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Published on the First and Third Fridays of each Month

BY THE

Canadian Manufacturer Publishing Co.

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63 FRONT STREET WEST, TORONTO.

FREDERIC NICHOLLS,  
Managing Director.

J. J. CASSIDEY,  
Editor.

SUBSCRIPTION. - - - \$1.00 per year.

ADVERTISING RATES SENT ON APPLICATION.

MR. FREDERIC NICHOLLS is Secretary of  
The Canadian Manufacturers' Association,  
The Woolen Manufacturers' Association, and  
The Tanners' Association.

His Office is at the Publication Office of the  
CANADIAN MANUFACTURER,  
63 Front Street West, Toronto.

### GONE WRONG.

In its fine tooth comb search for Canadian manufacturers who are wild to have access to the sixty million American market, the *Globe* has discovered Mr. Charles Raymond, a sewing machine manufacturer, of Guelph, Ont., who wants to advertise the fact that he is in favor of unrestricted reciprocity. According to the interview published in the *Globe*, Mr. Raymond is quite willing to be put on an equal footing with American sewing machine manufacturers. Says he:—"Release my materials from paying duty and let me get into the American market, and I will take chances with them in Canada. I am prepared to go into the territory over there if a treaty of free trade is conceded. In Chicago I would find a market as good as all Canada. I would in that one city sell as many machines as in the whole of this Dominion. I paid out in duties last year something like \$5,000. There is, perhaps, in the case of some things that go into our machines, some reason for the duties, for they are made in Canada, although of so poor quality that I will not use them. There is a duty of thirty per cent. on needles; they are not made in Canada fit for my trade. The Government offers us a drawback on machines exported. I pay more than that on the attachments, and on a machine the duties I pay amount to nearly a dollar. It is a burden heavier than I can bear." Mr. Raymond suggests that the Government might say that he need not pay so much in duties, being able to buy his materials at home. "True," says he, "I could buy at home some of what I import, but it would be poor stuff that I do not care to use. I could get Japan varnishes here, but they would be unsatisfactory. I might continue to enumerate in the same way all the stock that goes into my manufacture." The remedy for these ills under which Mr. Raymond suffers so woefully lies in reciprocity. "These burdens," says he, "would be lifted by the adoption of free intercourse, and our

manufacturing would be relieved to the extent indicated. Further, there would be the enlarged market opened to us. The trade I would do over there would more than make up for what the American manufacturers might reap here. Under reciprocity the duties on our raw materials would be lifted from us, and we should be placed on an equal footing for both the American and foreign markets."

We regret that Mr. Raymond allowed himself, like a fly, to walk into the trap set for him by the *Globe* spider. His experience should have taught him better. The *Globe* tells us that the Canadian sewing machine industry is not as crowded as many others; that, in fact, Mr. Raymond is now the only manufacturer in Canada, and that Mr. Raymond has no other reason for denouncing the National Policy than that it taxes his raw materials and limits his market. Mr. Raymond has always been an industrious and hard-working man, whose mechanical knowledge and inventive genius was always greater than his business ability. An American by birth, he first commenced the manufacturing of sewing machines in New England more than thirty-two years ago. He was not successful there, and a few years later he made an effort to establish the business in Canada—at Montreal. He was not successful there, and a few years later still, he located at Guelph where he began the manufacture of a small hand machine. Not until the inauguration of the National Policy did his business exhibit any remarkable thriftiness; and if he was not an original supporter of that Policy, he attached himself to it soon after its advent, and until now has been a supporter and advocate of it. His factory is well equipped with machinery, with capacity to manufacture twenty thousand sewing machines annually, the yearly output, however, being about ten thousand machines, the home consumption demanding about seven thousand and the foreign trade about three thousand machines.

The Canadian duty upon sewing machines is \$3 each and 20 per cent. *ad valorem*. For the fiscal year ending June 30, 1889, the imports into Canada for home consumption aggregated 5,272 machines, valued at \$118,068, upon which duty amounting to \$39,430, was collected. During the same period the exports of sewing machines manufactured in Canada amounted to 7,581 machines, valued at \$56,563, of which number 6,056 went to Great Britain and 464 to the United States, the American trade from Ontario including 213 machines.

According to these figures the consumption of sewing machines in Canada in 1889 amounted to 12,000 machines, and the exports to over 7,500; of which Mr. Raymond manufactured only about 3,000. Others than Mr. Raymond must then have been engaged in the business.

