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*MANUFACTURES FOR ITSELF PROSPERS*

*ANATION THAT*

J.L. JONES TORONTO.

Vol. 17.

TORONTO, NOVEMBER 15, 1889.

No. 10.

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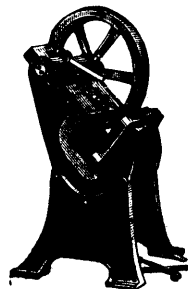
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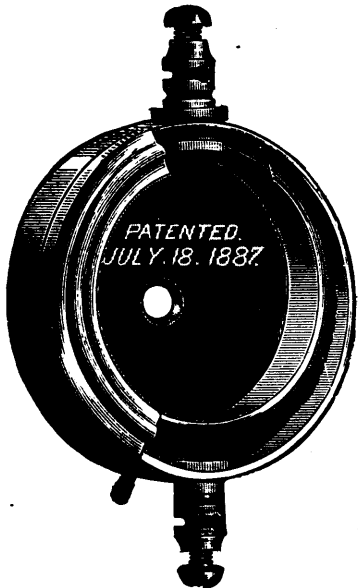
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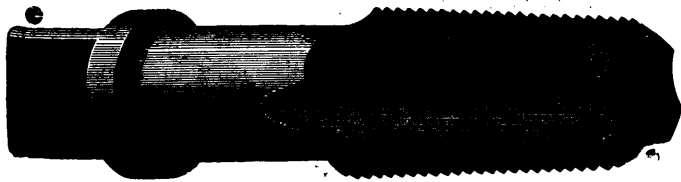
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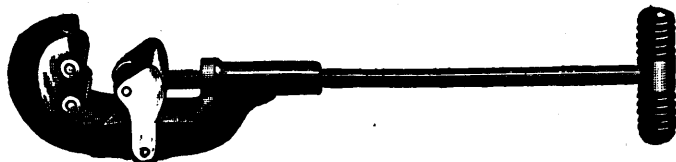


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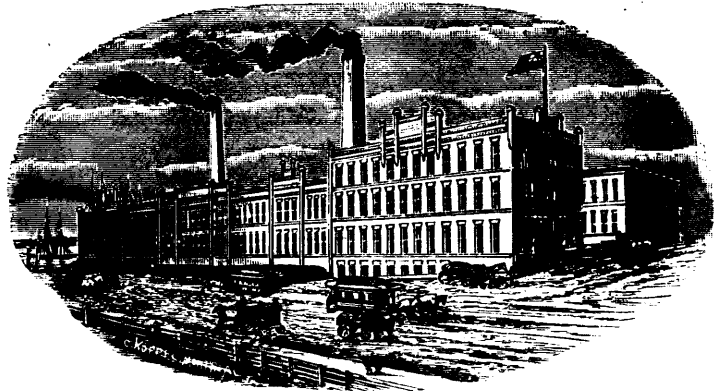
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2)

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The advantages of the BATTEN FIRE  
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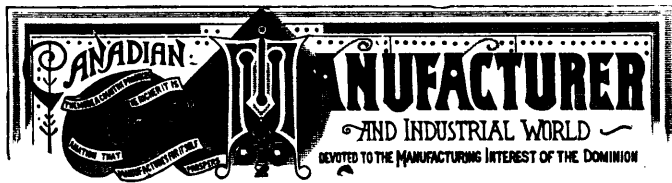
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### TARIFF GRUMBLERS.

THERE are those in Canada who are chronic grumblers at the tariff, and who never allow an opportunity to escape that can be made use of to illustrate their contentions. For some time past certain New England iron manufacturers have been making themselves conspicuous by their endeavors to have the American tariff modified so that pig and scrap iron and coal should be placed on the free list. This effort has elicited considerable notice from the enemies of Protection, both in the United States and in Canada, the object being to bring odium upon the tariff. Canadian Free Traders have shown much zeal in calling attention to the fact that even American manufacturers complain of the injury the tariff is inflicting upon their business, warning Canadian manufacturers that a similar condition prevailed or would be sure to prevail under the operations of our National Policy.

Of course there is another side to this question, and *The Bulletin* has been analyzing some of the phases of it. It mentions the name of the principal executive officer of the Tremont Nail Company, of West Wareham, Mass., as being conspicuous as an advocate of lower duties or no duties at all on certain so-called raw materials which are used in the manufacture of iron and steel. The Tremont Nail Company is a manufacturer of iron and steel, its leading specialty being nails. The company's works are among the first of its class in New England, both in capacity and equipment. They were built originally about 1820, and rebuilt in 1846; and of late years their capacity has been steadily enlarged by the addition of new machinery; their production in nails alone in 1888 being larger than in any other year for fifteen years. In 1874 the works embraced 4 trains of rolls and 75 nail machines; in 1884 they embraced 3 trains of rolls and 75 nail machines, and

they were reported to have an annual capacity of 100,000 kegs of cut nails, in addition to other products. In 1887 a steel plant had been added to what was formerly only an iron plant; the number of trains of rolls had increased from 3 to 5; the number of nail machines had increased from 75 to 173; and the annual capacity of the works had increased from 100,000 kegs of nails to 225,000 kegs, in addition to other products. From this it will be seen that the Tremont Nail Company have not been going to the wall very fast, nor losing money very rapidly, or it would not have so largely increased its plant only two years ago.

This specimen New England manufacturer declares that he is not a Free Trader, and all he wants is that his raw materials—pig iron and coal—may be admitted duty free. He wants this because, he says, pig iron cannot be made in New England as cheaply as it can be in Pennsylvania, and coal cannot be mined there as cheaply as in Nova Scotia. His zeal as a Protectionist is unbounded when the duty on nails is considered. The unselfishness of the proposition is remarkable. This policy would certainly injure the New England manufacturers of pig iron, but it would add to the prosperity of the Tremont Nail Company, great as that prosperity has been and is. He wants the duty on the products of other concerns reduced or removed, but he does not desire any reduction of duty on nails.

It is natural to enquire if what is said about the inability of New England to manufacture iron is correct. The grumblers say it is, and taking this as granted, they paint a deplorable picture of the fate imminent to all other industries there in which pig iron is a raw material. On the other hand the statement is denied, and facts are produced to substantiate the denial. Mr. W. F. Durfee, a well known American metallurgical engineer, writing to *The Bulletin*, proves that New England is not necessarily compelled to abstain from manufacturing pig iron. Alluding to the closing of New England iron works, Mr. Durfee calls attention to the fact that the wrecks of iron manufacturing establishments in Pennsylvania alone, during the past twenty-five years (some of them in the vicinity of Pittsburgh, where it has always been assumed that the economic conditions for the manufacture of iron were phenomenally excellent), represent the destruction of more than double the capital ever invested in rolling mills in all New England. He says that in Pennsylvania, as in every other locality, "it is not so much what God has given to men that insures success, but what use men make of God's bounties—that had New England iron manufacturers, who have put out their fires, dropped their tools, and in a most cowardly manner accepted defeat, spent as much money at the proper time in reconstructing their antiquated mills, and in pensioning off such of their ignorant managers as were clogs to their progress, as they have lost by not doing so, the mills now dismantled would be roaring with all the activities of a busy and profitable industry."

An evidence of the mismanagement of some of the New England nail mills lies in the fact, as stated by the manager of one of them, that his nail kegs cost him fifteen cents each; and that it took three tons of coal to turn a ton of pig iron into a marketable commodity. Mr. Durfee shows that the capacity of the Fall River Iron Works was about 11,000 net

tons a year, one half of which was nails, say 110,000 kegs. Under proper management, nail kegs in such large quantity should not have cost more than ten cents each, and a saving of five cents on each of 110,000 kegs a year would be \$5,500. In all modern mill practice the consumption of coal is only about one and a half tons to the ton of iron, and where three tons of coal are used one half of the quantity goes up the chimney to no good purpose. In this instance, then, the unnecessary waste of coal in the production of 11,000 tons of iron would be 16,500 tons, which, at the cost of about \$3.60 per ton, would be \$59,400, to which, if is added the unnecessary waste of \$5,500 on nail kegs, would give a total loss of \$64,900 a year on two items alone. This sum would be largely augmented if all the other unnecessary wastes about the works were considered; but in itself it would have afforded a respectable dividend to the dissatisfied stockholders.

Recently Mr. T. D. Ledyard, an American owner of valuable Canadian iron mines, assisted by the *Toronto Globe*, in endeavoring to convince Canadians that Unrestricted Reciprocity with the United States would develop our iron industries, cites the fact of the prosperity of the iron industries of Chicago. The iron ore consumed there is carried 300 miles from the mines, and the blast furnace fuel 500 miles from the Pennsylvania coke ovens; and the prosperity of that industry is compared by Mr. Durfee to the condition in New England as follows:

"Among the chief reasons why the iron business in New England has not been a success in late years is the fact that the pig iron used was all purchased, and not made by its consumers. A far seeing, courageous business policy on the part of the proprietors of such New England iron works as were situated on tidewater, would have resulted in the erection of blast furnaces adequate to their needs twenty years ago. Even if there were no good blast furnace fuel in New England, and no native iron ores (the actual fact being that there are large quantities of both), it is no further from Fall River to the Connellsville coke region than from its coke ovens to Chicago; and Pennsylvania anthracite coal would have only about half that distance to travel (more than four-fifths of the distance being by water) to reach a furnace on the shore of Narragansett Bay, whose waters never freeze in winter, and where foreign ores can be landed quite as cheaply as at any point in America. Blast furnaces are operated successfully at Troy, New York, and have been for the past twenty years, notwithstanding the fact that their fuel comes from Pennsylvania, and that the Hudson river is closed four months in the year by ice."

Canada is interested in this matter to this extent. It shows the flimsy foundation on which the enemies of Protection and the friends of Unrestricted Reciprocity rest their arguments against the existing order of things. The manufacture of iron is no more "indigenous" to Pennsylvania and Alabama than it is to New England or Canada. In Canada, as in every other locality, it is not so much what God has given to men that insures success, but what use men make of God's bounties—and this includes not only the sense and intelligence of men to conduct their business properly and to the best advantage, but also to protect their industries against those of other countries.

#### UNDER WHICH FLAG?

MR. STAPLETON CALDECOTT does not admire Mr. Erastus Wiman—that is, he does not admire his position as an advocate of Commercial Union with the United States. Mr. Caldecott, as a "Liberal," is by conviction a Free Trader—that is, he wants Free Trade between Canada and Britain; while Mr. Wiman, also a "Liberal," does not "hanker" after Free Trade with Britain, but with the United States. Mr. Caldecott wants to have and maintain our British connection, and don't love the Yankees a bit; while Mr. Wiman wants to have Canada become a part of the Yankee nation, whether Britain likes it or not. This reminds us of the saying where allusion is made to the falling out of certain whilom friends by which other men obtain their dues. The *Globe* comes to Mr. Wiman's help and twits Mr. Caldecott with inconsistency in advocating Free Trade with Britain, with only 36,000,000 people, while Mr. Wiman wants it with the 60,000,000 of neighboring Yankees. The *Globe* is ready to sacrifice Canadian nationality and British connection for the expediency of free access to the American market, forgetting that if Canadians desire to see their country equally as great and prosperous it can only be by and through Protection to Canadian industries against those of both Britain and the United States. The United States would to-day be in just the plight as regards Britain that Mr. Caldecott, Mr. Wiman, the *Globe et id genus omne* would place Canada as regards the United States, had not that nation early in its history, and with greater or less persistency ever since, observed Protection for its industries as against the industries of other countries. Should Mr. Caldecott's political heresies prevail, our Canadian manufacturing industries would languish and die, and with them would wither and fade away the high hopes of a grand nationality for Canada that have borne her thus far and successfully towards the desired haven. On the other hand, should Mr. Wiman's visionary scheme materialize into a sad reality, the advent of Unrestricted Reciprocity with the United States would be but a short prelude to the annexation of Canada to that country, and an ending of all happy dreams and hopes of Canadian nationality. Mr. Caldecott and those who might prefer to have the British flag wave over them would have either to seek its shadow elsewhere, or content themselves with the Stars and Stripes. They would have to change their tune from "God Save the Queen" to "Yankee Doodle." Better let Protection do its perfect work for Canada.

#### LET ALL FARE ALIKE.

THE Mayor and City Council of Toronto have received a communication from a ratepayer in which complaint is made at the cool indifference with which certain manufacturing industries already established in this city, employing large numbers of hands, are removing to other localities because of the favors shown them there which they could not obtain in Toronto. He alludes to the empty houses, loss of trade, etc., growing out of the indifference to the matter on the part of the authorities, and hopes that efforts will be made to keep within the city all the manufacturing concerns we have, and to cultivate the introduction of new ones by every legitimate means possible. The idea is a good one, and points in the right

direction ; but this journal has always combatted the bestowment of bonuses for the encouragement of manufacturing enterprises, either in Toronto or elsewhere in Canada. In our opinion the principle is wrong and vicious, and should be discouraged. At the same time there are burdens imposed upon manufacturers everywhere in Canada, and no where more poignantly than in Toronto, by the unjust imposition of taxes. We do not mean to say that taxes are more onerous here in Toronto than in other places ; but we affirm that the system of exemption from taxation of certain classes of real estate and other property observed in Ontario works decidedly against the interests of manufacturers. Some concerns attempt to escape this incubus by obtaining bonuses from whatever towns that may be induced to give them ; but this is treating the effect rather than the cause. It should be remembered that in the city of Toronto property valued at about twenty millions of dollars is exempt from all taxation ; and that this is also the fact to some degree throughout the province. This exempted property enjoys all the benefits and protection bestowed upon any other property in its vicinity ; and these benefits and protection cost the municipality quite as much for maintenance. Of course there are certain kinds of property that are not and should not be taxed under any circumstances. City, Provincial and Dominion real estate, and public school houses should not be taxed, because these all belong to the people and are used exclusively for public purposes. But all other property should be taxed. Churches and cathedrals, universities and colleges, and every other similar institution should be taxed, and the salaries of the clergy and of judges and all government officials should be made to contribute to the support of the municipal, provincial and general governments, as well as the income of manufacturers, their employes, and all other classes of bread winners. Were this the case taxation upon the people would be lightened, and they would not feel it so great a hardship as they now do. The question constantly and persistently presents itself : Why should the rich, who only are able to patronize expensive churches and places of worship, while the poor have to stay away from them because of their poverty—why should the sons of the rich have the privilege of obtaining classical education, and become members of the learned professions, while the sons of the poor are denied this privilege ; why should the salaries of office holders and professional men be exempt from taxation, while manufacturers and their employes are taxed ? No satisfactory answer is given to these questions, and the weak excuse for them is that it has ever been thus. There is no reason why any suburban town, or why any town or city, should grant any bonus to any manufacturing concern as an inducement for it to locate within its borders, for this implies unjust and unfair taxation ; and there is no reason why the Provincial or any other Government should grant any exemption from taxation to any property not used exclusively for public purposes ; or to any person whatever. Let all fare alike.

#### TRUTH OUGHT TO PREVAIL.

THE Kingston, Ont., *British Whig* falls into line with the rest of the Free Trade papers in declaiming against the tariff, taking as its text the suggestion recently made in these pages by a correspondent, who pointed out some of the incongruities

of the tariff, and proposing that the Minister of Customs be interviewed on the subject. Fair discussion will not injure the tariff policy adopted by the Dominion Government ; and as far as this journal is concerned, such discussion is invited from both friends and foes. In the language of our contemporary, "Truth will prevail," and all the favor we ask at the hands of the opposition is that they stick to the truth. No doubt it will be painful for them to do so ; but on our side fighting for truth will be easier than fighting against falsehood.

Speaking of what it calls the "discontent" which prevails among some Canadian manufacturers anent some phases of the tariff, the *Whig* says that this journal advocates the purchase of labor "where it can be obtained cheapest" ; and that Canadians "ought to be allowed to purchase their goods on the same terms." A respectful regard for the truth should have led the *Whig* to have avoided making this remark. This journal has never advocated the purchase of labor by our manufacturers "where it could be obtained cheapest," for that would have been tantamount to advising those of them who operated cotton factories to remove them to Georgia or South Carolina, close to where the cotton grows, and where negro labor is cheaper than Canadian labor ; and foundrymen and machinery makers to erect their works on the Clyde, close to the Scotch blast furnaces, and where pauper labor never has the opportunity to eat good Canadian beef.

The *Whig* cites our correspondent as evidence to show that we "palpably misrepresent" the facts in saying that Protection is booming Canada and making it a great country ; and it speaks of him as an "oppressed tradesman" because his machinery costs 50 per cent. more than in England. This is a violent distortion of the meaning of what our correspondent said and meant. He distinctly and unequivocally announces himself a Protectionist, and he does not complain because he has to pay duty on his machinery ; his wants being confined to a desire to equalize the tariff in certain directions, and to place upon the free list articles that are not now enumerated in the tariff, and which cannot be manufactured in Canada. If the *Whig* will carefully read the letters of our correspondent he will discover this to be the fact.

By the way, does it ever occur to the *Whig* that inuendos and suggestions of dishonorable practices are not and never can be arguments ? Should it ever realize this fact it should abandon their use.

#### THE WHIRLWIND HARVEST.

A SINGULAR spectacle was presented in many cities in the United States on Sunday, October 20, when, by a previous understanding, the ministers of congregations of colored people made special supplication to Almighty God to protect the people of that race in the South from the brutality and butchery that is being visited upon them by the whites upon the slightest provocation—frequently without any provocation at all. In some of the churches the advice to "strike back" was given when they were assaulted, or when their wives and daughters were insulted and wronged.

