those spent at the party or the ball.

FROM the Department of Agriculture, Ottawa, we have received a copy of a new and valuable treatise entitled, "Scientific Dairy Practice," by W. H. Lynch, Ottawa, Ont. It forms a valuable hand-book of practical and scientific information to farmers and others engaged in diary operations. Letters of enquiry and orders for this work should be addressed to the author.

THE local millers Association recently formed at Listowel, Ont., continues to meet with strong opposition from some of the farmers in the district in which it operates. The latter are endeavoring to make the millers abandon their purpose by threatening to form an association to boycott them in the purchase of wood and to build opposition mills. As yet these threats have not caused the millers to weaken, probably for the reason that there is little danger of them ever being put into practice.

INTEREST in the Prize Essay Department lately established in this journal increases every month. The number of competitors for the prize offered this month have been greatly in excess of the two previous months, and, what is equally gratifying, the character of the essays sent in are of a higher standard. We are encouraged in the belief that there is a large amount of valuable mechanical knowledge lying around loose in this country which eventually will be gathered up and presented to the public in these columns.

IN our October number, we expressed regret that a larger number of mill-furnishers did not exhibit at the Toronto Industrial Exhibition the previous month. One reason why manufacturers of mill machinery were not better represented, was the belief on the part of some of them that such exhibits do not pay. It may interest this class to know that many of the leading manufacturers of mill machinery who exhibited at the recent Minneapolis Exposition have testified publicly to the benefits derived therefrom. This should encourage Canadian mill-furnishers to have their goods on hand at the Industrial next year.

THE MECHANICAL AND MILLING NEWS feels itself deeply indebted to the press of the Dominion for the many courtesies of which it has lately been the recipient. The latest of these, from the Fort William *Echo*, reads as follows: The DOMINION MECHANICAL AND MILLING NEWS, published at Toronto, by Mr. C. H. Mortimer, is the latest and a most welcome addition to our exchange list. It is a handsome 20-page journal, printed on the finest paper, contains numerous illustrated articles and is in every way a model of typographical excellence, as well as a class journal of which every Canadian might well feel proud. We notice that it has entered on its seventh year of publication and starts out with a largely increased support. Good luck to the D. M. & M. NEWS.

MR. A. H. WHEELER, of Meadowvale, Ont., sends the MECHANICAL AND MILLING NEWS the following words of kindly appreciation and encouragement: "Please find enclosed $1, the amount of subscription for one year, and $1 as a "material expression" of the appreciation I entertain for your valuable paper, and sincerely hope that you may experience pronounced success in your praiseworty enterprise for the benefit of our trade." The extra dollar has been placed to Mr. Wheeler's credit on our subscription book.

A "STATIONARY ENGINEER" writes to the daily *News* of this city, bemoaning the scant remuneration which he and the class he represents receive for their services, and, as a remedy urges his fellow sufferers to form themselves into a union. If we might be allowed to suggest another remedy, it would be a complete mastery by the engineer of the duties of his position, coupled with the determination and energy necessary to their performance. As far as our observation goes, mechanical skill finds its reward as quickly in the engine room as anywhere else about the establishment.

A CORRESPONDENT of *The Miller*, London, Eng., writes to that journal as follows: "As I have a desire to go to Canada, will you kindly let me ask the question in your valuable paper as to price of labor, hours, &c." As we see no reply to this enquiry in the columns of our contemporary, and as it is one that will doubtless interest more than one English miller, we have undertaken to supply the information. Wages for head millers range from $600 to $1000 a year for the largest number, and from $1000 up as high as $4000 for a few mills of large capacity, such as those of the Messrs. Ogilvie, at Montreal, the latter being, of course, an exceptional figure. For second, or working millers, from $40 to $50 per month, with occasionally up to $60, is the thing. We do not think many second millers are working for less than $40. With regard to the hours of labor, two sets of men run a mill 24 hours, or when the mill is only working day time, 12 hours a day is about what men work. In the case of mills which do not run steadily the full 24 hours, the length of day is generally a matter of arrangement between employer and worker, long days when busy, and very short ones when not. In Minneapolis, the moment a mill shuts down—if only for a few days—the millers are laid off. In Canada that rule is not adopted, owners usually paying their men by the month, and finding something for them to do.

MANY people view with alarm the competition of India in the wheat markets of the world, and predict that it will be only a matter of a few years, when it will be impossible for farmers on this side of the Atlantic to raise wheat for export at a profit. Taking into consideration the immense character of the wheat-raising industry in the United States and Canada, its destruction would indeed be a national disaster. But we think a glance over the situation, and a little common-sense reasoning as to the probable outcome, will be sufficient to show that no such misfortune is likely to befall us. The quality of the Indian product and its condition when it reaches the market are such that it cannot hold a place alongside of American grain. It is a significant fact that some 600 tons of Indian wheat exported to Australia in September last had to be sold at a considerable loss to shippers. It was described as being full of weevil, and the bulk of it was sold for hog feed. Is it likely that the people of Great Britain and the continent, (than whom none are more particular regarding the quality of their food) will purchase flour made from such grain, even though it should be offered them at one-half the cost of the American article? The only way that Indian wheat is used is to mix it with American or European grain, and even then the flour can only be sold to a certain class of consumers. Then again, it must be remembered that the cheapness of production as regards wheat in India at present is largely due to depreciation in the value of silver, which cannot be expected to last, as shown by the fact that it has this year risen 10 per cent. It also appears that India has about reached the limit of her capacity to export, so that the increasing wheat exports from that country which have marked the last two or three years, must now stop.

AN OMEN.

A superstitious subscriber, says one of our exchanges, who found a spider in his paper, wants to know if it is considered a bad omen. Nothing of the kind. The spider was merely looking over the columns to see who was not advertising, so that it could spin its web across his shop door and be free from disturbance.

BOILER IRON GROWING BRITTLE.