As to releasing Mr. Raymond's raw materials from the payment of duty, so that he might be benefited thereby, according to his own statement the duties upon all the materials he uses, and they are all imported except the rough lumber, nothing made in Canada being good enough for him, amounts to less than one dollar upon each machine—call it a dollar. The specific duty of \$3 and the *ad valorem* duty of 20 per cent., making the duty average about 35 per cent., affords a valuable protection to the Canadian manufacturers of sewing machines. It means that the machines imported into Canada in 1889 paid about \$7.50 duty each; and even if Mr. Raymond did have to

pay a dollar duty upon the materials entering into the construction of each of his machines the net benefit of protection to him was about \$6.50 upon each machine. What more could he ask for? Does he want the earth? With an output of 10,000 machines per year, and a tariff giving him \$6.50 worth of protection on each machine, and including a fair margin of profit that he ought to make in his manufacturing enterprise, say four or five dollars on each machine, and Mr. Raymond should be placing to the right side of his bank account considerably over a hundred thousand dollars a year. If he does not do it he should blame himself rather than the N.P.

#### TAKING THE CHANCES.

THERE are some manufacturers in Canada who are not satisfied with the status of their business, finding themselves falling astern in the race for success, and can see no other remedy for their ills than unrestricted reciprocity with the United States. "If we could only gain access to the sixty million market," say they, "we would take our chances with the manufacturers there." This is too funny for anything, or would be if it were not that the enemies of Canada's industrial independence did not take advantage of such expressions to aid them in their endeavors to make Canada a dependant upon Yankeeism. We say this is amusing, because these expressions come chiefly and generally from those whose success in business has not been remarkable, or from those who enjoy the benefits of a protection even greater and farther reaching than that afforded by the N. P. It is not surprising, except for its selfishness, that such men as J. B. Armstrong desire reciprocity, or annexation, seeing that they enjoy this peculiar protection alike both in Canada and the United States. Mr. Armstrong owns the patents which make his products so valuable; and no amount of tariff protection in either country could possibly encourage any competition in the business, nor could any would-be competitor engage in it without his consent. For the sake of enjoying the largest amount of benefit arising in his business Mr. Armstrong maintains factories both in Canada and the United States; and this because the tariff of the two countries interfere with the supply of the American market with the products of his Canadian factory, and with the supply of the Canadian market with the products of his American factory. It is an undoubted benefit to Canada that Mr. Armstrong should maintain a factory in Guelph; but without doubt this factory would be closed, and Canada deprived of the benefit of it if reciprocity prevailed, for then the Canadian market would be supplied from the American factory. This is an illustration of how and why Canadian manufacturers who control valuable patents in both countries desire reciprocity. They do not fear any competition in either country, for they are able to prevent it; and their desire for reciprocity is actuated by selfishness, seeing that under it they would have to maintain their works in but one country, that is, the United States.

There is another class of manufacturers, however, who are actuated by even less sensible motives than selfishness in their desire for reciprocity. When some men find themselves unsuccessful in business, they are always ready to lay the blame upon persons and things where it does not belong, and cannot or will

not see that it should attach to themselves. Perhaps a man may enter upon a business that is already fully occupied or overcrowded. He finds men in control of the trade who have capital, experience and acquaintanceship against which it is hard—frequently impossible—to compete successfully. Perhaps the new adventure possesses none of these qualifications. Lack of sufficient capital prevents the erection and equipment of just such works as he ought to have; lack of experience places him at the mercy of others in his operations, and it is always a difficult task to win trade from those who have been long in the business and who have always given satisfaction to customers. In other countries when such adventurers fail, the verdict "served him right" is generally rendered; while in Canada it is the sufferer himself who desires to render the verdict, which usually is "Protection did it."

It is to be remarked that successful manufacturers in Canada do not whine and beg for reciprocity. Their success does not necessarily depend entirely upon any large capital they may at first invest in their business. There are other qualifications more necessary than money, accurate knowledge of the details of business; correct personal and business habits, and a persistent perseverance that is capable of accomplishing all that has been determined upon. Take such men as William Bell, the organ manufacturer, and John Bertram, the manufacturer of heavy iron machinery. These are men who possessed the qualifications alluded to; and there are thousands just like them in Canada who have climbed high up on the ladder of success, and who have no desire for reciprocity. They are successful business men who have made their fortunes in Canada, and who unselfishly desire that Canada shall be benefited by such manufacturing industries as they may be engaged in.