The American papers constantly teem with press telegrams from all quarters of the South giving accounts of the lynching of negroes. It is the rarest thing that any negro accused of

any heinous crime is brought before a court of justice. To accuse is to condemn, and to condemn is to string up by the neck to the nearest tree, and to fill the body of the helpless victim with buckshot. Sometimes these lynchings are of single individuals, but it is of frequent occurrence that the butchery is done by wholesale; and these events have become of such frequent and flagrant character that even some of the whites feel compelled to raise their voices in protest against them, not infrequently at their own personal risk. The frivolousness of some of the "reasons" given for these murders is exemplified in the recent killing of a train hand named Moore on a Georgia railroad, because, in a quarrel with another man, he threw a stone that accidentally struck a white man standing by. The press account states that "a posse waited for the arrival of the train on which Moore was, and, taking him off the train, made short work of him. The victim was of good character." Recently in Lafayette, Louisiana, a negro named Keyes was lynched under circumstances that pointed directly to certain white "regulators" as being the murderers. The affair grew out of an election in which the negroes attempted to vote against the ticket put in the field by the whites. Under a pressure that could not be resisted some of the regulators were arrested, but, according to the *New Orleans Times-Democrat*, the trial of them came to an inglorious and farcical end, the whole proceeding being stigmatized as "thoroughly ridiculous, and a judicial farce." Regarding the affair our contemporary says:—

It is reported that little vigor was exhibited in the prosecution on the part of the State. This report may well be credited, for surely there was both lack of vigor and lack of knowledge of law when we are told that one of the most remarkable pleas ever introduced in a court of justice in this State since the close of the war was allowed to pass unchallenged. We are gravely told that "the defence cited the act of incorporation of the town of Lafayette of 1836 to show that the election held last May was not legal, because it did not conform to the provisions of the said act, to wit: That the election shall be held by the sheriff and clerk of court, and not by three commissioners appointed by the city council, and that only free white male citizens twenty-one years of age or over shall be entitled to vote. And this plea—this huge joke—was sustained by the court and jury, and the accused honorably discharged!

Of course the provision of the act of incorporation cited by the defence was not only in direct conflict with the Constitution of the United States, but also with that of the State of Louisiana; and it is the continual occurrence of these outrages—the killing without cause and the failure to punish the white murderers—that has wrought up the colored people to a pitch of excitement and alarm that bodes no good for the peace of the country or the stability of the Government, particularly that of the Southern States under Democratic rule. In making their report to the Court, the grand jury to whom had been committed the investigation of the affair stated:—

While we deeply deplore the state of affairs existing in this parish, especially the cowardly and brutal deeds lately committed by armed bands of men called "regulators," who have in the night time committed murders, cruelly beaten others, and by their appearance in a body with masks on and carrying guns have caused terror among the women and children, after a tedious and searching inquiry, we have been unable to bring the offenders to justice. We further submit that we have used all the means in our power to find out the offenders

without avail, as there seems to be a disposition to screen the offenders.

It is a mistake to suppose that Mr. Lincoln's emancipation proclamation freeing the slaves, or their enfranchisement, clothing them with citizenship, settled the negro question in the United States. In hopes of "conciliating" the South the Republican party abandoned the negro to the tender mercies of his ex-master. This was sowing the wind, but the whirlwind harvest appears to be near at hand.

#### EDITORIAL NOTES.

WHAT'S the matter with Protection? Protection is all right.

PERSONAL to New England: Come back under the protection of the British flag. We forgive and forget the Boston tea-party episode of more than a hundred years ago. You would make six dandy Provinces in our Dominion galaxy. Our ores and coal would be at your service free of duty. Come.

THE population of the United States is only four per cent. of the population of the entire world, and yet, according to the *Toronto Globe*, that country consumes forty per cent. of the entire iron and steel production of the world. And this, too, in the face of a tariff duty of six dollars per ton on pig iron.

THE Governor of Mississippi is not an enthusiastic admirer of at least one Yankee industry, and discourages its establishment in his State. Recently Messrs. John L. Sullivan, of Boston, and Jacob Kilrain, of Baltimore, attempted to establish a mill in that State, and Governor Lowery was so much displeased thereat that he actually called out the militia to prevent it.

IF a tariff duty of four dollars per ton on pig iron is not high enough to cause the establishment of enough blast furnaces in Canada to supply the Canadian demand for pig iron, raise the duty. The American duty is six dollars per ton—fifty per cent. higher—under which the blast furnace industry in the United States is in a most flourishing condition, which cannot be said of Canada.

A PRESS telegram from New York announces that by the first of January next every union plumber, steam and gas fitter and their helpers, will drop their connection with the Knights of Labor and form a new organization. This means a loss of over 10,000 mechanics to the order. The determination to form this union was reached, it is said, at a secret meeting of delegates of the craft from all parts of the country recently held in Washington.

SOME of the New England iron manufacturers complain that unless they can obtain Canadian iron ore and coal free of duty they will have to quit business. Don't do it. There are extensive and valuable deposits of both ore and coal in New England that can be mined to advantage by the proper expenditure of intelligently directed labor and capital. New England should possess both these qualifications in abundance.—*Post-script*. If you don't like your tariff, which you can't remove, and if you must have Canadian ores and coal, come to Canada. We will be pleased to welcome you.



THE following circular, signed by Commissioner Johnston, has been issued to collectors of customs: "I am instructed by the Hon. the Minister of Customs to inform you that samples, being small pieces of cloth, edgings, textile fabrics, cards containing buttons of various patterns, being representative of goods, and having no commercial value and obviously intended for use solely as samples to sell by, may be admitted free of duty. All samples imported complete in themselves, or which can be disposed of as merchandise, whether imported in single specimens or in pairs or quantities, are dutiable according to material."

THE *Toronto Mail* re-publishes an interesting item from the *Philadelphia Ledger* regarding the dimensions of the monster chimney of the new Fall River Iron Works at Fall River, Mass. In the same issue the *Mail* tells of the "crushing effect" of the tariff upon the New England iron industry. The iron industry of New England may be suffering intensely from the "crushing effect" of the tariff, but the Fall River Iron Works don't seem to feel it in that way. A concern that can build "the largest chimney in America" is not likely to abandon the use of it very soon because it cannot get Nova Scotia coal duty free.

The *Montreal Herald* reminds one of Rip Van Winkle. Old Rip was an inveterate toper, but under Gretchen's persuasion he "swore off" from the intoxicating cup. The great trouble with Rip was that he could not stay "swored off," but would imbibe whenever opportunity offered. When reproached by Gretchen for taking a forbidden drink, Rip would protest, "Well, we won't count that." So with the *Herald*. It challenged our assertion that "Protection made Britain a great and prosperous nation," and when we showed that until 1842 Protection had prevailed in Britain for a thousand years, our respected contemporary retorts, Rip Van Winkle like, that that fact is not to be considered. Yea, verily, the *Herald* shirks the question.

In the *Mail's* report of the proceedings of the Toronto Trades and Labor Council the following curious paragraph appears:

David Spiers, who, it was said, made himself obnoxious during the recent Galt labor difficulties, was declared boycotted by the Council

The action of the Trades and Labor Council is, to say the least, somewhat extraordinary. This is supposed to be a free country, and it does not say very much for our boasted liberality and toleration when it becomes necessary to apply the 'boycott' to those who happen to differ with us in opinion. However, at latest accounts Mr. Spiers was attending to business at the old stand, and the heavens had not fallen.—*Galt, Ont., Reformer.*

It is a fact which has not come to general prominence that the improvements being made at Sault Ste. Marie by the United States and Canadian Governments, at a cost of over \$11,000,000, at present rank as among the most important international enterprises being carried on in the world. By the reconstruction and enlargement of the ship canals there is a direct shipment of produce by large ships from Duluth to Buffalo without any transfer. It is confidently expected in Canada that ar-

rangements will soon be made by which a cargo loaded at the extreme western end of Lake Superior can be shipped direct to Liverpool. This would entail new and extensive improvements of the Welland canal; but the Canadian Government seem to be preparing for that end.—*Syracuse Journal.*

THE marvelous Baldwin Locomotive Works are at present turning out twenty-eight complete locomotives weekly, or at the rate of 4 $\frac{2}{3}$  per day, or a complete locomotive in every two hours and eight minutes of time. These are really astounding figures, and the mind fails to take in their full significance until one has gone through the works and noted the small army of men employed and the vast equipment of machinery.—*The Bulletin.*

This is one of the distressing effects of Protection. Instead of having their locomotives built abroad, the United States actually build at home all that are required; and this sort of thing has gone on until one concern there build a locomotive complete for every two hours and eight minutes working time.

FREE Trade in England drives British capital to this country, which is why syndicates are buying up our industries.—*Buffalo News.*

Free Trade in England accumulates capital and sends some of the surplus over to the States to buy out the natives.—*Hamilton Times.*

This is all owing to Protection. The "industries" in the United States here spoken of are exceedingly valuable, else the capitalists of Free Trade England would not be investing in them. They don't come to this side the Atlantic to invest their capital "just for fun," but because more money can be made in a protected industry in the United States than in an unprotected industry in Free Trade England. Our Yankee friends are ready and willing to use British gold in operating their industries; and our English friends are quite as ready and willing to place their gold "where it will do the most good," even if it is in the protected industries of the United States.

It is likely that the craving for drink itself is not seldom produced by bad cookery, such as is too common in the farm house and the country inn. If lunacy is on the increase, as it is said to be among farmers' wives, as farmers' wives do not often drink, the cause, supposing it to be in diet at all, must be sought rather in the frying-pan than in the cup. Indigestion seeks relief in patent medicines, which again aggravate the evil. A movement for the reform of our cookery is understood to be on foot, and it may help the cause of temperance, as well as that of Eupepsia.—*Prof. Goldwin Smith in The Bystander.*

If Prof. Smith really desires to ameliorate the condition of those who suffer directly and indirectly from bad cookery, and particularly of farmers' wives, who suffer from lunacy because of the hard work they are forced to perform and the lack of conveniences for doing it, particularly in hot weather, he should remember that one of the greatest blessings that could befall such women is the possession of gasoline cooking stoves. He should investigate their merits.

THE *Toronto Globe* states the fact that "the United States pay the Brazilians fifty million dollars a year for coffee, and altogether Brazil sells the United States eight times as much as

the United States sell Brazil." The *Toronto Mail* states the fact that the State Department at Washington had received from Mr. Abbott, United States Minister to Columbia, a letter in which he states that "The Columbian may admire the institutions of the great republic, but he is not for that reason willing to pay a friend, however dear to him, 4 cents for a yard of cotton cloth which he can buy of some one else for 2½ cents. It will require something more than sentiment to change the volume of trade." Of course both of these facts are offered in evidence against the tariff. The *Globe* neglected to show that there is no duty whatever on the importation of coffee into the United States, and as far as the article is concerned the trade is perfectly free. The *Mail*, too, neglected to show that the United States is the home of the cotton plant, and that the export trade in cotton goods from the United States is also perfectly free and unhampered.

It is reported on the streets that the E. & C. Gurney Company are offered large inducements to remove their extensive stove works from Toronto to Brampton, a small suburb only a few miles away. It is also said that other neighboring towns are competing for the prize. The company give employment to about 300 hands, and the taxes they have to pay on their property is about \$6,000 a year. The important manufacturing industries of Toronto are being driven singly and in droves away from the city on account of the exorbitant taxes imposed upon them; and the workmen thus deprived of employment represent an average of five times their number taken away from the permanent population of the city, and added to that of other places. It is almost a crime, certainly an outrage against Toronto, to allow such a condition to prevail. About twenty million of dollars worth of property in this city, most of it churches and church belongings, is exempt from taxation, while factories, foundries and industrial establishments where large numbers of hands find constant employment, are strangled to death or driven out of the city by exorbitant taxation

"OUR Christian Heritage," Cardinal Gibbon's new book has just been published in Baltimore. In it the writer addresses a friendly exhortation to laboring men in which he says:

"Cultivate a spirit of industry, without which all the appliances of organised labor are unavailing. A life of patient industry is sure to be blessed with a competence, if it is not crowned with an abundant remuneration. The majority of our leading men of wealth are indebted for their fortunes to their own industry. Take an active, personal conscientious interest in the business of your employer, and the more you contribute to its success the better he can afford to compensate you for your services. He will be impelled to requite you with a generous hand. Foster habits of economy and self denial. No matter how modest your income may be, always live under it. You will thus protect your liberty and business integrity and guard yourself against the slavery of debt."

The jawsmiths and walking delegates, whose occupation it is to foment discontent and discord between employes and employers, will view this advice of His Eminence as exceedingly hostile to their interests. The masses, however, will accept it in good faith.

A CONSERVATIVE contemporary asks, What are the "indigenous industries" which the advocates of Unrestricted Reciprocity

say would be benefited by that policy? For all practical purposes the question is a very easy one to answer. An indigenous plant is one that grows here without costing the grower more than it is worth. Pineapples and oranges are, therefore, not indigenous to Canada. An indigenous industry is one that can flourish without costing the country more than it is worth.—*Toronto Globe*.

There are no indigenous industrial industries in Canada; they are all exotic. A tree, shrub, or plant, a bird or animal may be indigenous, but not an industry. Usually indigenous plants that grow here "without costing the grower more than it is worth" are of very little or no value whatever. Wheat, oats, rye, corn and potatoes are not indigenous to Canada; nor are hogs and horses—they are all exotic, but not more so than pineapples and oranges. Canada encourages exotics. She encourages the cultivation of crops and the raising of stock; and she also encourages exotic industrial industries. They all require nourishment, care and attention. Our exotic industries require just the sort of protection afforded by our National Policy.

BELLEVILLE is going to give \$25,000 to a company that proposes to establish a rolling mill. Our industrial system is an odd one. We tax raw material so that the manufacturers cannot manufacture, and then we tax ourselves and give a subsidy so that the manufacturers may be able to manufacture. Belleville is really trying by direct taxation to undo the work performed by Mr. Bowell's department through the medium of direct taxation. It is attempting to recoup the manufacturer what he will pay the treasury upon his imported iron.—*Mail*.

Our industrial system may be an "odd one," but under it we continue to establish industrial enterprises that to a certain extent supply our wants, give employment to labor, and a home market to farm products. This is what the *Mail* don't like to see. It don't like to see tall chimneys springing up in Belleville or anywhere else in Canada; it don't like to see Canadian mechanics obtain work at home in Canadian rolling mills, instead of going further and faring worse in the United States; and it don't like to see Canadian farmers selling their produce to Canadian consumers instead of sending it abroad. The *Mail* don't like to see Canadian towns bonusing industrial works because we maintain protection, but we do not remember of very many such works springing up in Canada before protection encouraged their establishment.

MR. L. C. CARRAN, of Cleveland, Ohio, recently returned from South Dakota, where he had gone on a hunting expedition, but found no game. He says: "The lakes are mere ponds, and the sloughs have dried up, leaving depressions in the earth like huge saucers. There has been no rain in Southern Dakota since May, and everything that had wings left for parts unknown; while everything that had legs, save and except man, walked away long since for fresher fields in which to operate. Crops have been withered by the sun until many farmers have not enough wheat for their own use. Fields that promised well in early spring threshed but four or five bushels to the acre. The corn crop was almost a total failure, and the shriveled cobs can be rubbed to powder in the hand. Mr. Carran says many farmers are in want for the necessaries of life. They have mortgaged their lands and every live thing on them. Their plows, harrows, reapers, and even the guns with

which they hunt have been pledged for money with which to purchase food and clothing. The interest demanded from them is oftentimes very high, so that they will be years in paying their debts, if ever, indeed, they are paid. Many people are leaving the country, deserting the homes they worked so hard to get, and the condition of the people from any aspect is wretched almost beyond belief."—St. Louis *Farm Machinery*.

MR. C. C. TAYLOR, of Her Majesty's Customs, Toronto, and author of "Toronto Called Back," a review of which appeared in these pages at the time of its publication, spent several months in England during the past season, where he delivered frequent lectures on topics in which Canadians are particularly interested, and which were most graciously received by those who heard them. Being a Protectionist and a staunch supporter of our National Policy, Mr. Taylor literally bearded the British Free Trade lion in his den, and created considerable interest in showing that the people and the industries of that country would be benefited by an abandonment of the existing policy, and the adoption of one of Fair Trade. Some of the most influential British journals contained interviews with Mr. Taylor, making editorial mention of them, and discussing his arguments from their respective political standpoints. Among the journals thus mentioning him were the *Canadian Gazette*, *Blackburn Express and Standard*, *Bolton Evening News*, *Blackburn Northern Daily Telegraph*, *Middlesborough North-Eastern Daily Gazette*, *Bury Guardian*, *Wigan Examiner*, *Wigan Observer*, *Sheffield Daily Telegraph*, *Belfast News-Letter*, *Liverpool Courier*, and others. Mr Taylor's visit to Britain was one of pleasure, for he represented no party or emigration agency, but he seized the opportunity to interest the people of the Old Country in Canada, particularly in Ontario, as a field for emigration for both capitalists, manufacturers and skilled artisans.