IN a paper on steam boilers, read before the Scotch Institution of Engineers, the writer makes the statement that all qualities of iron get hard and brittle after the boilers have been at work more than a dozen years, more especially where exposed to the action of the fire; and that in the furnaces even Lowmoor iron becomes as brittle as common iron in that time, so that great care has to be taken in making repairs to prevent the plates from cracking. For this reason sixteen to seventeen years constitute a period long enough for a boiler to be in use at a pressure of forty to forty-five pounds, and if used longer the pressure ought to be lowered. Mention is made in this connection of two boilers which had been in use some nineteen years, and on being taken in hand for repairs were found to be so brittle that the rivet heads on the outside flew off when the inside heads were struck, showing that the rivets had deteriorated as much as the plates.

THE COMPOUND STEAM-ENGINE.

J. Richardson, in his paper on "The Compound Steam-Engine," read at the recent meeting of the British Association, stated that though there is no theoretical limit to the economy to be obtained by extremely high degrees of expansion, yet there are practical limits which are soon reached for non-condensing engines. In these the steam must not be expanded below the atmospheric pressure, or back pressure and waste of power are the result. To prevent this a very high initial pressure must be used, and, as with 140-pound boiler-pressure or 155-pound absolute, steam expanded 10 times leaves only ½-pound pressure in the exhaust, this is fixed upon as practically the most useful degree in non-condensing engines. Reference was made to the use of steam at much higher pressures—500 pounds and upward—and used in three or more cylinders, yet the difficulties attending the production of steam at these high pressures and temperatures, and the maintenance of the working parts of the steam-cylinders, were stated to be such as more than counterbalance the advantages to be obtained from their use. While it could be shown that expansion could be carried to such an extent that while the efficiency of the steam, considered merely as steam, would continue to be increased, yet a point would be reached when it would be barely able to move the piston it was intended to propel, and when, therefore, the engine in which it worked would be practically useless. A comparison was instituted between the single-cylinder expansive engine and the various classes of compound, namely, those which have the low-pressure cylinder parallel with the high, as in the Woolf engine, on the same centre line, as in the tandem, and those with cranks at right angles, the advantages and disadvantages of each type being pointed out. The proportions to be maintained between the cylinders were next considered, and the advantages of the intermediate receiver and heater were referred to; the advantage of expansion gear to the low-pressure cylinder, not merely for the purpose of securing greater economy, but also for the sake of securing uniform distribution of the load between the two cylinders, was pointed up.

Illustrations and diagrams of the earlier types of engines were given, and indicator diagrams showing different methods of distributing steam, together with large diagrams showing modern tandem compound horizontal engine, coupled compound horizontal and coupled compound with locomotive boiler combined, as well as details of the valve gear of each and the method of automatically regulating the supply of steam. The compound engine as now constructed was claimed to be the most perfect form of steam-motor, comparatively small engines under 100 horse-power and without condensation giving a horse-power for somewhat under 20 pounds of steam per hour, while large engines when fitted with condensers have been shown to use no more than 12 pounds of steam per horse-power per hour; at the same time the construction of compound engines has been so simplified that they have no more parts, and are no more difficult to manage, than ordinary double-cylinder high-pressure engines.

MR. WALTER THOMPSON.

IN the MECHANICAL AND MILLING NEWS for November the importance of the oatmeal milling industry in Canada was referred to. This month we take pleasure in presenting to the public a portrait sketch of one of the pioneers of the oatmeal industry in this country, Mr. Walter Thompson, President of the recently organized Ontario Oatmeal Millers' Association. Mr. Thompson belongs to the land of the heather, having been born at Kelso, Roxboroughshire. At an early age he came to Canada with his parents, in the year 1843, and settled on the Humber, near Toronto. His father had the oversight of the millwright work of the Howland's, Fisher's and Gamble's mills. After a residence of three years in this locality, the family removed to Beachville, in Oxford county, where Walter, then a lad, attended school until 1853, when he left his books and went to work as a millwright, at which he continued three years. Having a taste for mercantile life, he engaged as clerk in Mr. Hook's general store, remaining there until 1859, when he "went west" to British Columbia. There, for about a year he

MR. WALTER THOMSON, PRESIDENT ONTARIO OATMEAL MILLERS ASSOCIATION.

was engaged in the forwarding business with Smith & Co. at Port Douglas. In the fall of 1860 he returned home, and with his father embarked in oatmeal milling at Innerkip. This mill was the first in Upper Canada to manufacture oatmeal for export. In 1866 the subject of our sketch erected an oatmeal mill in the town of Mitchell, Ont., which, unfortunately was destroyed by fire soon after being completed. The loss to the owner was very heavy as he had no insurance on the property, but, with commendable pluck, he set to work and rebuilt the following summer, and continued the business until 1869, when he formed a partnership with the late R. W. Currie, grain merchant. This business connection lasted until 1870, when Mr. Currie withdrew and removed to Rapid City, N. W. T. In 1872 fire again destroyed Mr. Thomson's mill, which was, however, rebuilt a second time. In 1875 Mr. Thomson erected a large oatmeal mill at Seaforth, Ont. Four years later he crossed the line and erected an oatmeal mill in Chicago, but after an absence of two years came back to Canada and bought the Great Western mills at Woodstock, Ont., which he sold, however, a year later, to McDonald & Thomson.

Since 1878 Mr. Thomson has conducted the oatmeal mills at Seaforth, and Mitchell, which have been improved year by year, until at present they are, in point of equipment, second to none in the Dominion. The output of these mills reaches some years 50,000 barrels of different grades of oatmeal, besides pot barley, all of which finds a ready market in the Provinces and in Liverpool, Glasgow and London.

For eight years Mr. Thomson occupied a seat in the town council of Mitchell. He has several times during that period been offered the position of reeve and mayor but has declined, believing that he could not attend to his own business and give the necessary time to public matters.

As President of the Ontario Oatmeal Millers' Association, Mr. Thomson is the right man in the right place.

[FOR THE DOMINION MECHANICAL AND MILLING NEWS.]

LOW GRADE FLOUR.

BY "CANADA."