This is unfortunately more than can be said regarding many such men as the *Globe* has been recently interviewing, who, finding themselves unsuccessful in their ventures, aver that "Protection did it." The ridiculousness of some of the so-called reasons of these men for desiring reciprocity is simply amazing. For instance, Mr. Raymond argues that inasmuch as he has to pay about a dollar in duties upon the imported materials entering into the construction of each of his sewing machines, he would be benefited by reciprocity, thereby getting his supplies duty free, while in fact the duty upon foreign machines amounts to from \$6.50 to \$7.50 each. "In Chicago alone," says he, "I would find a market as good as all Canada. I would in that one city sell as many machines as in the whole Dominion." If this is so, why in the name of common sense don't he start business in Chicago? If this is so, why is it that at an extra expense of a dollar each he cannot make machines in Canada of American materials, while protected against American-made machines to the extent of five or six dollars each? Also considering that he is the only manufacturer of sewing machines in Canada, as the *Globe* informs us, why is it he cannot even control the Canadian trade? In 1889 as many as 5272 sewing machines were imported into Canada, paying from \$6.50 to \$7.50 duty each. Why did not Mr. Raymond absorb this trade? If he can make machines in Canada for only a dollar more than he could make them for in Chicago; and if American machines can be laid down in Canada, less the duty, for six or seven dollars each less than Mr. Raymond could make

them for in Chicago, it would be interesting to have pointed out where his advantage would appear under reciprocity.

Another remarkable feature in the statements of these unsuccessful Canadian manufacturers is that they say that none of the raw materials of their business made in Canada is good enough for their use. Thus Mr. Risdon says he must have American bolts and nuts in the manufacture of his agricultural implements, because such nuts can be screwed down with the fingers, while at least two monkey-wrenches are necessary to screw down the nuts on Canadian-made bolts. Of course this is not true; but it is true that Mr. Risdon uses large quantities of Canadian-made bolts and nuts in his business. So, too, with Mr. Raymond, who can find absolutely nothing in Canada fit to enter into the construction of his sewing machines, not even a good quality of japan varnish, while he knows and all who know anything of the facts know that Canadian japan is of as good quality as any made in England or America. This wholesale denouncement of Canadian products is mean, unjustifiable and false, and is only advanced as an excuse, and a very poor one, for unsuccessfulness in business.

### CANADA'S TRADE WITH THE UNITED STATES.

In a recent issue we gave a few figures from an official report of the Bureau of Statistics at Washington, showing that even under the imperfect system employed in the United States for enforcing entries of exports, the American exports to Canada were much larger than their imports from the Dominion. We believe that this defective system, combined with the humiliating expressions of certain politicians and newspapers in Canada as to our entire dependence upon American markets for prosperity, had a great deal to do with the high handed treatment of Canadian produce under the McKinley Bill.

A later Bulletin of the above Bureau,—No. 4, 1889 90, page 786,—affords a still more striking illustration of the defectiveness of the system of obtaining entries of exports at United States Custom Houses.

This bulletin gives the value of domestic and foreign exports to all the Provinces in the Dominion, for the year ending 30th June, 1890 as . . . . .	\$40,607,561
Imports from the Dominion . . . . .	42,738,074
Excess of Imports . . . . .	\$2,130,513

By referring to the Canadian Trade and Navigation returns for same fiscal year, page 8, in introductory report, the exports from the Dominion to the United States are given \$43,522,404, (which includes, see pages 728 and 733, coin and bullion \$1,961,181 and estimated short amount returned at inland ports and exported to the United States, \$3,070,652) This corresponds very closely with the United States returns of imports. As to Canadian imports from the United States, the Trade and Navigation returns show:—

Goods entered for consumption in the Dominion, from the United States. (See page 9) . . . . .	\$50,537,440
Goods entered not for consumption, swine, Indian corn, oats, wheat, flour, provisions, lumber and timber. (Pages 2 to 560) . . . . .	5,300,000
Merchandise received from the United States, and transhipped at Montreal. (Pages 14 and 16.) . . . . .	10,314,396
Total . . . . .	\$66,151,836

Compared with the above, the United States returns only show . . . . .	\$40,607,561
Deficiency in United States Customs report of exports . . . . .	\$25,544,275
Instead of there having been an excess of imports into the United States from Canada as shown in bulletin No. 4, as above, of . . . . .	\$2,130,513
There actually was an excess of exports from United States over imports from Canada of . . . . .	\$23,413,762

It is hardly to be wondered at that under such defective returns of exports, the politicians and the press of the United States should receive such false impressions as to the condition of their commerce with Canada. They imagine they can deal with us according to their own sweet pleasure and to suit their own party objects. But it is surprising that politicians and newspapers in Canada, with our own trade statistics before them, should persistently assert that in order to the extension of the commerce between the two countries, all the concessions necessary to this end should be granted by that one of the two countries which at present buys the more largely from the other.

It may be said that Canada cannot produce cotton, tobacco, anthracite coal and many articles imported from the United States, but that the United States can produce barley, horses, cattle, lumber, etc., such as is imported from Canada. Of a few articles this may be true, but Canada imports from the United States large quantities of wheat and flour, corn, oats, seeds, fruits, trees and shrubs, etc., which could be produced at home. Again, Canada imports annually from the United States manufactured goods of the value of about \$18,000,000. If the United States persists in excluding the raw products of Canadian fields, forests, mines, and fisheries in order, as they contend, to give increased employment to American labor, does it never occur to American politicians that Canada may adopt a like policy with the respect of the products of their factories, and thus induce the introduction here of a large part of the capital and population now employed in the United States in manufacturing for the Canadian people.