THE three steamships recently contracted for by the Canadian Pacific Railway Company, for the service between Vancouver, B.C., and China and Japan, while not quite as large as some of the Atlantic liners, will, with regard to their engines, lines, arrangement, finish and equipment, excel anything now afloat. These ships, which will be 6,000 gross tons, are to be built of steel, 440 feet long, 51 feet beam and 36 feet hold. They will have twin-screw engines, and will be tested for speed up to 18 knots per hour. In fact these western greyhounds are intended to outsail anything on the Pacific ocean. They are to be fitted with gun platforms, so as to be turned into armed cruisers in case the admiralty should ever require the service of these ships to protect British and Canadian interests. The contract for the construction of these steamers has been awarded to the Naval Construction and Armament Company of Barrow-in-Furness, and the engineer in charge is Mr. Bryce Douglass, who designed the engines for the famous sister ships, the *Umbria* and *Etruria*. The passenger accommodation will be about 150 first-class, and 60 second-class, with ample room for 350 persons in the steerage, and each steamer's total dead weight will reach in the neighborhood of 3,750 tons. These vessels are to be completed, one probably before the close of 1890, and the others a few months later. When completed the Canadian Pacific trans-Pacific line will maintain a regular monthly ser-

vice. The cost of these magnificent ships will be about \$3,000,000, and the time occupied from Vancouver to Yokahama will be about twelve days. If the traffic demands it a still greater speed will be attained. At the present time the Pacific mail line makes the trip from San Francisco to China in from fourteen to seventeen days, leaving a heavy margin in favor of the Canadian route. The company are sanguine that in a very short time the bulk of the European traffic will go over Canadian territory, and thence by Canadian ships at Vancouver. With a fast line of Atlantic steamers to Halifax, no difficulty whatever will be experienced in taking passengers from Liverpool to the coast of China in twenty-one or twenty two days, and, if necessary, better time than this can be made.

## SPECIAL ADVERTISEMENTS.

*Advertisements will be accepted for this location at the rate of two cents a word for the first insertion, and one cent for each subsequent insertion.*

200 LIGHT GAS MACHINE for sale, only used two winters. Apply Wagner, Zeidler & Co., West Toronto Junction.

TISDALE'S BRANTFORD IRON STABLE FITTINGS.—We lose no job we can figure upon. Catalogue sent free. The B. G. Tisdale Co., Brantford, Canada.

IRON TURNING LATHE—12 inch over sheens, 20 inches in gap, 6-foot bed, in good order—for sale or exchange for small shaper. Standard Needle Co., Paris.

I WILL give a free deed of ten lots on the Scugog River to anyone who will start a manufacturing establishment employing a certain number of hands. A. D. MALLON, Lindsay, Ont.

BISCUIT FACTORY FOR SALE IN KINGSTON.—Including land, buildings and machinery, at \$5,000; going concern; good business; fully equipped. Apply to Macdonnell & Mudie, Kingston, Ont.

FLOUR MILL FOR SALE.—One of the best Water Powers on the Welland Canal. Could be converted for other manufacturing purposes. Address Richard Wood, St. Catherines, Ont. P. O. Box, 977.

AS DYER—Blue vats and fancy colors in wool and piece. Fast carriage green cloths, tricots, flannels, etc., etc. Am at present engaged in the States, but desirous of coming to Canada. Address, GUBELINUS, this paper.

FOR SALE—at Merrickville, Ont., within five minutes' walk of the C.P.R. station or the Rideau canal wharf, a first class Water-Power with substantial buildings suitable for roller mill or other heavy machinery. Apply to Mrs. M. P. MERRICK, Merrickville, Ont.

FOR SALE.—The Wilkinson Plough Co. (Lim.), of Aurora, Ont., are moving to West Toronto Junction about the 1st January

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Shepherd Street,  
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Gentlemen,

The eighteen-inch Driving Belt we had from you in July, 1879, has given us thorough satisfaction. It has done all the work in our factory ever since, and looks as if it were good for the next ten years.

Yours truly,

WM. BURKE  
For Langley & Burke.

BELTS for Saw Mills,  
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for Hard Places.

Lace Leather, Belt Oil, etc., etc.

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— MANUFACTURERS OF —  
**Standard Canadian Belting.**

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Over 200,000 feet sold during year 1888.

Belts Cut from the Solid Part of the Leather Only.

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next, and offer their works at Aurora for sale or exchange. They are large, complete works, and have a capacity of from forty to fifty ploughs a day. Apply either to Aurora or to their temporary offices, 19 Wellington street east, Toronto.

**FOUNDRY AND MACHINE SHOP FOR SALE IN DUNDAS**—Formerly occupied by Thomas Wilson and Co., and lately by Cochrane Roller Mill Co., very suitable for manufacturing purposes; steam engine, boiler (new), also water power; a quantity of machinery and shafting in building. Apply to Thomas Wilson, Dundas; Kingsmill, Cattnach & Symons, Toronto; or Bruce, Burton & Bruce, Hamilton.

**FOR SALE**.—A first-class (American made) automatic gauge lathe, but very little used and in perfect condition, with counter shaft, hangers and pulleys complete; suitable for rapidly turning hoe, fork or broom handles; also one iron top jig saw, nearly new. Apply to Samuel May & Co., 89 Adelaide street west, Toronto.

*The Canadian Bibliographer*, published monthly at Hamilton, Ont., by Messrs. Griffin & Kidner, is a new venture in the exhaustless field, and is designed to serve as a medium of communication between those interested in the production and sale of books and their clientele—the book buyers—with special reference to Canadian writers and Canadian books. Welcome; there is room at the top.

*Once a Week* is an ably edited and beautifully illustrated periodical, published weekly in New York by Mr. P. F. Collier. It is replete with useful information, society news, notes of prominent people, and other interesting and instructive reading. Among the writers who contribute to *Once a Week* are Frank R. Stockton, Wm. M. Walsh, George Hoey, Edward Wakefield, and many others of equal note.

THE Dominion Customs Department have announced the following Departmental decisions as having been made in the months of September and October:—Condensed milk, sweetened, 1½c. per lb. and 35 p.c.; condensed milk, unsweetened, 20 p.c.; fusil oil, \$1.90 per I. G.; "Jellyine," a preparation of corn starch, sugar, etc., 1½c. per lb. and 35 p.c.; Murray's fluid magnesia, 50 p.c.; rhubarb plants or roots, 20 p.c.; sulphate of sodium, 20 p.c.; turmeric, ground, 20 p.c.

A VERY promising industry is growing up at New York in the canning of cod-fish balls. The persons engaged in it experimented for several years before they were able to put up the combination of fish and potatoes so that it would preserve its freshness and flavor, but perseverance conquered, and the product has met a good demand. The fish are carefully prepared for the canning, and butter is used instead of pork fat in making the mixture. Cod-fish balls have been held to be distinctively a New England dish, but these canned ones are shipped to all parts of the United States, and orders have been received from abroad.—*Good Housekeeping*.

*Wide Awake* for the current month is the closing number of volume 29, and it demonstrates that "age does not wither" its freshness and beauty. Like all the other *Wide Awakes* that have preceded it, it is fully up to the standard set for it by the publishers; and it gives satisfactory promise that volume 30, which begins with the December number, and all the other volumes that are to follow it, will be quite up to the standard. Perhaps they will be like the Indian's tree: an Indian describing the straightness of a tree said it was so straight that it leaned a little the other way. Perhaps in keeping these monthly *Wide Awakes* up to the standard the publishers may make them even better than they promise; we shall see.

No. 118 of *Good Housekeeping* (November 9) begins a new volume, the tenth of this popular fortnightly visitor. A very timely and suggestive paper on Gifts for Christmas is furnished by Mrs. C. S. Fox, and a novel church fair called a "Kalendar Kermesse," is described by Florence M. Gray. Maria Parloa answers the question "What is Good Housekeeping?" in a pertinent manner. The new department of "Woman's Work and Wages," edited by Mrs. Helen Campbell, starts off in excellent shape and with much promise. The Christmas number of *Good Housekeeping* will have a paper from

Edward Bellamy, author of "Looking Backward," entitled "Household Service Reform," in which Mr. Bellamy will look forward and give his ideas of how Household Service Reform may be practically developed.

THE *Dominion Illustrated* for November 9 devotes several of its pages to the Governor-General's tour in the North-West. The visit of the vice-regal party to Saltcoats, Russell, the Barnardo Home, the Crofter Settlement, and other points of interest along the line of the Manitoba and North-Western Railway is fully and ably illustrated. The place of honor is occupied by the Deputy Minister of Justice, Mr. R. Sedgewick, Q.C. Mrs. Spragge's summing-up is peculiarly interesting and ought to be read by all who are concerned in the greatness and growth of the Pacific Province. Three paintings by Sir E. Landseer, C. Schwenninger and S. J. Carter are reproduced in fine engravings. The *Dominion Illustrated* is published by the Dominion Illustrated Publishing Company, Montreal. Subscription, \$4.00.

NEARLY all the steel pens used in this country (the United States) are manufactured here, though 20 years ago nearly all were imported. Now only the highest priced ones are imported. We use about 1,000,000 gross every year, which is not so large a number as might appear, considering that it represents fewer than three pens apiece for all the inhabitants. As many people who use them wear out a gross (144 pens) or more in a year, it is evident that there must be a great many who never use a steel pen at all. The pens are made of imported steel, which is preferred because of its more uniform quality. It is rolled into big sheets and cut into strips, after which it is annealed, rolled to the thickness required, then tempered and cut and stamped into pens. Much skill is required in all these operations and in those of finishing the pens for use. The manufacture and trade in steel pens has seen very little change for a generation.—*Good Housekeeping*.

THE unexampled activity in the plaster trade and the increase in the demand of late for ships of large tonnage, has given an impetus to shipbuilding, which is cheering the hearts of thousands directly and indirectly connected with the shipping interest. At River John Charles McLellan is preparing to build a bigship of 1,000 tons. At South Maitland William P. Cameron has a vessel of 1,000 tons on the stocks. At Maitland Messrs. McDougall have a barque of same tonnage well under weigh. At Avondale the largest ship ever constructed at that place is now nearing completion. As she now stands well up on the ways, her appearance is that of a vast ship of war—230 feet keel, 45 feet wide, 25 feet depth of hold, and 2,000 tons measurement. The builder, G. A. Knowles, is well known throughout the province for the superior ships he has added to the marine of this country, and this, his largest achievement, will add another laurel to his well-earned reputation as a contractor. On the opposite shore J. B. North has a monster ship on the stocks of over 1,900 tons, and before the close of 1889 several other keels will be laid.—New Glasgow, N.S., *Enterprise*.

WE are pleased to note the appearance of the nineteenth volume of Alden's *Manifold Cyclopaedia*. It was apparent from the first that this was to be the Cyclopaedia for "the people," and each succeeding volume emphasizes the great superiority of the work for popular use over its far more costly competitors. It is remarkably comprehensive. The fields of literature, science, art, and of all knowledge are thoroughly gleaned. The topics are ably treated, many illustrations are given, and a vast amount of information is condensed into small space. The articles are written by experts in their various lines and are carefully and skillfully edited. The results of the latest discoveries and inventions appear, many of the subjects being brought down to June, 1889, and some even later. Among the important topics treated in this volume we notice Home Rule in Ireland; Homestead Entry, and the Homestead Laws for all the States; Homœopathy; Hop; Horology; Horse, Horse Racing, Horse Shoeing and Horse Taming; Hospitals; Howard University; Hydropathy; Hypnotism; Hysteria; Ice; Immigration, with valuable statistics; Imports and Exports, with figures for the United States covering 100 years and brought down to June, 1889; Indians; Induction of Electric Currents. In the line of biography we find articles on Homer; Hood; Hopkins; Horace; Howard; Howells; Hugo; Humboldt; Hume and Hunt; while among the Countries and States noted are Honduras; Hungary, Iceland; Idaho; Illinois; India; Indiana; and Indian Territory, including the opening of Oklahoma. The price of this great work is almost incredibly low. The first nineteen volumes in cloth binding will be sent upon receipt of \$9.00 or in half morocco style for \$12.80, if ordered at once. A specimen volume, subject to return if not satisfactory, will be forwarded for 60 cents in cloth or 85 cents in half morocco. JOHN B. ALDEN, Publisher, New York, Chicago, and Atlanta.

## SCREW-NAIL.

SCREW-NAILS have been made with peculiar threads intended to facilitate the advance of a screw into the wood, and designed to be drawn from the wood like ordinary screws by turning, but their cost of manufacture prevented their wide adoption.

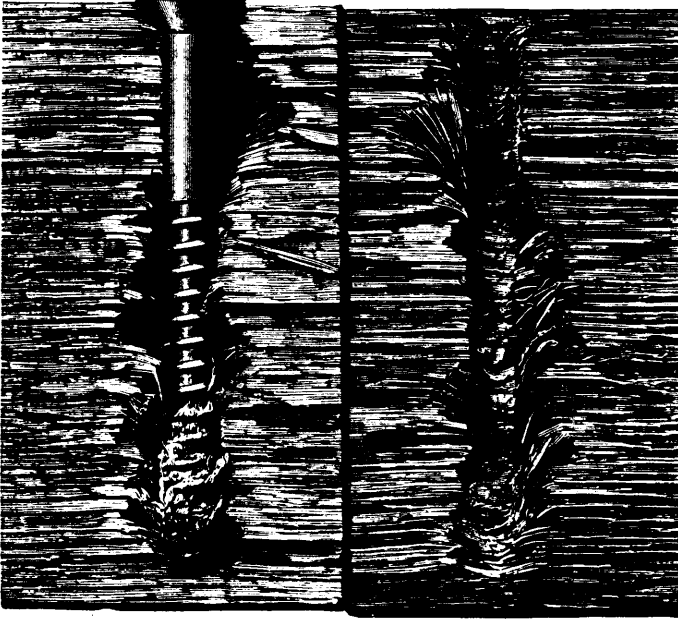


Fig. 1.—Common Wood-Screw Driven with Hammer.

In order to secure a good hold of a screw or nail in wood it is absolutely essential that the fibers of the wood should be as little broken up as possible by the entrance of the screw or nail. In driving a screw of the ordinary type into wood with

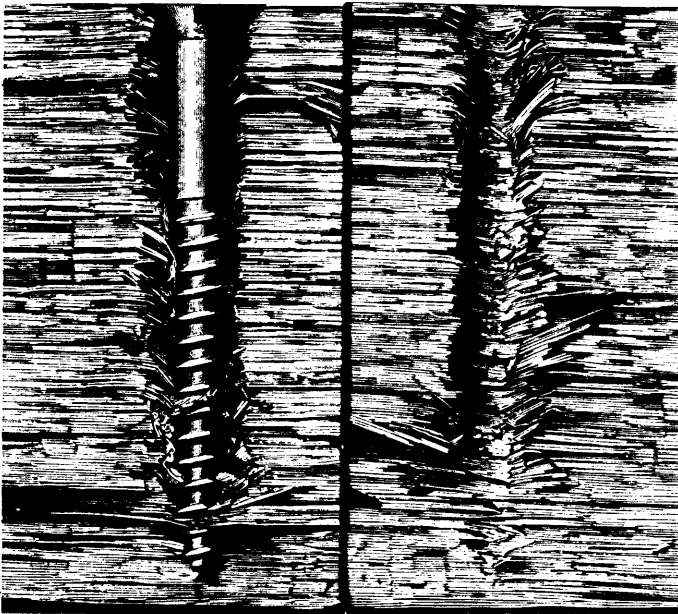


Fig. 2.—Common Wood-Screw Driven in Two-Thirds with Hammer.

a hammer the fibers are so broken up by the screw-threads that the holding capacity of the thread is greatly reduced, and even where threads of steep pitch are cut into wire the

waste of material and reduced strength counterbalance to a great extent the holding capacity due to the spirally-formed threads. A nail or screw forces its way into the wood, and its holding power depends more directly upon the shape and condition of the walls of the cavity formed by its entrance than it does upon the tensile strength of the metal itself, which is generally more than sufficient to resist any direct strain brought upon it.

The accompanying engravings are made from photographs of two blocks of wood, into one of which, Fig. 1, a common flat headed wood screw had been driven, while into the second a common screw had been driven two-thirds of its length with a hammer and then forced home with a screw-driver. These show the effect upon the wood of inserting a screw with a hammer, the tearing away of the fibers being clearly brought out. The third illustration shows a new screw-nail which has been recently patented by the American Screw Company, of Providence, R.I. This screw has the ability to form a cavity which, as to the strain upon it and its withdrawal, acts like a

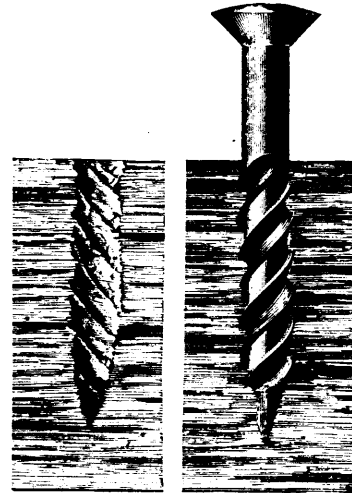


Fig. 3.—New Screw-Nail.

nut to a screw. The walls of this cavity are made up of the compressed fibers of the wood instead of disintegrated fibers, which result from driving ordinarily. The form of the threads of this screw and its four-sided point are plainly shown in the right-hand view, Fig. 3. These screws are made by special machinery designed for the purpose by the American Screw Company, and which forms the screw by swaging and rolling. This screw can be forced into wood by the blow of a hammer, makes its own nut as it descends into the wood into which it is driven, and may be withdrawn from the wood by turning with a screw-driver in the ordinary way. These screw-nails will be sold at a price considerably less than that charged for the ordinary screws.