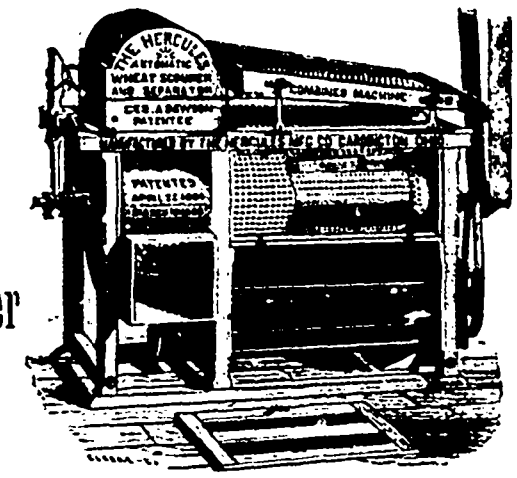
For some time past, "low grade" has been difficult to sell. The experience of many millers would lead them to say that low grade is impossible of sale. Every flour market in the country has more than a needed supply of the article. Any flour merchant in Toronto, Montreal, Quebec, St. John, or Halifax, is ready to fill any order for low grade promptly and at a very low figure. Most of the mills that bring their low grade to commercial daylight through a flour-packer instead of through a feed spout, complain of a plethork. This state of affairs is of recent origin, and has been steadily gathering strength. The chief causes are in the fact that the production of low grade has increased with the increase of roller mills (stone mills in general do not make a lower quality than their straight grade), and in the very low price of good flours, enabling the class who used low grades when a good flour was $6.00 a barrel, to regale themselves now with bread from a barrel of flour, of a quality superior to the "Medium" and "Fancy" and even the "Extra" of past times.

Men and women are always looking for the best article that is procurable for the figure they can afford, or think they can afford to pay, and while "full roller" flours can be had at present prices, any large demand for low grades for household use would indicate hard times, and stringent economy among consumers. Philanthropists would find good reason for rejoicing in the last mentioned cause of the dullness of low grades, meaning as it does, the better condition of the large class who formerly used these grades. The miller has also another view to take of it. However much he may rejoice in his fellow-beings, welfare, he has to find a market for his product, low grade as well as high grade, and if the former continues as unsaleable as at present, he must turn his attention to so improving his milling as to make a minimum of the article.

There is a prospect of the extension of the Windsor & Walkerville Electric Railway to other points in Essex County, as it has been incorporated with a proviso to so extend. Its capital stock is $30,000.

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.

equires 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.

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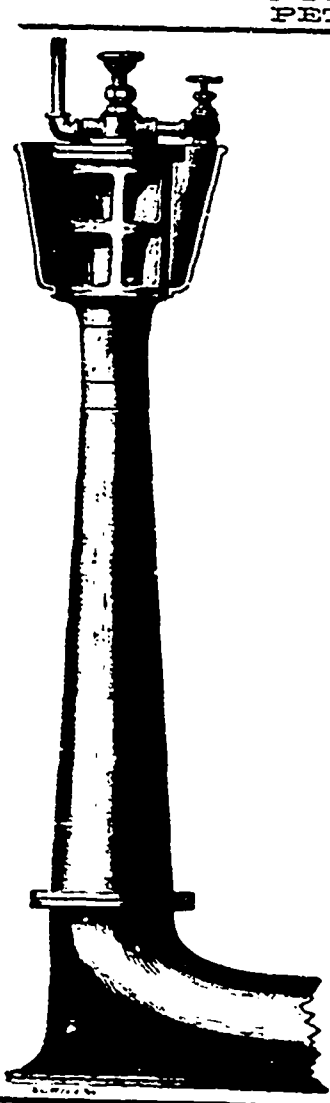


MONA IRON WORKS.

IMPORTANT TO STEAM USERS.

50 PER CENT.
OF YOUR FUEL BILL SAVED!
—:o:—
BY THE USE OF OUR
—PATENT IMPROVED—
FURNACE BLOWERS,

Any kind of inferior fuel can be used, such as tan bark, saw dust, hard coal screenings, etc.

No Machinery required:
Easily placed in:
Do not burn the grate bars:
Use very little steam:
Make no sparks:
Save their cost in a few days.

SPECIAL REDUCTION IN PRICES FROM THIS DATE.

—:o:—

CORRESPONDENCE SOLICITED.

MENTION THIS PAPER.

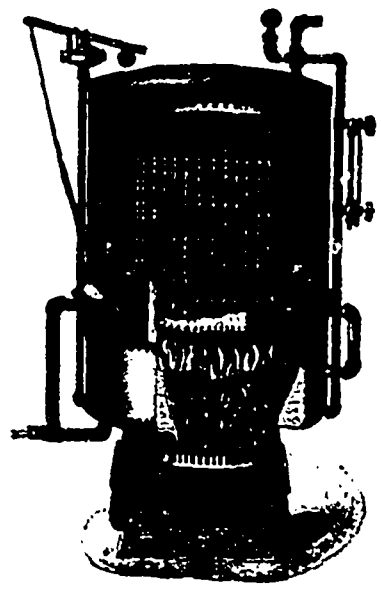
OSBORNE-KILLEY MFG. CO.,
BARTON ST.,
Hamilton, - Ontario.

Leffel-:-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 GORTON"
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.

GORTON 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, *Vice-President.* JAMES GOLDIE, *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 PUPMS,

Petrolia, Ont.

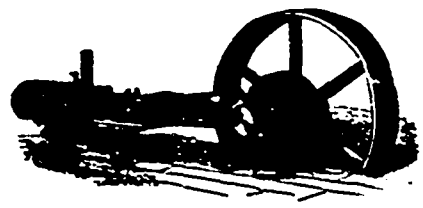
BOLTING CLOTHS

IMPORTANT TO MILLERS.—Agent for the Dominion for the *Celebrated Budmer 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.

STAR ENGRAVING CO.

Send for figures for engraving cuts of Buildings, Machinery, etc.