MESSRS. D. MORRICE, SONS & Co., manufacturers' agents, Montreal, have become selling agents for the Globe Woolen Mills Company, that city.

MR. SAML. MAY, manufacturer of billiard tables, billiard balls, etc., is quite as good a "shot" with his breech-loader as he is with the cue. At least such is the reputation awarded him among the gun clubs who control game preserves on the St. Clair flats, and also some of his Toronto friends who, during the week, have been in receipt of tangible evidence of his prowess as a sportsman.

# Manufacturing.

*This department of the "Canadian Manufacturer" is considered of special value to our readers because of the information contained therein. With a view to sustaining its interesting features, friends are invited to contribute any items of information coming to their knowledge regarding any Canadian manufacturing enterprises. Be concise and explicit. State facts clearly, giving correct name and address of person or firm alluded to, and nature of business.*

MR. S. A. GREENLEAF, Rock Island, Que., is remodeling his grist mill at that place.

THE Grand Trunk Railway Company are building 500 freight cars at their works at Point Charles, Que.

THE Crossen Car Company, Cobourg, Ont., are building 500 freight cars for the Grand Trunk Railway.

THE tannery of Mr. F. H. Woodside, at Megantic, Que., was destroyed by fire Nov. 8. Loss about \$5,000.

MESSRS. BOYD & ELLIOTT have entered into partnership in the manufacture of bob-sleighs at Carberry, Manitoba.

MR. SWEENEY, Rock Island, Que., has taken over the old paper mill property at that place and will refit and operate it.

THE new roller mill being built by the Arrow Milling Company, at Birtle, Man., is about ready to be put in operation.

THE saw and shingle mill of Mr. Andrew James at Severn Bridge, Ont., was destroyed by fire Nov. 6. Loss about \$3,000.

A REMARKABLE deposit of asbestos has been found in North Ham, Que. The fibre is from four to nine inches long and very fine.

MESSRS. C. F. SMITH & Co., manufacturers of tinware, etc., Belleville, Ont., are enlarging their plant and extending their business.

A COMPANY is being formed in Toronto for the purpose of taking over the rubber works at Port Dalhousie, Ont., and operating the same.

THE works of the Ontario Fancy Leather Goods Company, Hamilton, Ont., were damaged by fire Nov. 1, to the extent of about \$6,000.

THE Enterprise Salt Works, Brussels, Ont., of which Mr. F. C. Rogers is proprietor, are producing about 100 barrels of fine salt per day.

MESSRS. GATES & SONS, of Philadelphia, are fitting up the old wire factory in Woodstock, Ont., with carpet manufacturing machinery.

THE ship Tythonus cleared from Victoria, B.C., Nov. 4th, for London, Eng., with a cargo of 51,429 cases of salmon, valued at \$300,000.

MESSRS. J. & J. TAYLOR, proprietors of the Toronto Safe Works, Toronto, have recently supplied six sets of vault doors to Mr. A. A. Green, Victoria, B.C.

MESSRS. JOHN BERTRAM & SONS, Dundas, Ont., have recently supplied a quantity of new machinery to the Vancouver Foundry Company, Vancouver, B.C.

MR. S. S. CLUTTON, of Aylmer, Ont., has purchased the woolen factory at Vienna, Ont., which he will immediately put in thorough order, and operate the same.

MESSRS. A. WATTS & Co., manufacturers of soap, Brantford, Ont., have recently made shipments of their products to Yokohama, Japan, and Shanghai, China.

THE capital stock of the Vancouver City Foundry & Machine Works, Vancouver, B.C., will be increased to \$100,000, and the capacity of the works doubled.

MR. S. T. WILLETT, the well-known cotton manufacturer of Chambly Canton, Que., has been appointed vice-president of the Quebec Board of Arts and Manufactures.

THE Peninsular Lithographic Stone Company, with headquarters at Owen Sound, Ont., has been formed for developing the lithographic stone quarry near that place.

THE grist and saw mill of Mr. Robert Bryden and Taylor's crushing mill at Flinton, Ont., were destroyed by fire Nov. 7. Loss about \$4,000 and \$2,000 respectively.

THE Jenckes Machine Company, of Sherbrooke, Que., have recently shipped to the Dominion Manufacturing Company, of Sudbury, Ont., a large copper smelting furnace.

A COTTON mill is to be started in Berlin, Ont., so it is rumored, the large furniture factory there, recently occupied by Messrs. D. Hibner & Co., being selected for the purpose.

THE Rathbun Company have the foundation laid for their large locomotive repair shop at Deseronto, Ont. The building will also be used for the repairing of other rolling stock.

MR. J. D. RONALD, proprietor of the Brussels Steam Fire Engine Works, Brussels, Ont., has recently shipped one of his fire steamers to Halifax, N.S., and another to Sault Ste. Marie, Ont.

THE moulding shop attached to Messrs. Cowan & Co.'s foundry at Galt, Ont., was slightly damaged by fire Nov. 2. The incident did not interfere with the regular routine of business.

THE Hanover Woollen Mills, at Hanover, Ont., of which Mr. Jacob Messenger is proprietor, is a one-set mill with four looms, the products of which include tweeds, flannels and blankets.

THE Lotus Woolen Mill, at Lotus, Ont., was destroyed by fire Nov. 4; loss about \$6,000. The mill was the property of Mr. Wm. McCabe, but it was leased to and operated by Mr. H. W. McCaw.

MESSRS. THOMPSON & SHERIDAN, of Toronto, have purchased 300 acres of land lying in St. Sophie parish, Que., in which, it is said, are large and valuable deposits of marble, equal to the finest found in Italy.

THE Welsford Red Granite Company, of Welsford, N.B., has been incorporated with a capital stock of \$50,000, for the purpose of quarrying and polishing the red granite found in their quarries in that province.

MR. ARPIN is negotiating with a manufacturer of vegetable ivory buttons to establish a factory at St. John's, Que. This industry is a profitable one, requiring skilled hands and valuable machinery, and pays good wages.

THE main building of the factory of the Knechtel Furniture Company, Hanover, Ont., is a substantial brick, 330x50 feet, three stories high, with dry kiln 76x50 feet. The concern gives employment to about 130 hands.

THREE separate engines—one of thirty, one of fifteen, and one of seven horse-power—have recently been shipped to the McLaren-Ross lumber mills of New Westminster, B.C., by Messrs. C. Leonard & Co., of London, Ont.

MESSRS. LAIDLAW & Co. are building a salmon cannery at Irving, on the Skeena River, B.C., which will have a capacity of putting up 1,000 cases per day. It is expected to have the works completed by the first of the coming year.

MESSRS. MCCLINTOCK & BURRELL, St. John, N.B., who have invented a machine for making spools and bobbins, have sold the right to the same for the United States to the Willimantic Company, of Willimantic, Conn., for \$15,000.

PRESTON, Ont., wants the Simonds Manufacturing Company, of Berlin, Ont., to establish their shirt factory in that town. A suitable building, free of rent and exemption from taxation for ten years, are the inducements offered.

MR. JAMES READY of St. John, N.B., is erecting a brewery at Fairville, St. John, which will be five stories high, covering an area of 150x59 feet, besides boiler and engine room. It is hoped to have the building completed by the end of the year.

THE Ball Electric Light Company, Toronto, will supply the electric machinery for the new electric light plant at Seaforth, Ont. Messrs. Cowan & Co, Galt, Ont., will supply the steam engine, and Messrs. Crystal & Black, Goderich, Ont., the boiler.

THE work of putting in the plant, stringing the wires, etc., for the electric light system in Whitby, Ont., by the Ball Electric Light Company, of Toronto, is being pushed rapidly, the intention being to have the plant in operation before the close of the year.

THE steam flouring mill at Teeswater, Ont., owned by the Teeswater Milling and Manufacturing Company, and operated by Messrs. Howson Bros., was destroyed by fire Nov. 5. The mill cost about \$19,000, and the contents destroyed were valued at about \$4,000.

THE Hanover Furniture and Undertaking Company, Hanover, Ont., manufacture furniture, coffins, caskets, etc. They also operate mills for the manufacture of lumber, shingles, laths, etc. Their works are contained in a brick building 100x44 feet, three stories high.

THE steam flouring mill owned by the Teeswater Milling and Manufacturing Company, Teeswater, Ont., and operated by Messrs.



Howson Bros., was destroyed by fire Nov. 5th. The mill cost \$19,000 when erected about ten years ago. Loss in contents about \$2,000.

MESSRS. I. W. MURRAY & Co., of Pembroke, have sold their copper mine near Sudbury, to an English firm for \$25,000. The purchasers, whose works are at Swansea, Wales, have been purchasers of the entire product of the Canada Copper Company's mines hitherto.

MESSRS. STRICKLAND & Co. have shipped to the Brunette saw mills here an oscillating hoisting engine and boiler for driving the piles for the new mill; also a 24x36 Hamilton engine to W. P. Sayward, of Victoria, for his new mill on the Gorge at that city.—Westminster, B.C., *Truth*.

THE Royal City Planing Mills Company, New Westminster, B.C., have shipped during the season 2,000,000 feet of dimension lumber to the Barney & Smith Company, of Dayton, Ohio, for car building purposes. They are also making some very heavy shipments of lumber to Manitoba points.

MESSRS. DAVID WILLSON, J. P. Dunn, L. Pardoe and R. Wilkie, all of whom are farmers, at a farmers' meeting held at Blenheim, Ont., Nov. 5th, were appointed provisional directors to organize a joint-stock company with \$50,000 capital, to build a \$20,000 flouring mill in or near that town.

THE North Pacific Lumber Company will build a very large steam saw mill at Burrard Inlet, B.C., similar in size and capacity to the McLaren-Ross mill now in course of construction at Westminster, B.C. This company is composed practically of the same capitalists embraced in the McLaren-Ross concern.

THE Brunette Saw Mill Company, New Westminster, B.C., have commenced the construction of their new sawmill at that place, adjoining their present mill, which will have a capacity of 100,000 feet daily. When the mills now under construction in Westminster are completed the total daily output will be 750,000 feet.

MESSRS. DISNEY, DEVLIN & Co., Hanover, Ont., are proprietors of a planing mill, door and sash factory, and have a foundry in connection, and manufacture plows, straw cutters, land rollers, road cutters, harrows, and do all kinds of repairing. The premises are white brick and occupy 1½ acres. Thirty hands are employed.

THE woolen mill of Messrs. Howe & Co., Brussels, Ont., is a white brick building three stories high, the main building being 50x60 feet, with boiler house 25x33 feet, driven by a Wheelock engine of forty horse-power, built by Messrs. Goldie & McCulloch, of Galt, Ont. Tweeds, blankets, sheeting, flannels, yarns and knitted goods are manufactured.

MR. JACOB SOVEREEN, Delhi, Ont., manufacturer of calf skin mits, calf skin robes, etc., has recently completed a commodious two-story brick factory for the better accommodation of his business. Mr. Sovereen has been in this line of business for some years and is thoroughly acquainted with it; and the excellence of his goods is attested by all who have worn them.

THE stone quarries at Northport, N.S., are doing a flourishing business. Since the opening of navigation last spring large quantities of building stone have been sent from there to Montreal, and over 20,000 tons to Boston and other American ports, but by far the greater part has been shipped to Cape Breton to be used in the construction of the Grand Narrows bridge.

As a result of Mr. J. A. Laidlaw's recent trip north, new cannery buildings are now being erected at the mouth of Skeena river by workmen taken up by the Maude for the purpose. The new cannery will be the largest in the province, and as soon as the buildings now being erected are complete, the plant, already ordered, will be placed in position.—Victoria, B.C., *Colonist*.

MR. W. S. STANLEY has sold his interest in the Thorold Knitting Co., Thorold, Ont., to Mr. J. B. Henderson, of Merriton, Ont. Mr. Stanley will work up the orders for winter goods now in hand, and will also manufacture the stock on hand. At the close of the season Mr. Henderson will assume the management of the Thorold Knitting Co., and will run his mills in Merriton as before.

MESSRS. NEWLANDS & Co., proprietors of the Galt Plush Works, Galt, Ont., and manufacturers of the patent Saskatchewan buffalo robes, baby carriage rugs, etc., are adding thirty feet to the tall chimney of their works, preparatory to the erection of additional buildings. Their machinery is all of an expensive character, in the management of some of which electricity is brought into use.

MR. W. H. LAW, of the Central Iron Bridge Works, Peterboro, Ont., has secured the contract for the new G. T. R. bridge at Campbellford, Ont. Mr. Law is now shipping the ironwork for the new bridge at Yarker, on the N. T. & Q. R. The bridge works are in

active operation. There are now 130 men employed in connection with the industry, which has been increased fourfold in capacity within a year.

BUILDERS are hard at work, the street improvements are being actively prosecuted, the mills are running night and day, factories are running overtime, and the merchants one and all report business in a very satisfactory condition. If the present state of business keeps up till the end of the year, the trade of Westminster for 1889 will have nearly doubled any record of the past.—Westminster, B.C., *Columbian*.

THERE will likely be a reorganization of the old-established firm of Robinson, Howell & Co., of Preston, Ont., manufacturers of woollen goods, in consequence of the death of Mr. Daniel Howell. This was one of the most successful manufacturing industries of this county, and was established by the late Wm. Robinson and D. Howell in 1857. The surviving partners are Dr. Jno. Ferguson, M.P., and Mr. Geo. Pattinson.

MESSRS. J. M. WILLIAMS & Co., of Hamilton, Ont., who were awarded the contract for the heating plant of the General and Marine Hospital in Collingwood, Ont., have completed their job. The plant consists of a No. 45 Anthony steel plate warm air and hot water combination furnace. This heating plant was selected by the committee after a careful inspection, and was given the preference on account of its many superior points.

THE monster chimney of the new Fall River (Mass.) iron works mill, "the largest in America and the fifth largest in the world," will be completed to-day. It is 354 feet above the ground. The base is square for a distance of about thirteen feet from the ground, then tapers up gradually for about eight feet, and from that up the chimney is cylindrical in form. The diameter at the base is thirty feet; at the narrowest part it is fifteen feet. The flue has a uniform diameter of eleven feet. The walls at the bottom are thirty-two inches thick, and in the thinnest part twelve inches. The chimney is built of brick above the foundation, the number used being 1,700,000.—*Philadelphia Ledger*.

THE Polson Iron Works Company of Toronto have contracted to build a new iron steamer at their ship building yards at Owen Sound, Ont., for a new joint stock company now being formed. The contract calls for the completion of the steamer by the 1st of May, 1890, and it is intended she shall make tri weekly trips on the Georgian Bay, calling at the ports of Midland, Collingwood, Parry Scud, French River and Byng Inlet. She is to be 126 feet long and is to be elaborately furnished and to provide good accommodation for 60 cabin and 75 steerage passages. She will be one of the fastest vessels on the upper lakes. She will be the exact model of the Northern Queen. The cost will be about \$40,000.

WORK on the new Canadian Pacific Ry. shops at Hochelaga, near Montreal, is being rapidly pushed along, and efforts are being made to have them completed by the end of December. The new building when completed will comprise the following shops: Paint, carpentering, blacksmith, foundry, saw mill and cabinet. On account of the increased capacity of the new workshops a larger number of employees will be necessary. It is the intention of the company to pay special attention to the constructing of their own cars in these shops, as they will have facilities for so doing that they never have had before. Consequent upon this the United States car builders will get less to do from this line than formerly.

MESSRS. D. W. HOEGG & Co., Fredericton, N.B., canned goods manufacturers, have closed their season's operations, during which they put up about 210,000 cans of green corn, their pack of baked beans requiring over 600 bushels of beans, grown principally in Ontario. The firm operate eight fish factories on Baie Chaleur, in which lobster, salmon and mackerel are put up. The salmon is prepared specially for the American market, about 25,000 pounds having been packed during this season; and they handled about 2,000,000 pounds of lobsters. Next year the firm will engage in the manufacture of pickles, and to enable them to do this they will erect a new factory in Fredericton, preparations for which are now being made.

MESSRS. ROUSSEAU & MATHER, of Montreal, are constructing a new Pratt truss bridge across the Ottawa river at Ottawa. The dimensions of the bridge are as follows:—Extreme height 236 feet; width 45 feet; height from floor to beams, 34 feet over all; height from the water to the floor 40 feet; weight of the structure, including floor, 800,000 lbs., or 400 tons. The bridge is built of the best Belgian steel supplied by the firm of Thomas Robertson & Co., of Montreal, and every beam and stringer has been thoroughly tested. The heaviest lifts in the superstructure were the stringers,

which weigh 5,000 lbs. each, whilst some of the steel is an inch in thickness. The roadway will be clear 30 feet in width, with sidewalks of 5 feet 6 inches.

THE White Lead Association of Canada is an association recently formed composed of about all the white lead manufacturers in Canada for the protection of consumers against adulterations of the article. A registered label, which is the sole property of the association, will appear on every package of white lead sold by any firm belonging to it. Mr. A. J. Somerville, of Toronto, is president of the association, and Mr. Alex. Ramsay, of Montreal, vice-president. The following firms in Canada have voluntarily bound themselves under a penalty to conform to the requirements of the association, viz.: The Bayles Manufacturing Co., Ferguson, Alexander & Co., Montreal Rolling Mills Co., McArthur, Corneille & Co., A. Ramsay & Son, all of Montreal, and Messrs. Elliot & Co., The Ontario Lead and Barb Wire Co., A. G. Peuchen Co., Ltd., Toronto Lead and Color Co., and Sanderson, Percy & Co., of Toronto.

A PRINTED but unsigned prospectus of the Mullarky Boot & Shoe Company has been addressed to the Mayor of St. Johns. The project is to raise a paid up capital of \$100,000, and then secure a bonus of \$75,000 from some town near Montreal. The latter would provide buildings and machinery necessary for the factory, and leave the capital unimpaired with which to do a business of half a million the first year at 30 per cent. profit. By an ingenious manipulation of figures the capital is to be rapidly increased, and the profits largely augmented, but to prevent a huge monopoly, not more than 50 shares will be sold to any one person. The object of the company is to manufacture boots and shoes for export only, and thus be able to import the bulk of the raw material required free of duty.—St. John's, Que., *News*.

THE rolling stock equipment of the Grand Trunk Railway on the 1st July comprised 760 locomotives, 350 first class and 230 second class passenger cars, with three dining and six parlor cars, and 39 combination of sleeping, smoking, postal or baggage cars. There were also 135 baggage, 12,030 box, 1,280 cattle and 5,767 platform and coal cars, and 399 brake vans. These, with 96 auxiliary and ice-scraping cars and 53 snow ploughs, make a total of 20,496 cars belonging to the company in ordinary use, besides the Pullman passengers and freight cars of the various freight lines. Expenditure of locomotive power and repairs to engines for the first six months of 1889 amounted to \$2,340,000, and repairs to cars to \$750,000. The locomotives burned during that time 2,209 cords of wood and 318,989 tons of coal. On this they made a car mileage of 1,872,000 miles.

THE importance of the roof of a building can hardly be overrated, since on its right construction depends not only the comfort of those for whose shelter it is designed, but also the safety and durability of the edifice itself. For the former of these purposes it is desirable that a roof should exclude extremes of heat and cold and be impervious to rain and snow. For the latter, the exclusion of water is equally necessary. From our forefathers away back to a late date, roofs were principally covered by thatches of straw, reeds or heath, pan and plain tiles, slates, copper, tin, lead, zinc, gravel, stone, etc. The great drawback to the first three mentioned roof coverings was that they were easily damaged by wind and dangerously combustible, and the frequent repairs made them expensive. Then tiles admitted heat and moisture. Pan tiles had no holes for nailing, and had to be hung by ledges upon laths nailed to the rafters, and like objections to all the old styles of roofing material, and where they were at all satisfactory they were either too heavy or enormously expensive. It was not until a few years ago that a metal shingle roof covering came to the surface that has proved almost perfect.

THE Westminster Woolen Mills at New Westminster, B.C., are now in full and successful operation. This is a "one set" factory which is at present turning out a superior grade of blankets, tweeds and flannels for the home trade. The blankets, especially, are the articles in which they can compete with eastern trade, but only in the better qualities; they do not make any cheap blankets. In tweeds they are manufacturing a medium article for ordinary use; the material is durable, and the patterns, as a rule, plain; they find, however, a ready sale, and the demand is steadily increasing. In flannels, the mills cannot, of course, compete with the production of eastern and European looms, but they turn out a very durable article at a moderate price. The business of the mill is steadily increasing year by year, and it may be presumed that before long, with the addition of more machinery and greater facilities, the Westminster mills may be looking for a share of the Australian, Japanese and South American trade, as well as for that of the Territories.

News from Gaspé, Que., is to the effect that extensive operations are about being commenced for the purpose of developing on a large scale the petroleum resources of that county. Mr. James Foley, of Boston, representing other large capitalists, who have possession of some 50,000 acres of land in the petroleum district, has arrived on the scene with a staff of expert derrick builders, engineers, drillers and blacksmiths, and an immense quantity of machinery. Preparations are being carried on rapidly as possible for boring two wells 2,500 feet deep. The boring is being commenced in the vicinity where oil was struck some 19 years ago, and there is every expectation of success attending the venture, as undoubtedly it would have followed the earlier attempt to develop the petroleum of Gaspé, had not the enormous yield of the Pennsylvania oil fields at that time drawn attention of capitalists away from this locality. A rich deposit of asbestos has also been latterly discovered in Gaspé.

THE workshops, yards and pits of the Standard Drain Pipe Co., of St. John's, cover an area of twenty-one acres. The business of the concern is increasing almost beyond the capacity of the company to keep pace with their orders—although additions to buildings, plant and workmen are constantly being made. The company are now operating six huge kilns, and using three chimneys each 80 feet in height. Drain pipes are made from 4 to 18 inches in diameter, and from a weight of 35 to 350 lbs. each. The latter immense pipes are used as culverts on many lines of railways, and are not only less expensive but are better and more durable than the ordinary culvert. The drain pipes are sent to almost every part of Canada, but are mainly contracted for in the larger cities and towns of Ontario and Quebec. Their superiority in every respect to the Scotch pipes has been so frequently established after a number of crucial tests, that no one now questions their excellence, and all the larger civic corporations are anxious to secure them. But in addition to drain pipes in their various sizes forms, shapes and curvatures, the Standard Company manufacture chimney tops of a variety of handsome styles, garden vases, invert blocks, fire and building bricks, imitation granite monuments, etc. Spite of the wonderful advance in the economical use of fuel—the fire of one kiln, for example, being made to burn the ware in three kilns—the cost of soft coal alone in this establishment exceeds \$16,000 a year. All this is brought from Nova Scotia. Taken as a whole the enterprise is one of the most important in this Province, and we are happy to add, not the least prosperous. This coming year the company anticipate doubling their output.—St. John's, Que., *News*.

WE have had called to our attention again the specialties for winter trade, in their line, as manufactured so largely by the J. B. Armstrong Manufacturing Company (Ltd) of Guelph, Canada, for their Canadian trade, and for foreign countries using winter goods. The steel cutter and bob-sleigh gears made by this firm are winning their way to popularity amongst the driving public. Prejudices against them, on account of novelty in appearance, are being overcome, this being only a question of time with any line of goods that have genuine advantages to back them. When a man can, for the same money, secure a cutter that will last him five times as long as an ordinary make, he does not hesitate at all in deciding what he wants. These improved gears have been thoroughly tested now, and all the objections ever offered against them overcome by their practical usage. The Armstrong Company continue making improvements in these as in other lines, and will offer only goods that will take care of themselves and bring further trade when running. We would ask our readers' attention to present advertisement appearing in our columns, and to their frequent changes, calling attention to different specialties, as they will study their own interests watching closely the improvements and new lines offered by this concern. There are thousands of the cutter and bob-sleigh gears running in Canada now. The repairs called for for these are reported by the company as simply nil. Not one complaint for five hundred gears running. This speaks volumes for what they will do under most severe tests. The Armstrong Company will be pleased to mail descriptive circulars to inquirers. Carriage makers are supplied the goods in the white, and finish for use. Correspondence solicited from sections where these are not represented, and sample jobs wanted running in every township in Canada.

A GIGANTIC scheme has just been consummated at Port Arthur, Ont., to utilize the water power of the great Kakabeka Falls, situated a few miles from Port Arthur. A deed has been recorded by which Thomas Marks, of Port Arthur, conveys to Dr. A. M. Eastman, of St. Paul, and R. J. Anderson, of Minneapolis, representatives of a wealthy St. Paul, Minneapolis, and Philadelphia syndicate, the property known as Kakabeka Falls, containing 480 acres and water rights on the Kaministiquia River at that point. The river there is 350 feet wide, with a perpendicular fall of over 100 feet, and can be developed to furnish 200,000 horse-power. The new

proprietors propose to build up at that point a Canadian Minneapolis. With this end in view a large tract of adjoining property has been secured, which will give ample space for a great city. A large amount of capital is behind the promoters, and it is proposed to build flouring mills there equal to those of Minneapolis, for grinding Manitoba wheat; pulp and paper mills, for utilising the poplar forests adjoining; reduction works, for turning the silver ores of the neighboring mines into bullion; blast furnaces, saw mills and factories of all descriptions for the output of which a market can be found. Eventually, it is intended to use a portion of the power for generating electricity, to be used not only for local purposes, but also to operate silver mines. The Port Arthur, Duluth & Western Railway is to extend its line two miles up to the falls, and a branch of three miles will connect the Canadian Pacific with the new city. A hotel with 100 rooms will be built and ready for next season's business. Engineers are now on the ground making a complete topographical survey, in order that the plans may be made as complete as possible for the town and water power. There seems to be no doubt whatever about the success of the enterprise. The people connected with it know what power has done for Minneapolis, and they are satisfied that the Canadian North-West furnishes an even greater field for development than did Minnesota and Dakota, and there is no reason why a second and a Canadian Minneapolis should not be built at Kakabeka, which, with Port Arthur and Fort William, may be appropriately termed the triple cities of Thunder Bay, like unto the twin cities of Minnesota.

#### CENTRAL BRIDGE WORKS.

THE Peterborough, Ont., *Review* contains an interesting notice of the Central Bridge Works of that town, of which Mr. W. A. Law is proprietor, and from which we gather the following facts:—Comparing the time before the establishment of these works, and when the premises were idle after having been unsuccessfully used for another purpose, with the present condition brought about under the auspices of the National Policy, our contemporary says that now the tall chimney pours forth a cloud of smoke all day and far into the night, while the power derived from the fuel drives the ponderous machines that are cutting and boring and sewing with iron threads iron and steel fabrics that will span the rivers of the province.

Nearly the whole block is occupied with the buildings of the concern. Two years ago the modest premises on Simcoe street were decided by the proprietor, Mr. W. H. Law, to be too small. Arrangements were made to occupy the shop that had once been devoted to brick-making—a large and strongly built concrete building—and the plant and materials were removed. Soon it was found that more accommodation was necessary and an extension of the premises was made. During the past summer a decided step in advance was determined on and the capacity of the works more than doubled by the erection of new buildings and shops. Two wings were added, one 150x80 feet and one 153x80 feet. The iron warehouse was taken for other uses and a new one constructed 30x40 feet, and a new building 30x50 feet is now in course of erection, and in which work in progress will be laid out. In all the shops cover a floor space of over 231,000 square feet, a very large area.

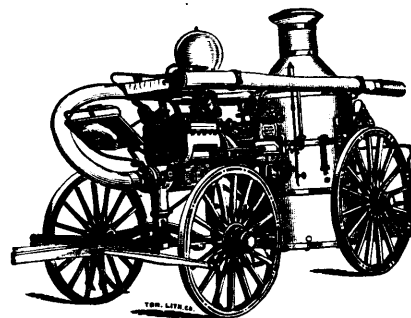
The materials used in constructing the bridges of different design is principally steel. A spur from the C.P.R. line is carried through the yard and a line of rails runs through the erecting shop. Material is unloaded from the cars and placed in the storehouse or in piles convenient for use. The large yard is covered with piles of plates, bars and angle iron, from which supplies are taken as worked up. It does not pay to handle steel plates of a ton weight more often than necessary. The entire premises under cover is floored with plank, and immense weights are easily handled on trucks. The main machine shop has a fine equipment of tools, of modern design, massive and powerful. A steel plate half an inch thick and as large as the floor of an ordinary room is laid on the table of an automatic punching machine. Holes are punched as if the material was paper and in accurate series. This machine is the invention of Mr. Law, worked out from his own designs, and has already attracted attention from men in the iron trade. A powerful shears cuts off the heaviest plates in bites of four inches. A splendid plate planer, an English tool, trims and squares the edges perfectly, doing work of marvelous accuracy, and is the only machine of the kind in Canada. A set of triple rollers curls up a plate as if the material was cardboard, while the rivetting machines driven by compressed air sew the joints together as fast as the red-hot rivets can be supplied. Among the tools recently added to the plant is a ponderous lathe that will turn up the outside of a section of pipe 6 feet in diameter, a large and solidly-built iron planer, and a bolt cutter

that will thread the end of a bar of iron three inches thick. A new tool en route from England will not find its duplicate on this side of the ocean. It will bend the flange on a steel pipe six feet in diameter, and in fifteen minutes do the work that would occupy a blacksmith ten hours. Many of the machines are in duplicate, but all working up to a full capacity. A system of over-head tramways and cranes enable the material in hand to be handled in the shortest possible time. The floor of the erecting shop is a busy scene. It is a large room without a pillar or support to interfere with the work. Rolled to one side are sections of steel pipe 55 feet long and 48 inches in diameter, a part of the work being done for the Toronto city water-works. Two of the sections comprise a fair load for two ordinary flat cars, and shipments are being made from the works every few days. The work is well done and is being rapidly executed. A feature of interest in connection with this contract is the flexible joints with which the pipe is fitted. At Toronto the pipe will be laid across the bottom of the harbor and out into the lake, a distance of nearly two miles. As the sections are fastened together they will be lowered to the bottom by means of a crane worked from a scow or other suitable float. To do this the joints require to be flexible, so that the pipe shall in some degree conform to the configuration of the bottom of the harbor and lake. The flexible joint which is supplied with the pipe is the design of Mr. Law, and in point of strength and utility is superior to anything yet devised. The process of manufacture is an interesting one, the more so as for the first time, they are being made in Canada. Competent judges pronounce the design unique, while in every way practical and satisfactory.

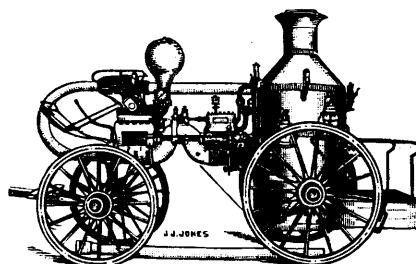
So much has the plant grown that additional power was necessary. The large engine in use has been supplemented by a new 45 h. p. boiler, which supplies the air compressors doing service at the rivetting machines. Hand rivetting is a process that has had its day as far as the Central Bridge Works is concerned. Air and water do the duty and do it well.

To enable work to be carried on at all hours a complete electric lighting plant has been put in at a cost of \$2,000. The dynamos, one of the Ball pattern and one of the Reliance pattern, are driven by a Leonard Ball automatic high speed engine, built at London, Ont. It is a beautifully finished engine, and in making 300 revolu-

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tions per minute is almost noiseless. Eighteen arc lights are supplied with the current, two of the lights illuminating the yard and sixteen placed about the shops. So perfect is the lighting that work can be carried on as well at night as in the day. Contracts in process of completion are being pushed, and nearly the entire force are making wages, each man at the rate of fifteen hours per day, 103 hands being employed.

Of the bridge work under construction may be mentioned five spans of bridges for the Napanee and Tamworth Railway; five spans for the C. P. R.; two spans highway bridges for the municipality of Wardville, Ont.; one span for the Burleigh bridge, and one span for the township of Haldimand. In addition there is 4,600 feet of 48-inch diameter steel pipe, ninety 48-inch flexible joints, and twenty 60-inch flexible joints. The contract for the two latter items will alone cover about \$25,000. On the books and awaiting commencement are orders for 364 feet 72-inch pipe; three spans of highway bridges for Chatham; one span for the crossing of the Des Jardines Canal at Hamilton; four spans of bridges for the G.T.R., and a number of items in the way of iron roofs.

What the size and capacity of the Central Bridge Works shall be in five years is hard to determine. Certainly if the progress made is at all in proportion to that of the last two years it will have wholly outgrown its present premises, even with further extension of the already large buildings. The industry of making steel bridges is only in its infancy in Canada. Every day is opening new opportunities for the application of iron and steel in the construction of buildings. The severe climatic changes incidental to Canadian seasons almost prohibit the use of stone in the way of bridges. The wooden bridge is obsolete as far as railway bridges are concerned, while at the prices of good timber and in view of the short period of reliable service, wooden bridges are being rapidly superseded by iron and steel structures, at once permanent and in the end less expensive. The demand must be supplied, and Peterborough is as good a point to supply that demand as any. Mr. W. H. Law, the proprietor of the Central Works, is a civil and mechanical engineer of large experience, a thorough master of the principles of construction in iron and steel, and a business man of more than average capacity. Such enterprises as his are a credit to the town, a support to the people and a good training school in which to bring up mechanics of the generation to do their share of working out the future of the province.