17 ADELAIDE EAST, TORONTO.

THE GEO. T. SMITH CENTRIFUGAL MILL

BLISH MILLING COMPANY, MANUFACTURERS ROLLER FLOUR AND MEAL.

SEYMOUR, IND., SEPTEMBER 29, 1886.

THE GEO. T. SMITH PURIFIER CO., JACKSON, MICH.

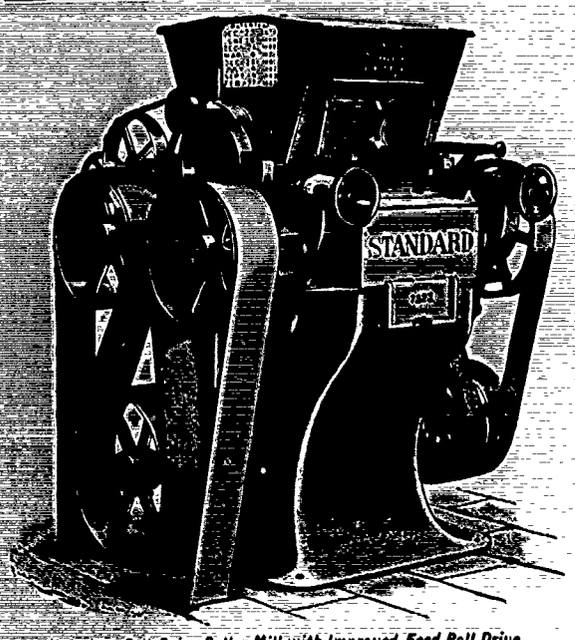
Gentlemen: Have now been operating our new all Centrifugal mill some six weeks, and could not suggest an improvement at any point, but think we are in a position to give some of the alleged crack mills of the country very valuable pointers. We are visited almost daily by millers, mill furnishers, insurance men, etc., whose universal verdict is that we have the neatest, lightest running, and by all odds the most convenient mill in the country. We attribute all this—and the way milling is going these times this is no small matter, as every miller will bear us out—to the Centrifugal system, for the "long reel" system will not admit of this perfection of arrangement. We have not a gear, an upright shaft or a conveyor on redd. ed stock, in the mill, with free access to every window in the house. Are making 200 bbls. per day and drive the whole mill with a 14-inch leather belt from a 13 x 26 engine. The firm that built our engine is surprised at the amount of machinery we are driving with her, but have to admit that she is the smoothest runner on the road. Last, but not least, we find ready sale for all our products, which expresses more than words the quality of our flours. Our mill is open to inspection at all times, and if any of the "dusties" will call, think we can show them a barrel of the finest as well as the cheapest made flour in the United States.

Respectfully yours, BLISH MILLING CO.

The Geo. T. Smith Middlings Purifier Company,

OF CANADA, [LTD.]

STRATFORD, ONT., AND JACKSON, MICH.



Noiseless Belt Drive Roller Mill with Improved Feed Roll Drive.

LAKEFIELD, ONT., Nov 10th, 1886.

S. S. Heywood, Manager,

GEO. T. SMITH MIDDLINGS PURIFIER CO.

Stratford, Ont.

Dear sir,—I commenced grinding wheat in my mill Thursday, Nov. 11, and with my acceptance of it, I take pleasure in testifying to the entirely satisfactory manner in which you executed your contract with me. The machinery was shipped promptly as agreed and the diagram, plans and millwright work were in every detail everything that I could wish, and your Mr. McAuslan, who had charge of the work is a thoroughly competent man for the position, and gave me a mill that I am proud of.

As regards capacity, I find that the mill will run to 150 bbls. easily and make a perfect finish. 125 bbls. was all that you contracted to give me. I am very thankful that I adopted the full Centrifugal system instead of the old style of long reels, and although the mill has been running but four days, I am already convinced of its superiority and I have never seen any bolting device that could equal your Centrifugal in quality and quantity of work done.

The quality of my flour, the yield and finish, I have never seen surpassed. Should you desire to do so, I shall take pleasure in showing any parties you may send here what a CENTRIFUGAL mill can do.

Yours truly, JOHN HULL.

CINCINNATI, Ohio, Nov. 15th, 1886.

GEO. T. SMITH M. P. CO., JACKSON, MICH.

Gentlemen: Our mill, built by Mr. John Webster, on the Geo. T. Smith full Centrifugal system, is now complete and in full operation. We have been running for about four weeks, and are more than pleased with the results. The mill was built for a capacity of 200 bbls., but we are now making 240 bbls. per day, and the bolting capacity is good for at least 75 more bbls. per day, as we are at present not using more than two-thirds the capacity of the Centrifugals. The machines are running smoothly and lightly, and we are using but little power. The arrangement of the mill and mill wright is about as near perfection as is possible to get it. We have economized greatly in room, and still have a greater capacity than in our old mill. Our flours of the different grades are equal to any ever offered in this market. We are making a short, strong flour, and at the same time it has a most excellent color. Our customers are all loud in its praise, which speaks more for it than anything we could say. Since starting we have been visited by millers and merchants from all over the country, and all pronounce the mill a model in all respects. We are fully convinced that we have as fine a mill, both for looks, convenience and utility, as can be built, and shall take pleasure in showing any one through it. Yours very truly, FOULDS & CO.

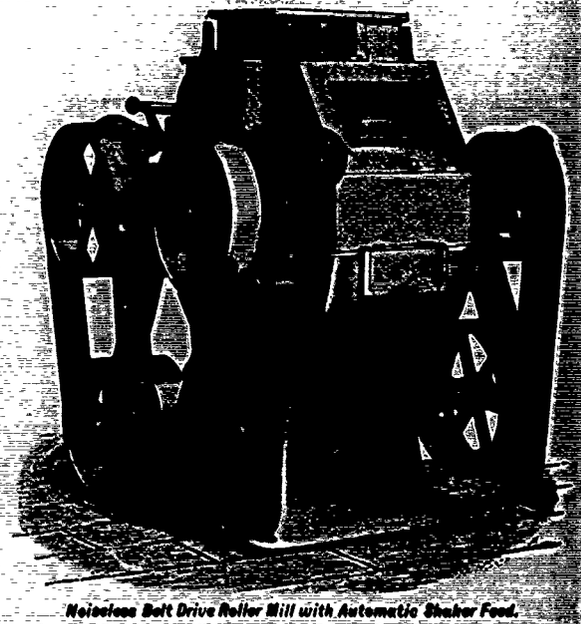
KINGSTON, 16th Nov., 1886.