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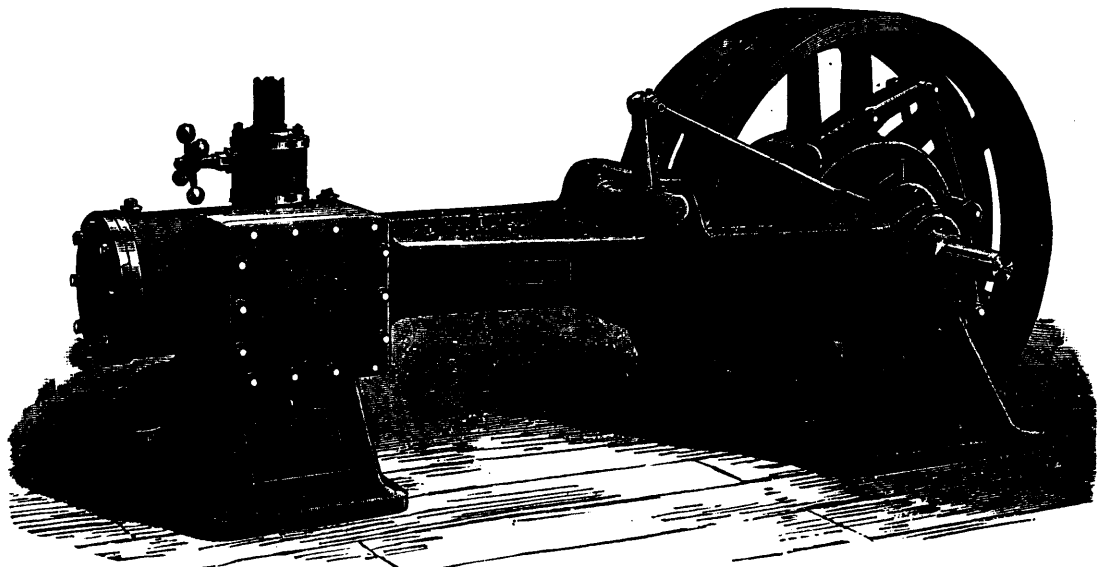
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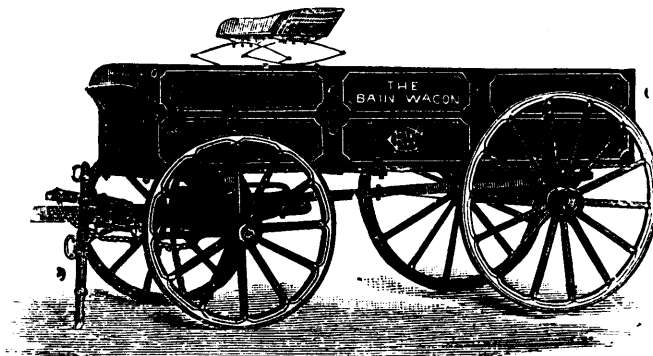
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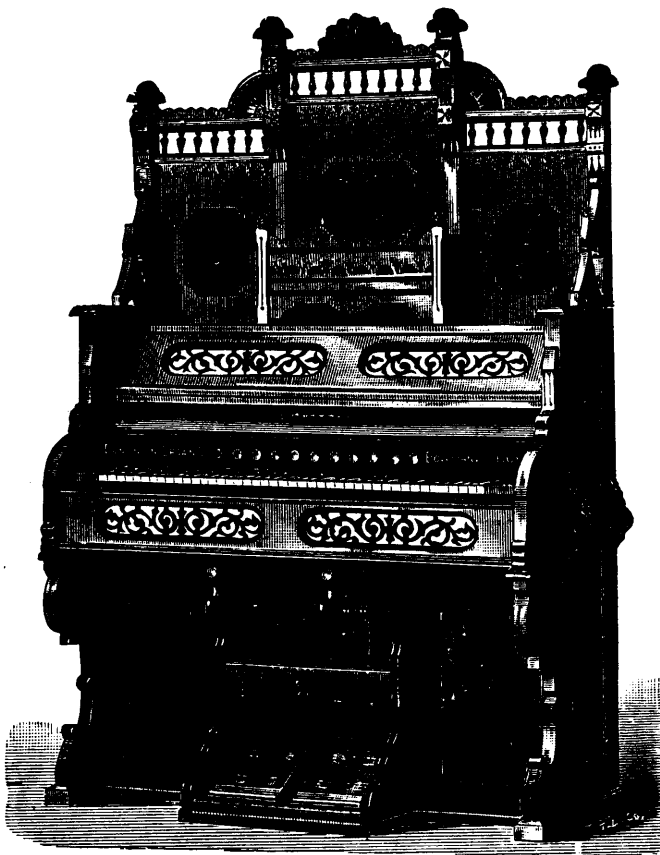
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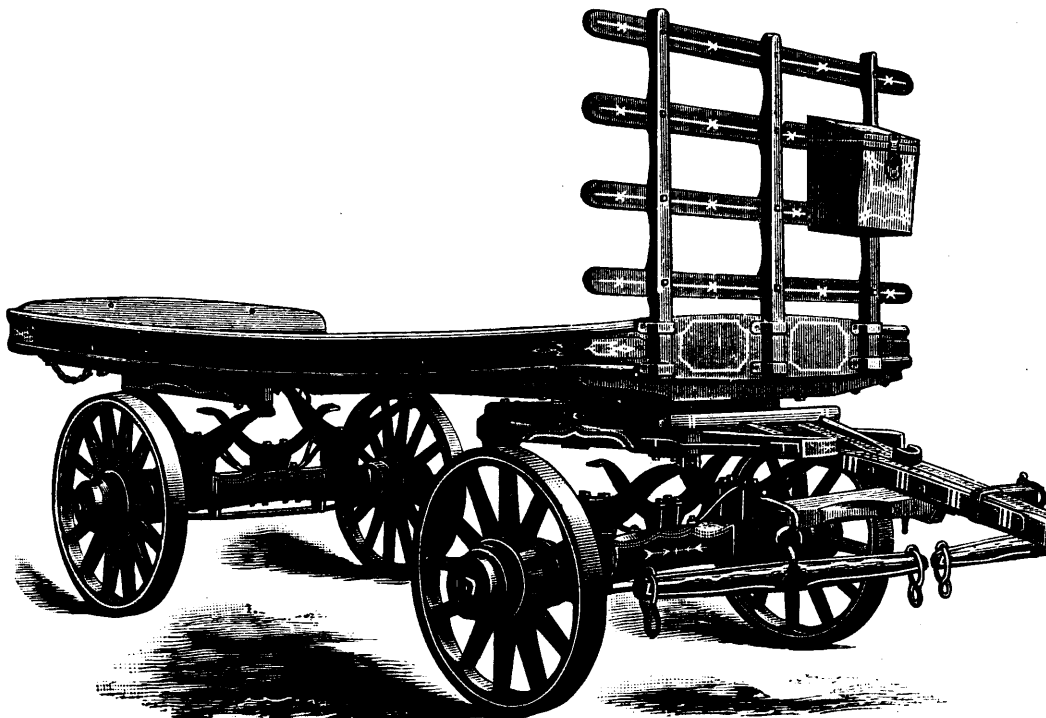
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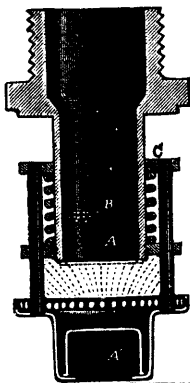
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Accident Company, - - - **1,000,000.00**

### OFFICERS:

SIR JOHN A. MACDONALD, P.C., G.C.B. - - - PRESIDENT.

### VICE-PRESIDENTS:

GEORGE GOODERHAM, Esq., WILLIAM BELL, Esq.  
President Bank of Toronto. Organ Mn r. Guelph.

**J. L. KERR,**

Secretary-Treasurer.

**CANTLIE, EWAN & CO.**

GENERAL MERCHANTS

AND

Manufacturers' Agents.

LEACHED SHIRTINGS,  
GREY SHEETINGS, TICKINGS.  
WHITE, GREY AND  
COLORED BLANKETS,  
FINE AND MEDIUM  
TWEEDS, KNITTED GOODS,  
PLAIN AND FANCY FLANNEL,  
LOW TWEEDS, ETOFFES, ETC.

Wholesale Trade Only Supplied.

15 VICTORIA SQUARE, MONTREAL,  
20 WELLINGTON ST. E., TORONTO.

**Porous Terra Cotta**

**Fireproofing.**

See it in use in new Bank of Commerce Building, Toronto; new Royal Insurance Company Building, Montreal; Imperial Fire Insurance Company Building, Montreal; St. Lawrence Sugar Refinery, Montreal.

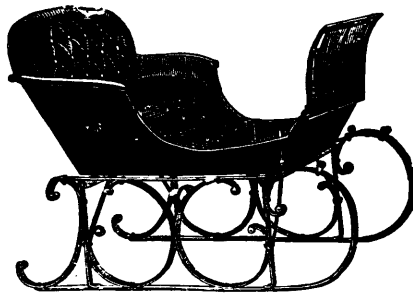
The finest thing for suburban cottages. Excludes heat and cold, is cheap and durable.

Try our improved Cedar Oil for cleaning boilers. We guarantee it to satisfy or no pay.

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The Rathbun Company,  
DESERONTO, ONT.

**ARMSTRONG'S  
STEEL-CUTTER GEARS**



**PORTLAND CUTTER.**

This is what business men and others want for daily use. Stylish and very strong, durable, roomy and comfortable. All furnished with shifting shafts Circular describing advantages of these gears mailed on application. Send for it, and ask your carriage maker for these goods. Prices right.

J. B. ARMSTRONG MFG. CO. (Ltd.)  
Guelph, - Canada.

**TO MANUFACTURERS.  
TO RENT.**

The Flats and Basement of that centrally situated property on Bay Street, below Front Street, being the BEST BUSINESS PREMISES and location in the City of Toronto, WITH POWER (guaranteed steady), Steam Heating, W. C., Wash-rooms, etc., on each floor. Heavy Weight Steam Hoist; good light on three sides; Lowest Insurance Rates; entrance from front or rear to each flat. Specially adapted for Factory, Warehouse and Office purposes.

The building has a depth of 100 feet, with a frontage of 54 feet on the west side of Bay Street and 34 feet on lane in rear; four stories high and basement. RENT CHEAP.

We have also in the same locality, Lot 70 feet front by 100 feet deep to a lane, on which we will erect factory buildings specially to suit a good tenant. For further particulars apply to

DICK, RIDOUT & CO.,  
11 & 13 FRONT ST. EAST

**Industrial and Trade  
DIRECTORY.**

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THEO. H. EATON & SON, Windsor, Ont.; Detroit, U.S.A.—Importers of every Description Pure Aniline Dyes for Cotton and Woolen Manufacturers. Dyed Samples furnished on application. Address all correspondence to Head Office, Detroit, Mich.

DOMINION DYEWOOD AND CHEMICAL CO., Toronto.—Importers and Manufacturers. Chemicals for Cotton, Woollen, Paper and Leather Manufacturers.

McARTHUR, CORNEILLE & CO. (successors to John McArthur & Son), Montreal.—Supply of best quality at closest prices. Every description of coloring materials required by manufacturers of woollens, cottons, silks, paper, leather, &c. Are sole agents in Canada for the celebrated aniline dyes of A. Porrier, Paris.

MIDDLETON & MEREDITH, Montreal, Aniline Dyes, Benzidine Colors, Dyewoods, Extracts, Chemicals.

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WELLAND VALE MANUFACTURING CO.—Lock No. 2, St. Catharines, Ont., Canada—Manufacturers of axes, scythes, forks, hoes, rakes and edge tools.

THE WHITMAN & BARNES MANUFACTURING CO., St. Catharines, Ont.—Manufacturers of mowing and reaping machine knives, sections, guard plates, cutting apparatus complete, spring keys and cotters, etc.

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DOMINION BRIDGE CO. (Limited),—Shops at Toronto, Ontario, and Lachine, Quebec. Builders of Steel and Iron Railway and Highway Bridges.

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THEO. H. EATON & SON, Windsor, Ont.; Detroit, U. S. A.—Carry full line of Pure Dyeing Drugs, Dye Woods and Extracts adapted for the requirements of Woollen and Cotton Manufacturers.

DOMINION DYEWOOD AND CHEMICAL CO., Manufacturers.—Pure Dyewoods, Dyeing Drugs. Sole Agents. English, German, and French Aniline Dyes, for Woolen, Silk, Paper, and Leather manufacturers.

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**TORONTO LITHOGRAPHING CO.**  
Globe Building, Toronto  
MAKE A SPECIALTY OF  
**Fine Color Work**  
CHROMO ADVERTISING  
CARDS and NOVELTIES  
also do a Superior Class of Wood Engraving

**BINGHAM & WEBBER**   
"Their Work Speaks Their Worth."  
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Their Office is in the Lakeside Court.  
-- ARE THE --  
**PREMIER CATALOGUE PRINTERS**  
- OF CANADA -  
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**Toronto**

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LEITCH & TURNBULL, Canada Elevator Works, cor. Queen and Peter Streets, Hamilton, Ont.—Patent Safety Hydraulic, Hand, and Power Elevators. Telephone connection

**Hubs, Spokes, Handles, Etc.**

F. W. HORE & SON, Hamilton, Ont.—Manufacturers of wheels, wheel material, shafts, poles, etc.

COWAN & CO., Galt.—Manufacturers of every description of wood working machinery.

**Machine Tools.**

JOHN BERTRAM & SONS, Dundas. — Machine tools and wood working machinery. Toronto wareroom, 58 Yonge St. Agents—The Polson Iron Works Co. Montreal ware-room, Craig St. Agents for Quebec—The Machinery Supply Association, Montreal.

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THE OSHAWA MALLEABLE IRON CO., Oshawa, Ont.—Manufacturers of malleable iron castings, to order, for all kinds of Agri-

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SMITH'S FALLS MALLEABLE IRON WORKS, Smith's Falls, Ont. Manufacturers to order of refined malleable iron castings. Agricultural and other castings a specialty. Carriage castings in stock.

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S. LENNARD & SONS, Dundas —Manufacturers of plain and fancy hosiery.

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MCARTHUR, CORNEILLE & Co (successors to John McArthur & Son), Montreal.—Afford best value in pure olive and lard oils, also in all other leading lines of vegetable, animal, and mineral oils for factory use.

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THE TORONTO PAPER MANUFACTURING CO., Cornwall, Ont.—Manufacturers

of engine sized superfine papers, white and tinted book papers, blue and cream laid and wove foolscaps, account book, envelope and lithographic papers, etc., etc.

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THEO. H. EATON & SON, Windsor, Ont.; Detroit, U.S.A.—Supply at lowest prices all Chemicals used by Tanners and Wool Pullers. Special Anilines for Sheep Skin Dyers, Wool Mat Manufacturers, etc., etc. Address correspondence to Head Office, Detroit, Mich.

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THE B. GREENING WIRE CO., Ltd., Hamilton, Ont.—Perforators of zinc, iron and steel; manufacturers of wire cloth all grades, wire ropes, bank and office railings, etc.

TIMOTHY GREENING & SONS, Dundas Ont.—Wire manufacturers and metal perforators, wire cloth all grades, perforated sheet metals of every description, all kinds of special perforating and indenting to order.

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pays for a year's subscription to PRINTERS' INK, a journal no advertiser alive to his own interests can afford to be without.

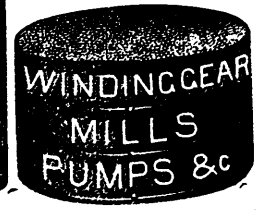
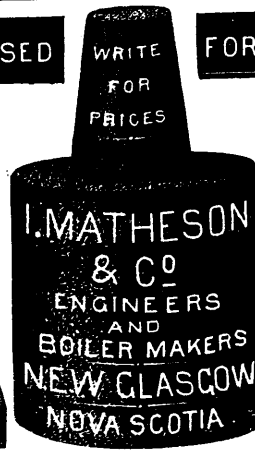
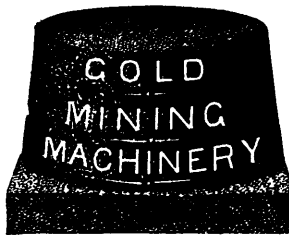
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WORCESTER, MASS. COTTON, WOOLEN, SILK, TAPE & CARPET LOOMS.

ALSO MANUFACTURERS OF GENERAL WIRE WORK. Window Guards, Stable Fixtures, RAILINGS, Sand Screens, Coal Screens, Etc.

**THE B. GREENING WIRE CO. LTD.**

**HAMILTON, ONT.**

**WIRE CLOTH**

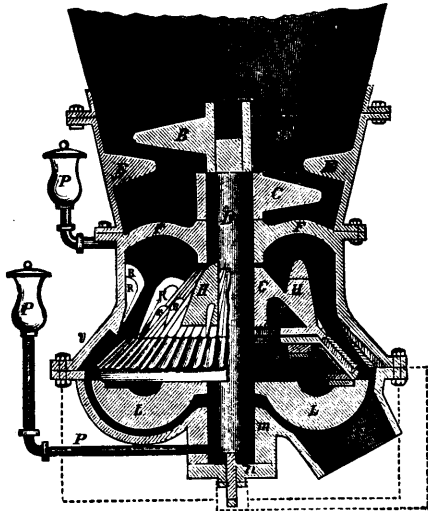
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**WIRE ROPE,**

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**Important to Tanners.  
SEGMENT BARK MILL.**

For Grinding any hard substance  
SUCH AS

Cement, Plaster, Bones, Bats,  
Ores, Paint, etc. It is also  
used to grind Liquorice  
and Sarsaparilla roots.  
Also as a Corn  
Breaker.

The Segments will retain  
their cutting edges longer than  
those of any other Mill, and  
when dull can be quickly and  
cheaply renewed.

It has the following good  
qualities, viz.:—Fast grinding  
evenly prepared bark; is easily  
erected and small power re-  
quired to drive it.

It works with ease in damp  
or frozen bark, and break-  
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coupling.

**PAXTON, TATE & CO..**  
PORT PERRY, ONT.

EVERY REPUTABLE DEALER KEEPS  
THEM.



Insist on having the Genuine, and see  
that they bear our name.

**W. H. STOREY & SON, ACTON, ONT.**

**WEBSTER'S  
"Vacuum" Exhaust Steam Economizer**

Is the Most Improved and Modern Appliance for the Economical Use  
of Exhaust Steam. Saves the Heat in Exhaust Steam  
which would otherwise go to Waste.

Utilizes the exhaust steam for heating buildings, etc., returning the con-  
densation to boiler, and for making hot and purified water for boiler feeding  
and other purposes, and the combined advantages as enumerated in our pamphlet.  
Orders solicited on trial for acceptance.

We refer to the largest firms in the U. S. and Canada, who have adopted it and  
duplicated their orders after most exhaustive tests.

**JAS. E. ANNETT, 372 Sackville St., Toronto, Ont.**  
CANADIAN LICENSEE for WARREN, WEBSTER & CO.

**Machine Brushes**

ALL KINDS MADE TO ORDER.

HIGHEST QUALITY OF WORK GUARANTEED.

SEND FULL PARTICULARS OF DIMENSIONS AND  
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Old Rollers or Blocks Re-filled with Special Care.

**CHAS. BOECKH & SONS**

MANUFACTURERS.

Office and Warerooms : 80 York St. Factory : 142 to 150 Adelaide St. W  
TORONTO, CANADA.

**THE BELL  
TELEPHONE CO'Y OF CANADA**

—Manufacturers and Dealers in—

Telegraph & Electrical Instruments,

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- Burglar Alarms, Hotel and House Annunciators,
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FOR FURTHER PARTICULARS APPLY TO

No. 12 HOSPITAL ST., MONTREAL.

**JUTE, LINEN  
or COTTON BAGS**

For FLOUR, OATS, POTATOES, FEED, etc.

Every Quality, Weight and Size kept. The largest and best assortment  
in Canada. Daily out-turn, THIRTY THOUSAND BAGS.

**BAG PRINTING in COLORS** a specialty.

**HESSIANS, BURLAPS AND HOP SACKING,**

A splendid stock kept. Plain and Striped. Every quality, width and weight.

**TWINES**—We keep the best stock in Canada.

CANADA JUTE CO'Y (Ltd.), **STARK BROS., Agts.**  
MONTREAL. 62 FRONT ST. EAST, TORONTO.

ESTABLISHED - - 1828.

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(Formerly HARRIS & ALLAN),

**NEW BRUNSWICK FOUNDRY.**

RAILWAY CAR WORKS, | PORTLAND ROLLING MILLS,  
PARADISE ROW. | STRAIT SHORE.

PORTLAND, ST. JOHN, N.B.

Railway Cars of all descriptions. Chilled Car Wheels, "Washburn Peerless" Steel Car  
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Established 1872.

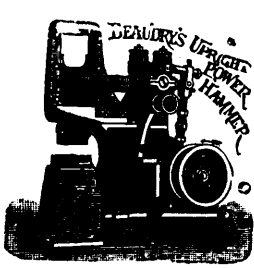
**- THE ACCIDENT -  
Insurance Co'y of North America.**

NEW FEATURE,

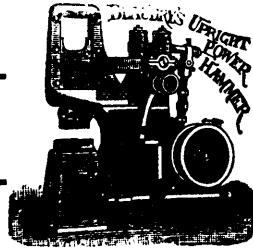
**JOINT INSURANCE  
FOR PARTNERSHIPS**

IMPORTANT TO MANUFACTURING FIRMS.

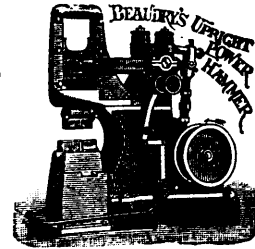
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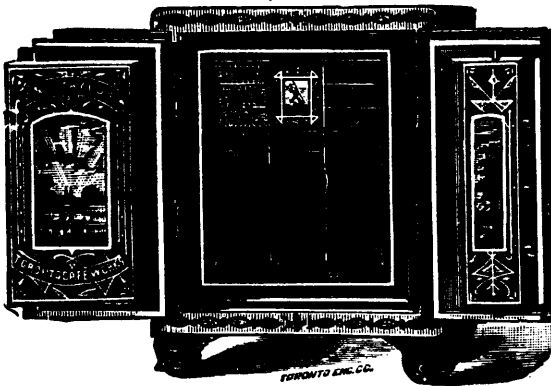


AND BEST.

## BEAUDRY UPRIGHT CUSHIONED POWER HAMMER

The most handy, compact, and above all, the most efficient tool ever invented for Manufacturers of all descriptions, Railroad Shops, Steel and Machine Forgers, File and Vice Makers, Knife and Cutlery Makers, Axle, Edge Tool and Agricultural Implement Manufacturers, Carriage Builders and, in fact, all others who need a first-class Hammer, and one of extraordinary capacity and adaptability. Correspondence solicited. Can be seen at Permanent Exhibition, Toronto.

**MILLER BROS. & MITCHELL.** Sole Makers for Canada, **MONTREAL.**



J. & J. TAYLOR'S

Double Tongue  
and Groove  
FIRE-PROOF

**SAFES**

(Patented  
January 14th,  
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Established 33 years.

All our new style Fire-proof Safes are fitted with **TWO COMPLETE TONGUES AND TWO GROOVES** on both the door and door frames, which effectually prevent the heat from passing between the door and frame into the interior of the safe.

They are also fitted with **CHILLED CHROME STEEL PLATES** under the Lock and Bolt Spindles to prevent drilling; and have **DRY AIR-CHAMBER** inside to prevent dampness to papers.

See Catalogues and Prices on application.

**J. & J. TAYLOR, Toronto Safe Works**

## INTERCOLONIAL RAILWAY OF CANADA.

The direct route between the West and all points on the Lower St. Lawrence and Baie des Chaleur, Province of Quebec; also for New Brunswick, Nova Scotia, Prince Edward, Cape Breton, and the Magdalene Islands, Newfoundland and St. Pierre.

Express trains leave Montreal and Halifax daily (Sunday excepted) and run through without change between these points in 30 hours.

The through express train cars of the Intercolonial Railway are brilliantly lighted by electricity and heated by steam from the locomotive.

New and elegant Buffet sleeping and day cars are run on all through express trains.

The popular Summer sea bathing and fishing resorts of Canada are along the Intercolonial, or are reached by that route.

### Canadian-European Mail and Passenger Route.

Passengers for Great Britain or the Continent, leaving Montreal on Thursday morning, will join outward Mail Steamer at Rimouski the same evening.

The attention of shippers is directed to the superior facilities offered by this route for the transport of flour and general merchandise intended for the Eastern Provinces and Newfoundland; also for shipments of grain and produce intended for the European market.

**TICKETS** may be obtained, and all information about the Route; also **FREIGHT** and **PASSENGER RATES**, on application to

D. FOTTINGER,  
Chief Superintendent.

N. WEATHERSTON,  
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York Street, TORONTO.

RAILWAY OFFICE, MONTGOMERY, N. B., 2nd July, 1889.

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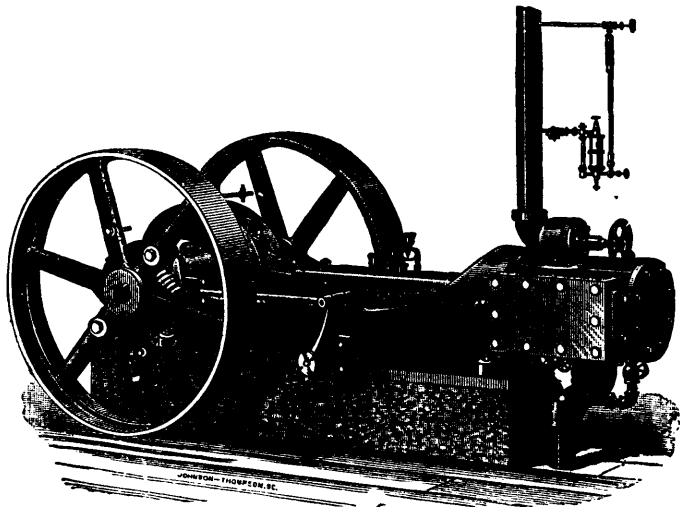
POINTED

AND ALL OTHER VARIETIES OF

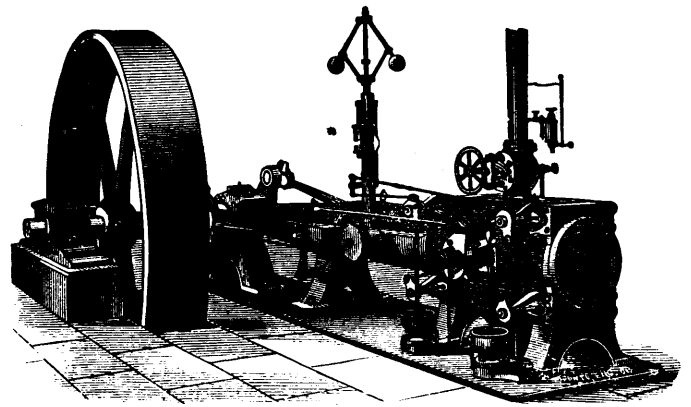
## MACHINE CARD CLOTHING.

MANUFACTURED BY

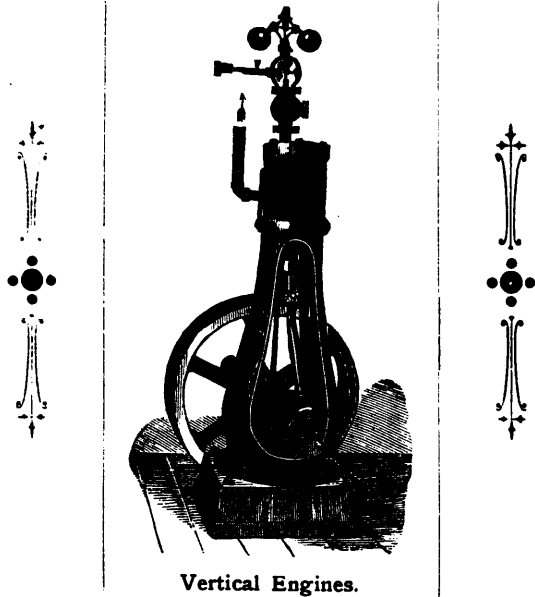
**JAMES LESLIE, Junction of Craig and St. Antoine Sts., Montreal.**



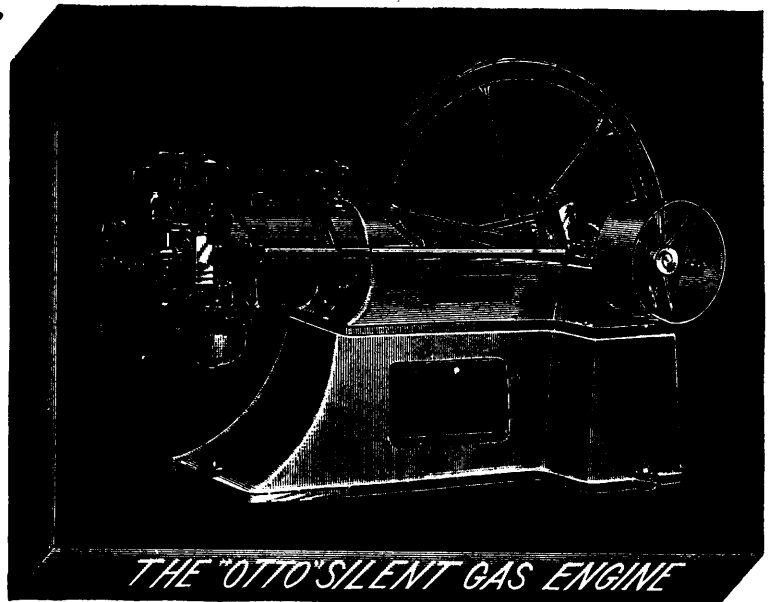
Armington & Sims Electric Light Engines.



Reynolds-Corliss Engine.



Vertical Engines.



# John Doty Engine Co.

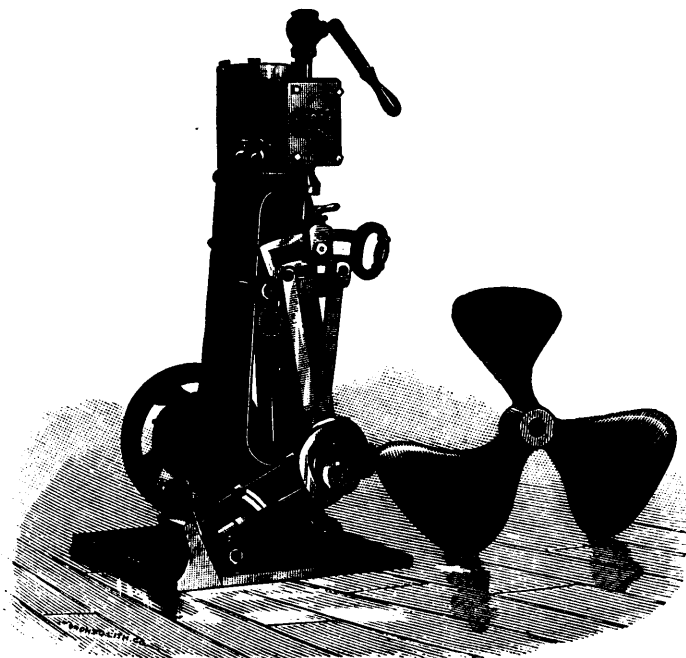
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MANUFACTURERS OF

## ENGINES AND BOILERS

OF EVERY DESCRIPTION.

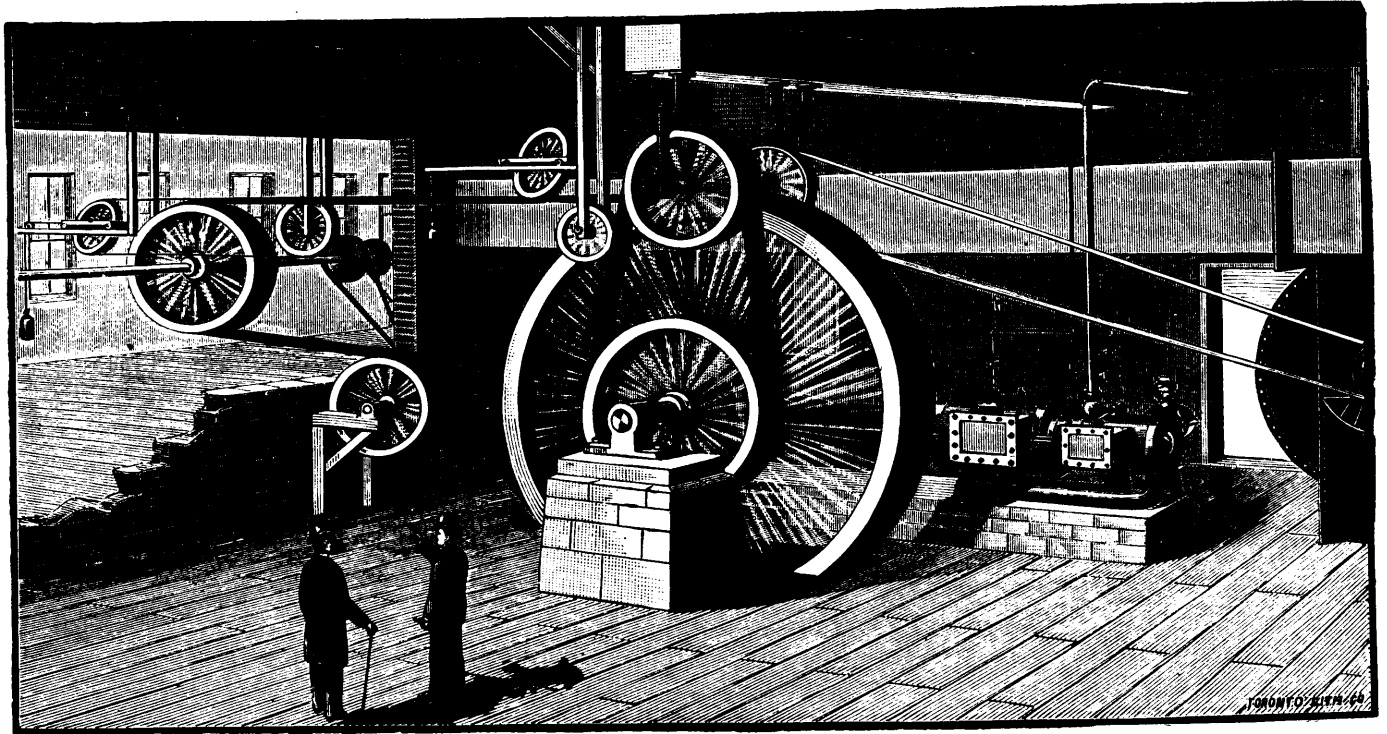
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Yacht Engines.

# ROPE

## Transmission of Power



As in Use at the Works of the Dodge Wood Split Pulley Company, Toronto.

In this transmission the engine has two driving pulleys. The small one is 72 inches in diameter with eight ropes, which drives the large Sturtevant blower seen on the right. The large pulley is 153 inches in diameter, with rim of hard maple, grooved to carry eleven wraps of  $\frac{5}{8}$ -inch tallow-laid Manila rope, the connection being with a 63-inch grooved wood pulley on  $3\frac{1}{2}$ -inch main shaft, 250 feet long, from which is transmitted power to all the machinery in the main building. The engine is 100 horse-power; the travel of the rope is 5,000 feet per minute; the length of the rope is 1,280 feet, and the weight 180 pounds, the cost of which, at 16 cents per pound, is \$28.80. A good leather belt, equal to the same service, would cost \$224.00. The pull on the rope when transmitting this 100 horse-power is only  $1\frac{1}{2}$  per cent. of its breaking strain, while it is perfectly safe to use 10 per cent.