GEO. T. SMITH M. P. CO., Stratford.

Gentlemen,—Our mill has now been running long enough to give us an opportunity to test it thoroughly, and we are satisfied with it. The yield and quality are excellent. It takes all the flour out of the wheat, and as far as capacity is concerned, instead of making 75 barrels as the contract called for we run from 100 to 125 and clean up in good shape when doing it. The Centrifugals are which beats all the separations are made, do more work with less power than any other machines in the mill, and do it well, too. We consider ourselves indebted to your Mr. Everett for supplying such an excellent flow sheet to Mr. Black, your miller, for his send-off, and also to your firm for the prompt manner in which you carried out your contract. All our business with you has been very satisfactory.

Yours truly,

J. G. CAMPBELL & SON.



Noiseless Belt Drive Roller Mill with Automatic Shaker Feed.

THE GEO. T. SMITH M. P. CO., OF CANADA, (LTD.) - STRATFORD, ONT., & JACKSON, MICH.

PAGE

MISSING

PAGE

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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 60 days, and fail to clear at least $250 *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 3 one cent stamps 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.

TO THE MILLERS OF CANADA.

AS AGENT FOR THE

3-High Monitor Roller Mill,

—I BEG TO SAY THAT I HAVE—

IN OPERATION

Here one of the above machines, size 6 x 18, for chopping. It will be run on custom work, so that if any of our milling friends should wish a close inspection of the machine and its work, they will be able to do so any day they may call.

—: NOTHING LIKE SEEING AND TESTING A MACHINE IN OPERATION :—

BEFORE YOU BUY.

The Rolls especially are fully guaranteed to be of the best possible make. A fair trial and no favor is all I ask. Your closest inspection invited. It has

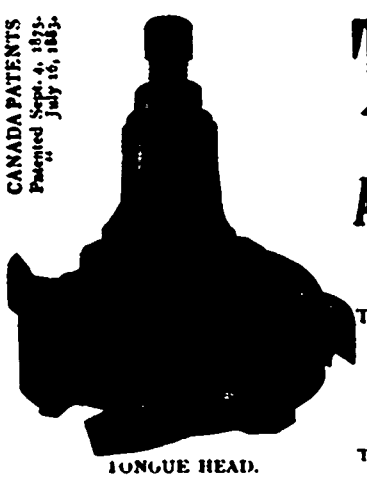
—LARGE CAPACITY, ONE-HALF POWER OF MILLSTONE, AND—

WHOLE MACHINE IS CONTROLLED BY ONE HAND LEVER, PUT ON ENDLESS AND RUNS UNTIL WORN OUT.

—THE MILLERS' FRIEND,—

W. B. BRAGG, - - BOX 103, ROCKWOOD, ONT.

CANADA PATENTS Patented Sept. 4, 1883. " July 15, 1884.



TONGUE HEAD.

The SHIMER MATCHING HEADS

U.S. PATENTS. Patented Jan. 24, 1882. " July 27, 1886. Reissued Oct. 12, 1886. Patented July 13, 1886.

GROOVE HEAD.

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.

THEY FINISH HARD

Cross-Grained & Knotty Lumber

Neatly, showing Clean Edges, and often

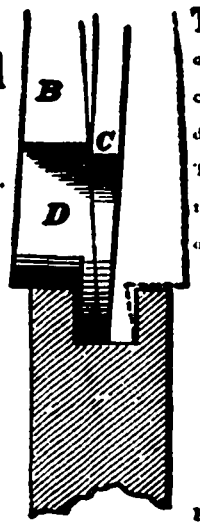
Save their Cost in One Day's Run.

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

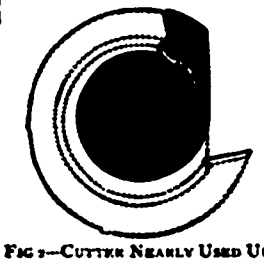


FIG 2—CUTTER NEARLY USED UP.

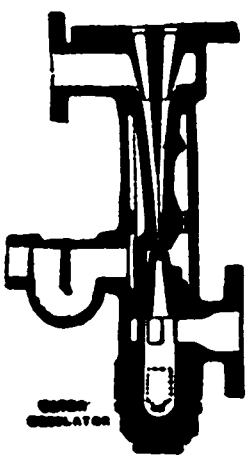
SELLING AGENT,

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. supersedes 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 120 degrees, F., thus effecting a saving over any other Injector of from 15 to 25 per cent. in fuel.



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Established 1849. Incorporated 1884

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—MANUFACTURERS OF—

CIRCULAR, GANG, INLAY, DRAG AND CROSS-CUT SAWS,

olding and Planing Knives, French Band Saws, Emery Wheels and General ill Supplies.

☞ We guarantee to make a better Saw for the same r less money than any Saw manufacturer in the country. It will pay you to se d 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 PRICE.

SUPPLEMENT

—TO THE—

Mechanical and Milling News.

The large demand for advertising space, and the desire to place before our readers at the earliest possible moment the result of the important infringement suits of Smith vs. Greey and Greey vs. Smith, rendered necessary the printing of a couple of extra pages as a Supplement.

PEACE WITH HONOR

Satisfactory Adjustment of the Difficulty Between the Geo. T. Smith Co. and Messrs. Wm. & J. G. Greey.

A CROWD OF WITNESSES FROM THE UNITED STATES—COSTLY LITIGATION.

THE MECHANICAL AND MILLING NEWS takes pleasure in being able to announce the termination of the long standing patent suit of the Geo. T. Smith Middlings Purifier Co., of Canada, Limited, against Messrs. Wm. & J. G. Greey, of this city, as well as of the suit brought by the latter against the former. The registers of the leading hotels during the last week have contained the autographs of a number of well known patent experts and mill men from various parts of the United States, who were summoned to give evidence pro. and con. in this important case. The names are given below. The evidence was gone into most minutely. The court room and corridors at Osgoode Hall resembled the interior of a mill furnishing establishment, being largely occupied by models of mill machinery which were used for purposes of illustration. The learned Chief Justice as well as the legal gentlemen engaged in the case are to be congratulated upon the thorough insight which they have gained into modern flour milling processes. It will be of immense advantage to them should a similar case ever arise, which at least is not beyond the range of possibility. Messrs. Howland & Arnoldi conducted the case on behalf of the Smith Co., B. B. Osler. Q.C., and H. D. Gamble being counsel for Messrs. Greey.

This suit was commenced on the 21st of June, 1884, and has been actively progressing ever since, and has involved very great expense to both parties. Evidence was taken in 1885 in England under commissions taken out by the defendants, and lately in the same year rebuttal evidence was similarly taken in England for the plaintiffs. In the spring evidence was taken for the defendants under commission at Washington, and during the past summer evidence was taken by the plaintiffs under commission at Minneapolis, the original scene of the plaintiff's invention, and the historical point of commencement of the development of modern milling which undeniably dates from that invention. Evidence of witnesses taken at Faribault, Minnesota, both for plaintiffs and defendants, was also used. The trial was fixed by arrangement for the 23rd of November before Mr. Justice Proudfoot, and progressed steadily for four days. On Saturday morning the defendants' counsel announced that negotiations were in progress, and desired an adjournment, which (the plaintiffs not objecting to it) was granted until Monday, the 29th, with the final result of judgment being consented to by the defendants affirming the validity of the plaintiffs' purifier patent and settling the amount of royalty to be paid by W. & J. G. Greey on any purifiers under the patent sold in the future at $50 per machine, which confirms that arrived at in Smith vs. Goldie. The expenses of both parties for the trial alone must have been exceedingly heavy.

The following is a list of some of the plaintiffs' witnesses, many of whom were waiting from the first day of the trial, while others, summoned by telegraph, were on their way from different parts of the United States: H. Doubleday, Washington; John Duncan, Jackson, Michigan; Alexander Selkirk, Albany, N. Y.; M. W. Clark, Jackson, Michigan; Marvin Allen and Geo. T. Smith, Jackson, Michigan; William Kinmount, Detroit; W. H. Beavis, Cleveland; N. W. Holt, Manchester, Mich.; Charles Raikes, Lockport, N. Y.; W. W. Keith, Silver Creek, N. Y.; W. F. Putnam, Cleveland, Ohio; P. W, Becker, Chicago; S. R. Vanpelt, Jackson, Michigan; C. A. Humber, Goderich, Ontario; Alexander Wills, Toronto.

The following witnesses were present on behalf of the defendants: J. B. Church and Octavious Knight, Washington, D. C.; J. H. Lynch, Ottawa; Geo. H. Christian, Minneapolis; John, Andrew, and Michael Eucker, and P. C. Adlard, Cleveland, Ohio; W. Meldrum, Peterboro; Isaac Warcup, Oakville; Wm. Snider, Waterloo: John L. Spink, Thos. Lawrie, Detroit, Michigan.

The evidence taken for the plaintiffs at Minneapolis was that of Charles A. Pillsbury, part proprietor of the celebrated Pillsbury Mills; Aaron Smith, O. A. Pray, President of the Pray Manufacturing Company, and E. R. Stephens, of Messrs Crocker, Fisk & Co., Minneapolis.

Another litigation pending between the same parties has been put an end to at the same time in an amicable manner: the suit of the Messrs. Greey against the Smith Company for infringement of patent assigned to the former by Mr. S. L. Bean for a form of dust collector. The Smith Company had only manufactured under a license from a company in the United Stetes, who are the owners of a rival patent and under whose indemnity the Smith Company have been acting. The Smith Company, being satisfied of the validity of the S. L. Bean patent in Canada, frankly admitted it, and submitted to to a decree in that suit, and have agreed to pay royalty on any future sales coming under that patent.

[FOR THE DOMINION MECHANICAL AND MILLING NEWS.]

SOME IDEAS BY A PRACTICAL MILLER.

BY XXX.

In the future the writer will give his ideas on various subjects pertaining to roller milling through the columns of the DOMINION MECHANICAL AND MILLING NEWS, and hopes, by so doing, to bring out the criticism and ideas of practical millers, believing that an exchange of ideas and experiences in making different separations would be a benefit to all.

It is my intention not to advertise any make of machines or style of system, but to deal with each fairly, and to give credit to all things which, from practical knowledge, I know to be good, and to condemn that which in the same way I am satisfied is worthless. I am aware of the fact that very often, after millers have given a machine or a certain system of separations a trial, and it has proven a fair success, they become prejudiced in favor of that style of machine or separation, and can very rarely be convinced that there are any better. Then, again, another miller may, under different circumstances, have given the same machine and separation a trial, with results entirely different from those he expected, and by each the machines are condemned as worthless.

By an exchange of ideas I hope to see brought out points in roller milling that will explain why this difference in results exists, and what can be done to remedy the same.