The Company have published a collection of over 30 specimen illustrations, with full descriptions of Rope Transmission of Power adapted for all possible circumstances, with other relative special matter, offering valuable suggestions to those who desire to apply rope for transmission of power over long distances. This is the most perfect system ever devised for transmitting the power of a prime mover to distant machinery. The publication and any desired information will be sent free on application to

# THE DODGE WOOD SPLIT PULLEY CO.

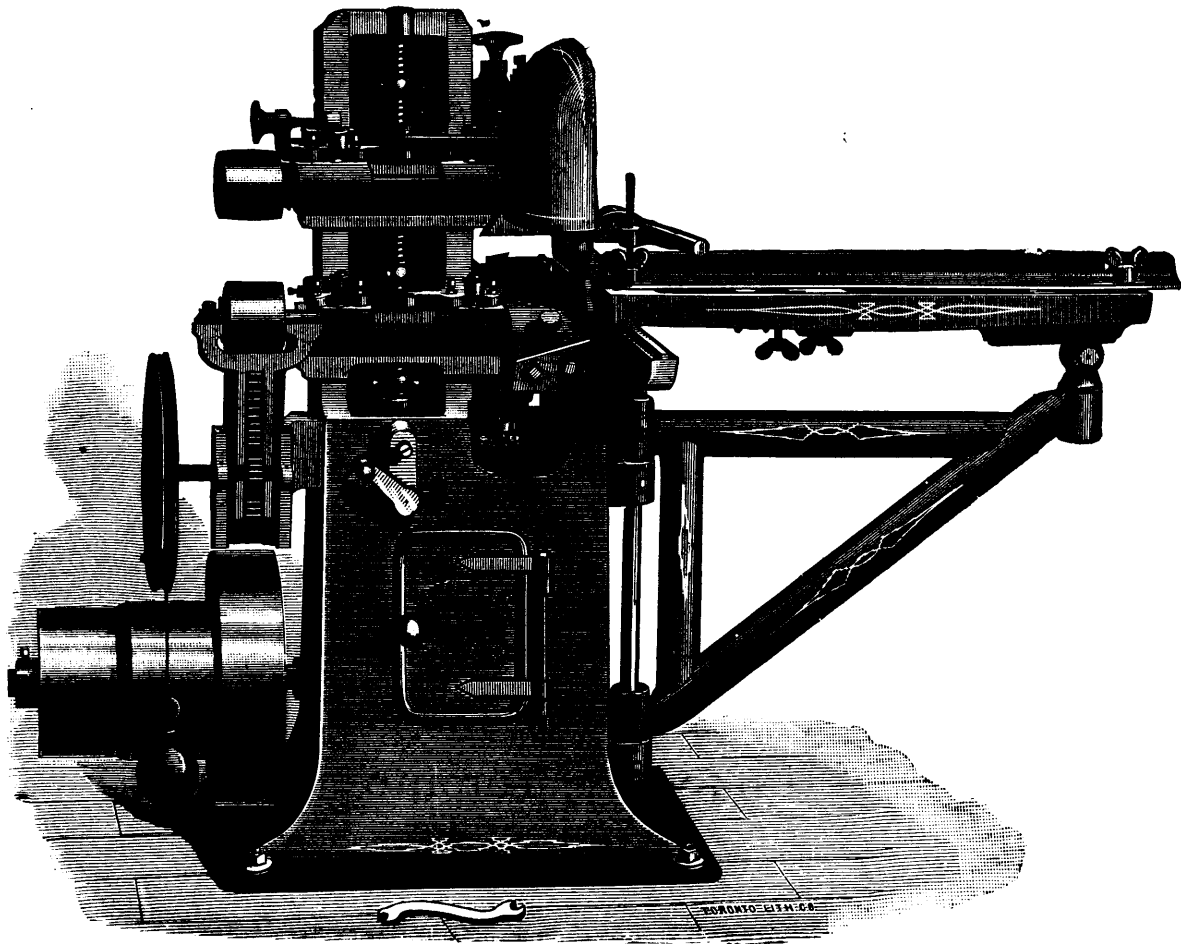
## TORONTO.

P. O. BOX 333.

TELEPHONE 2080.



NEW AND IMPROVED  
*Pedestal Tenon Machine.*



This is an entirely new style of Tenon Machine. The frame is cast in one piece, and the working parts stand solidly on a pedestal, avoiding all vibration.

The Cutter and Cope Heads are connected and are moved all together, or separately, as required. The Upper Head and Boxes also adjust horizontally to suit shoulder of tenon, the Cope Knives moving with the Heads to prevent re-adjustment.

A special feature in this machine is the Bed, or Carriage, which is at once light and strong. The outer end works on rollers and is moved very easily.

In cutting the tenon the Bed and Carriage move entirely past the Heads and Cutters, the operator having full control of the work. It has also the advantage of leaving the Heads and Cope Knives clear, and of ready access by the operator.

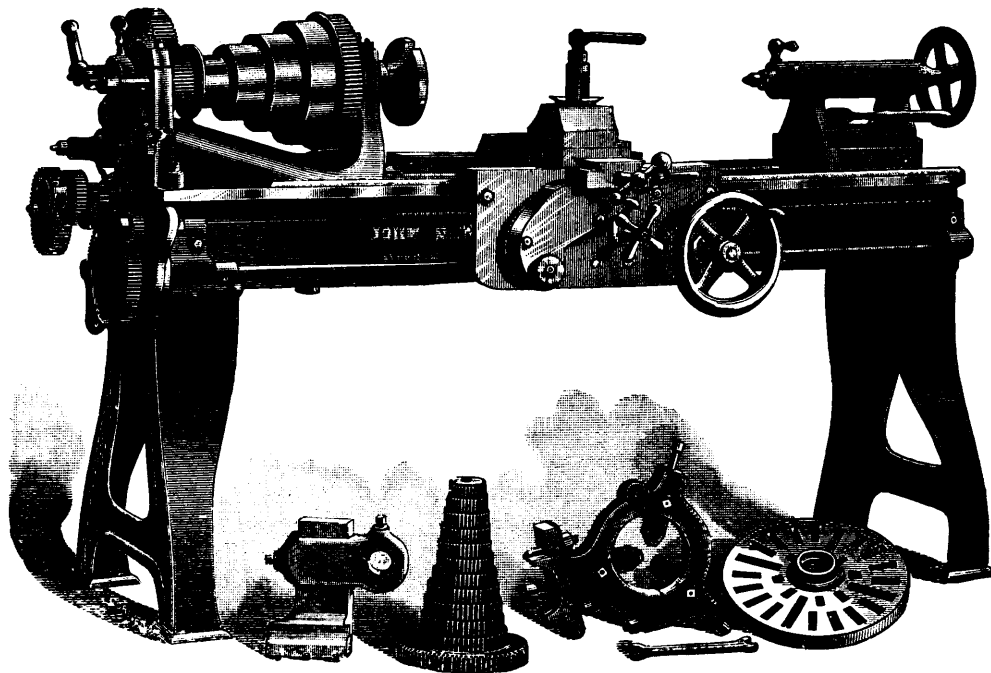
The Carriage is so arranged that it cannot tip over the Slides nor be thrown into the Cutters, and is also supplied with extension bar for long stuff, as in all Tenoning Machines.

This Machine is supplied with single or double Copes, as ordered, and for furniture work it is without Copes, and with an adjustable cut-off Saw.

**COWAN & CO.**

**"Galt Foundry" Engine and Machine Works, GALT, ONTARIO, CANADA.**

Canada Tool Works, **JOHN BERTRAM & SONS** DUNDAS, ONT.



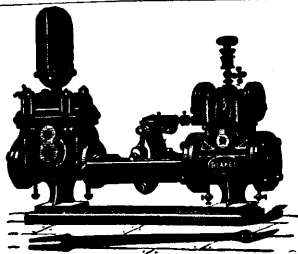
16-in. LATHE.

Manufacturers of  
Machinists' Tools  
and  
Woodworking  
Machinery.

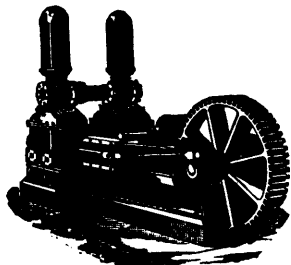
LATHES,  
PLANERS,  
DRILLS,  
MILLING  
MACHINES,  
PUNCHES,  
SHEARS.  
BOLT  
CUTTERS  
SLOTING  
MACHINES,  
MATCHERS  
MOULDERS,  
TENONERS  
BAND SAWS,  
MORTICERS,  
SAW BENCHES

Locomotive and Car Machinery, Special Machinery, Price List and Photographs on application.  
Warerooms: Permanent Exhibition, Toronto; Polson Engine Co., 38 Yonge St.; Machinery Supply Ass'n, Montreal.

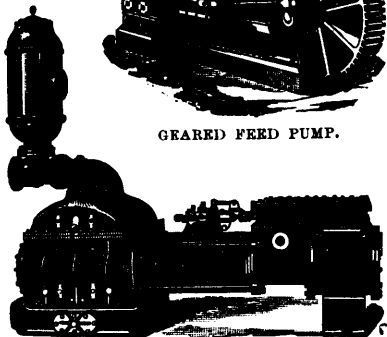
Geo. F. Blake Manufacturing Co.,



BOILER FEED PUMP.



GEARED FEED PUMP.



DUPLEX COMPOUND ENGINE

BUILDERS OF

SINGLE AND DUPLEX  
Steam and Power

Pumping Machinery

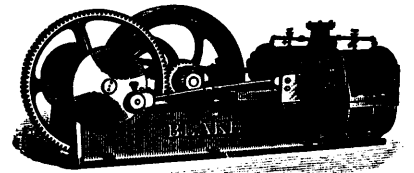


BOSTON,  
111 FEDERAL STREET

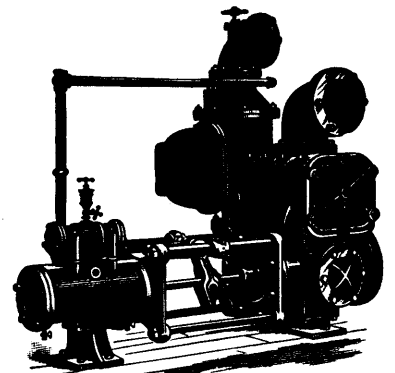
NEW YORK,  
95 & 97 LIBERTY STREET.

SEND FOR ILLUSTRATED CATALOGUE.

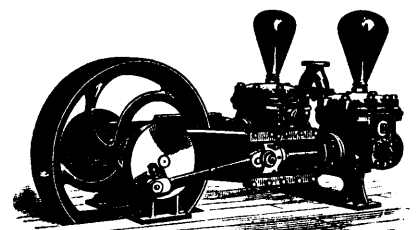
These goods may be seen at the Permanent  
Exhibition 63 to 69 Front Street West, Toronto.



AIR COMPRESSOR.



AIR PUMP AND CONDENSOR.



BELT PUMP

# *Nova Scotia Steel Co., Limited,*

NEW GLASGOW, NOVA SCOTIA

(Only Steel Works in Canada),

MANUFACTURERS OF

## Hammered *and* Rolled Steel

MADE BY THE

SIEMENS-MARTIN (OPEN HEARTH) PROCESS.

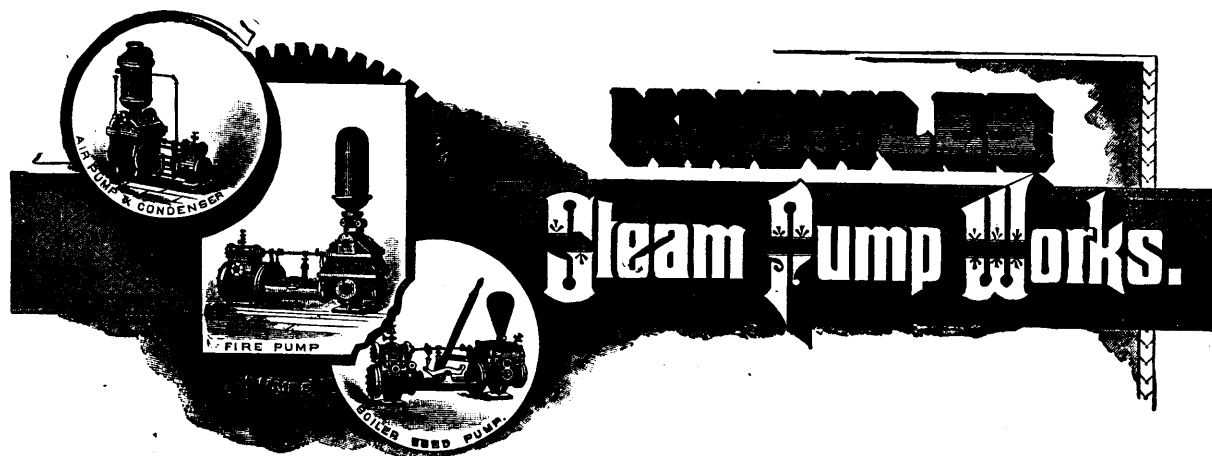
ROUND MACHINERY STEEL for Shafting, Spindles, etc. MILD STEEL for Rivets, Bolts.  
Thresher Teeth and many purposes where Norway Iron is now used.

SPECIAL SECTION PLOW BEAMS, MILD STEEL CENTRE AND SOLID MOULD BOARDS,  
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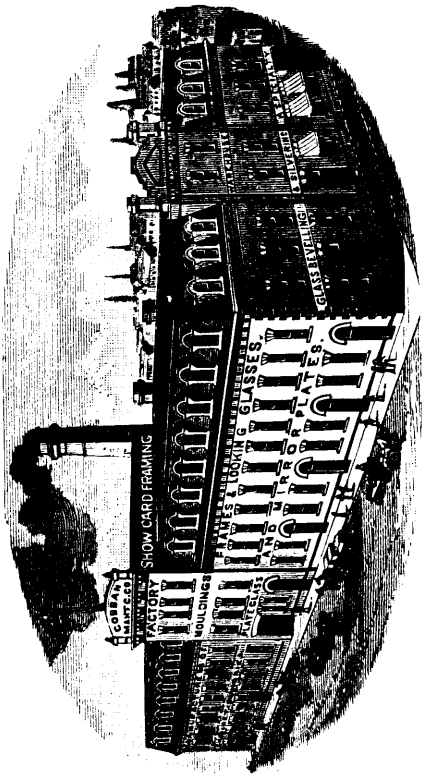
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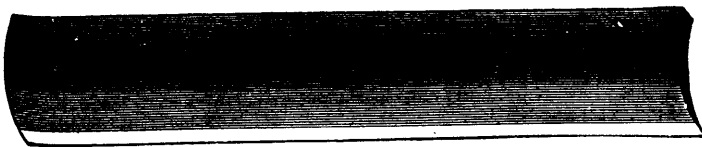
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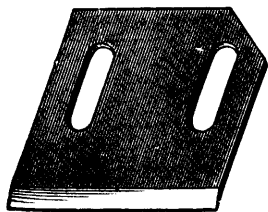
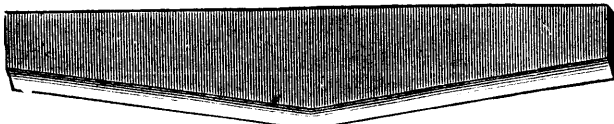
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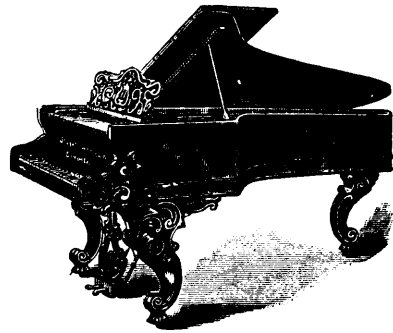
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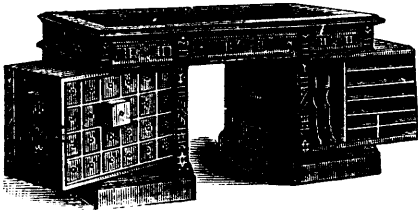
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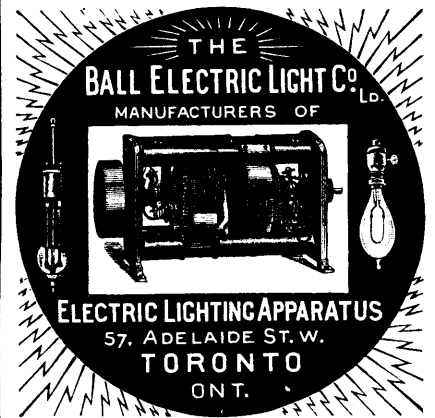
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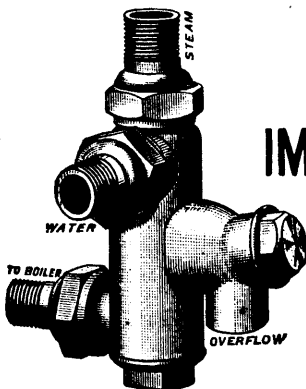
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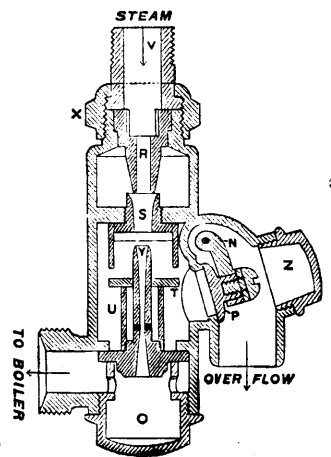
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