* * *

When erecting new mill buildings, very many millmen, in order to reduce the first cost on the same, will build the building too small or too low, and after the machinery has been put in place, they then find out their mistake. For a roller mill of small capacity the building should not be less than 30x30 feet, and 3 storeys high above the basement; the latter should be not less than 9 feet; roller floor, 11 feet; bolting floor, 13 feet; the attic, 14 feet in the clear, and the roof should have but little pitch, which will make the room in the upper flat available for machinery. By erecting a building of this size, heigth, and style of roof, flat spouting is avoided, and the material in the mill can be handled without conveyors, which is not the case in low buildings. In order to get heigth enough and save one storey, some builders adopt a cupola on the middle of the roof to run the elevator up into. Such an arrangement is only a poor make-shift, and should only be used in case of changing old mills, when the building is built with low storeys. As there is generally danger of leaks along the side where the cupola and the roof of the main building join, and very often the cupola being necessarily narrow, to get good pitch on the spouting from the elevator head to the machines on the floor below, the spouts must come out through the side of the cupola and through the main roof, and usually make trouble to keep from leaking. For the difference in the cost, it is better to raise the side walls and make the upper flat its full heigth. The foundation of the building should be thick and strong. The joists in each storey should be placed one over the other all the way up through the building, and the joists under the roller floor should be one inch thicker than those supporting the upper floor. The braces between each set of joists should be beveled on the edge so as not to catch the floor dust, as it is then constantly dropping down on the floor below. The posts should have caps for the beams, made of iron, with a raised rib cast on each end, so as to notch in each end of the beam and keep the building from spreading. The floor should be laid with two-inch lumber, matched, and is better when hard wood is used, especially the roller floor. If the building is a frame one, it is better to seal it up inside with matched lumber, as in that way it is not only made warmer, but can be more easily kept clean. There should be a good number of large windows in the building, so that there will be plenty of light, and the firm that contracts to place the machinery should furnish the plans for the building, as, by so doing, they can avoid placing machines or bins for flour and fuel in front of the windows, thereby obstructing the light on some of the floors. If a storehouse for grain and flour is not to be erected when the mill building is built (and this is very often the case), there should be one end of the building partitioned off for that purpose; and a much cheaper way of getting a good storage than erecting a separate building is to add 12 or 15 feet to the mill building, and by putting the bins in the two upper flats, and a double set of posts under on the floor below, and having the same well braced, a good storage can be made that will hold about 9000 bushels of grain and one or two cars of flour; and by putting the hopper scales and raising up the storage elevator from under this part of the building, it will make a very convenient arrangement for taking in and handling the grain. If steam power is to be used, the boiler and engine house should be a separate building, and it is better, in regard to the insurance, to place the engine and boiler house a few feet distant from the main mill building. If water power is to be used, it is better to place the flume for the water wheel outside and separate from the mill building, so that at any time if the flume timbers need renewing, the work can be done without disturbing any part of the mill. Then, again, there is not so much danger of the building settling as when it rests on the flume. In a future number of the DOMINION MECHANICAL AND MILLING NEWS the writer will publish a plan illustrating his ideas regarding the manner in which a mill building should be erected.

When contracting for a line of roller machines, mill men are very often at a loss to decide on what style of machine to use. There are some points that should govern millers in deciding on the machine they will buy. A roller machine should have a good solid and substantial frame; a good spreading device that can be relied on to work every time it is wanted to be used, and to bring the rolls back to their place again when thrown together; a good levelling device; long bearings, which can be easily oiled, and a good belt drive. The writer has had considerable experience with gears on rolls for holding the differential motion, and has found that there are some serious objections to their use. Aside from the noise they make, which is very disagreeable, they will, after they are used for a time, get loose on the shafts and cause considerable trouble. The cause of their getting loose is that the back lasts on the rolls wear the seats wider in the shafts, and then the keys will not hold; and if the rolls are allowed to work set up in one position, the gears become shouldered, and when the set of the rolls is changed, the gears will work badly until they again wear a new bearing on the face of the cogs. The reason that belts are so popular with millers is because they are noiseless, and if they get out of order are easily repaired. There seems to be at the present time quite a call for automatic or shaker feeders for roller machines. It is my opinion, however, that if mills are constructed right, better work can be done by using positive feeds than by the use of automatic feeders. My reasons are that when the amount of stock going to the machines changes, the machines require to be reset, and when using automatic feeds, the stock rushes through between the rolls, and often there is not enough pressure used to reduce the stock, in which case it goes until it reaches the end of the system. With positive feeds on the machines, when there is required to be more feed put on, the miller is at that point to change the reduction on the machine. In order to use positive feeds successfully, it is necessary to construct bins over each machine, and feed from them. To do this, it would be necessary to build the mill building one storey higher, but it would in the end pay for the extra expense on the building in the extra amount and quality of work done in the mill. A very good belt drive is made by extending the belt on the slow side of the rolls down to the driving line shaft and using a tightener in a frame below the pulley on the shaft, with a rod connected to hand wheel on the floor above to tighten down the idler pulley. This arrangement will reverse the motion of the slow rolls from that of the fast ones. Although this drive is an expensive one, it can be relied on to hold the differential motion The counter shafts running through the roller frame with short belts connected with the slow rolls and pulley on drive end used to drive the same, is the most popular drive among millers at the present time, as it will do the work well without slipping, is very convenient for tightening the belt, and easy to get at if it gets out of order, while it only takes one driving belt and one pulley to drive this style of machine.

LATEST CANADIAN PATENTS.

Improvements in Gear Teeth.

Patent No. 25,229—H. H. Warren, of Montreal, dated Oct. 27th, 1886.

This invention has reference to a new art or process of forming gear teeth on discs, by which such discs are converted into gear wheels. Heretofore such teeth have been produced by various systems of cutting by tools or by grinding apparatus, which grinding is nothing more than another name for cutting. This process consists in forming the teeth by the friction of a body or friction discs, or rubbing instrument, moving at high speed, which does not cut the body upon which it acts, but by friction of those parts of the rubbing instrument upon the parts of the body acted upon, which are brought into contact with the rubbing instrument, they are heated to such an extent as to become soft or plastic, and in this shape they are rubbed off by the rubbing instrument, which is kept in constant motion.

Flour Dressing Machine.

Patent No. 25,292—John E. Wilson, of Galt, Ont., dated Oct. 30th, 1886.

It relates particularly to that class of flour dressing machines in which a cylinderical centrifugal bolt and an internal reel are used, forming an annular bolting space. The objects are to obtain an uninterrupted bolting surface, and to make the surface so obtained more effective by keeping the light fluff or dust from it, whereby the heavier stock will pass the more freely through the bolting silk. An internal reel with two heads secured upon a central shaft forming a zig-zag cylinder surface between said heads, consisting of longitudinal slats set at an angle to each other and leaving a narrow opening near the apex of each pair, a clear space being left between the apex of each pair of slats and the outer reel. The cross section of one of each pair of slats falls in the line of the radius, or nearly so, and the other connects to the former at the inner edge and runs to the top edge of the next in the direction in which the reel turns, which, however, it does not touch, but leaves a clear narrow space. The double reel has, as usual, a longitudinal inclination towards the tail end, where separate means of egress are provided for the light fluff and dust and for the heavier tailings; the bolted stock having passed through the silk being removed, as usual, by a pair of screen conveyors at the bottom.

Improved Cross-Cut Saw.

Patent No. 25,338—Silas Tales, of St. Thomas, Ont., dated 11th Nov., 1886.

This invention relates to the cutting teeth of cross-cut saws in combination with a drag tooth, the alternate cutting tooth of each pair having a bevel edge on opposite sides so as to present a sharp cutter on both sides of the thickness of the saw kerf. A drag tooth is placed between each pair of cutters in such a manner as greatly to facilitate its operation, the object being speed in its working.

Machine for Working Lumber.

Patent No. 25,055—S. B. Burris, Victoria, B. C., Canada, dated Sept. 30th, 1886.

The object of this invention is to provide a machine for preparing timber and lumber to be used in the construction of buildings and relates to improvements in woodworking machines, the construction and arrangement of which will provide a piece of timber surfaced, grooved and divided. The machine is provided with upper and lower cutter heads for simultaneously surfacing and grooving opposite sides of a timber, and cutters arranged at an angle to the line of motion of the timber passing through the machine, having mechanism for periodically dropping the cutters into engagements with the edges of the timber.

Improvements in Pulleys.

Patent No. 25,108—Geo. Campbell, Toronto, Canada, dated Oct. 12th, 1886.

This improved pulley consists, essentially, in having a light metal rim connected to its hub by means of a series of light rods which extend substantially at a tangent from the hub of the pulley to which they are connected. There will be an outward or tension strain to each spoke and as the metal rods, of which the spokes consist, will stand a greater strain of this kind than they would a mere cross or breaking strain, it is possible to make this pulley of much lighter material than were the spokes arranged to radiate from the centre.

Adjustable Carriages for Saw Mills.

Patent No. 24,674—George Strong, Millowner, South Rockwood, Mich., U. S. A., dated 2nd Sept., 1886.

The nature of this invention relates to carriages for saw or bolt mills and is designed more especially for cutting stave bolts. The advantage to be derived from this improved carriage is the great saving of timber, as it can be cut in such a manner that there will be no staves known as washboard staves. In practice it is designed to cut the log up into lengths suitable for stave lengths; they are then placed on the carriage and the first or perpendicular cut is made, after which the log is cut in two; one half is placed on the carriage with its smooth surface downward—the bolts are not cut squarely through the log but on an angle. A lever is employed to raise and lower the back end of the carriage for different cuts.

Automatic Grain Weighing Machine.

Patent No. 25,069—D. D. Kuhlman, Atchison, Kansas, U. S. A., dated Sept. 30th, 1886.

The objects of this invention are to render the machines more efficient in operation; to provide novel means for cutting off the flow of grain to the grain weighing bucket when the quantity therein overbalances the scale beam and is discharged from the bucket into a secondary hopper thereunder; to provide novel feed controling valves for partially stopping the flow of grain as the quantity of the grain weighing bucket is nearly sufficient to overbalance the scale beam; and to provide novel locking devices for holding the swinging partition in the grain bucket at either side to which it is swung by the discharging grain.

SITUATIONS WANTED.

No charge for announcements under this heading. Persons replying to advertisements will please mention this paper.

A S MILLER IN STONE MILL -FIRST-CLASS stone dresser; good references. Apply J. M., Miller, Box 60, Merritton P. O., Ont.

A S MILLER-FIRST-CLASS-TO TAKE CHARGE of stone mill, or second in a good roller mill; can give best of references; 23 years' experience; total abstainer; state wages. Address A. ELLIS, Vroomanton, Ont.

A S MILLER - COMPETENT TO TAKE CHARGE of any stone or combination mill; extra good stone man; 22 years' experience; active and obliging; married man and wants steady position. State wages and full particulars to WM. JAMES, Box 202, Newmarket, Ont.

A S MILLER - YOUNG MAN TO TAKE CHARGE of roller mill; 8 years' experience; strictly temperate; state wages and kind of mill. Address MILLER, Box 249, Galt, Ont.

Notice to Contractors.

SEALED TENDERS addressed to the undersigned, and endorsed "Tender for Saugeen River Pier," will be received until FRIDAY, the 10th day of December, next, for REPAIRING THE NORTH PIER AND THE CONSTRUCTION OF A CRIB at the mouth of the Saugeen River, Southampton, County of Bruce, Ontario, according to a plan and specification to be seen on application to Mr. James T. Conway, Town Clerk, Southampton, and at the Department of Public Works, Ottawa, where printed forms of tender can be obtained.

Persons desirous of tendering are requested to make personal enquiry relative to the work to be done, and to examine the locality themselves, and are notified that tenders will not be considered unless made on the printed forms supplied, the blanks properly filled in, and signed with their actual signatures.

Each tender must be accompanied by an *accepted* bank cheque made payable to the order of the Honorable the Minister of Public Works, *equal to five per cent.* of the amount of the tender, which will be forfeited if the party decline to enter into a contract when called upon to do so, or if he fail to complete the work contracted for. If the tender be not accepted the cheque will be returned.

The Department does not bind itself to accept the lowest or any tender.

By order,
A. GOBEIL,
Secretary.

Department of Public Works,
Ottawa, 16th November, 1886.