We heartily endorse the attitude and policy of the Dominion Government on this question. We believe that owing to the difference in climate, soil and seasons, the free interchange of natural products between the two countries would conduce to mutual advantage and prosperity. We dispute the assertion that there would be any such balance of advantage in favor of Canada as should demand from her any concessions under which she should in any way restrict her absolute independence in her fiscal policy, or weaken or imperil her commercial relations with Great Britain or any other country.

### THE EXPORT DUTY.

A CORRESPONDENT of the *Toronto Globe*, Mr. Peter Imrie, writing from Halifax, N. S., speaking of the illimitable supply of nickel in Canada and that all the other known deposits in the world would be unable to supply the world's demand for the article, suggests that an export duty of at least \$4,000 a ton should be imposed upon all nickle sent out of the country. We are told that nickel used to sell at more than \$5,000 a ton, and that even at that price the French eagerly purchased all they could get of it for use in the constuction of armor plates. In reply the editor of the *Globe* says:—

The present price of nickel matte is \$150 per ton and that of the metal fifty cents per pound or \$1,000 per ton. A French economic review looks for a steady decline owing to the discovery of immense deposits in Uruguay as well as to the introduction of improved processes in the mines of the French colony of New Caledonia. Even if a large decline should take place the deposits in Canada are bound to be a source of considerable wealth. But Mr. Imrie's assumption that we possess all the nickel in the world is unfounded, and his whole case falls with it. If we were to impose an export duty of \$5,000 or of \$1,000, or any duty at all, we should simply be putting an end to the chance of doing an export trade, and offering a premium as it were for the development of the deposits elsewhere.

Nickel matte is not nickel. As a product of the smelters such matte as is manufactured at Sudbury generally contains much larger percentages of copper and iron than of nickel, and it also contains a large percentage of sulphur. Therefore the price per ton of matte is regulated by the quantities of contained nickel and copper, these being the more valuable constituents, while the other constituents, iron and sulphur are not valued. The value of nickel metal is from three to four times as great as that of copper metal; while in about all the matte produced at Sudbury there is a much greater percentage of copper than of nickel. Therefore when the *Globe* fixes the price of matte at \$150 per ton it is talking very unintelligibly, evidently not comprehending the subject.

The world will be slow to accept the views of either the *Globe* or any "French economic review," regarding the probable decline in the price of nickel. Until the discovery of the Sudbury deposits, France controlled a large percentage of all the nickel output of the world. This gave that country a superiority or advantage over all other nations in this respect; and it would be rather strange if the "French economic review" alluded to by the *Globe* did not say what it could to magnify the value of the French nickel deposits, and depreciate the value of all others. If France does introduce improved processes into the New Caledonia mines, the same thing can be done in the Sudbury mines; and the facts that before the discovery of the Sudbury deposits France was unable to supply the world's demand for nickel; and that since that time new uses for the metal—for armour plating, etc.—have increased the demand a thousand fold, it is not likely that there will be any great reduction in price.

Mr. Imrie did not assume that Canada possesses all the nickel in the world, as the *Globe* will discover by reading Mr. Imrie's letter. The gentleman is better informed. But the contention regarding the placing of a duty upon nickel does not fall because nickel is mined elsewhere than in Canada; and the facts we have mentioned—the illimitable demand for nickel, the scarcity of it outside of Canada, and the illimitable supply of it here dispel any contention that an end would be put to the chance of Canada doing any export trade in nickel by the imposition of an export duty.

Mr. Imrie's idea of the amount of duty that ought to be imposed may be rather high; the American duty until recently was \$300 per net ton—but there is no good reason why a duty should not be imposed.

Impose the duty.

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*The - Canadian - Manufacturer.*

## OUR WEALTH OF NICKEL.

THE authoritative statement of the experts sent by the Government of the United States to report upon the supply of nickel ore in the Sudbury region leaves no room to doubt that the quantity is simply enormous. After having investigated the great ranges discovered in Denison, Creighton and Graham townships, the experts reported "there are 650,000,000 tons of ore in sight." The highest output of iron ore in all the mines in Michigan, Wisconsin and Minnesota in a year amounted to about 8,000,000 tons. If the development of the Sudbury deposits was to occur at as great a rate, the quantity of ore "in sight" as reported by the American experts, would not be exhausted in eighty years. Professor Bell, of Ottawa, who is accepted as authority, says: "Multiply the Washington expert's estimate of ore in sight by one thousand, and we are probably within the mark." This means that at a rate of depletion of 8,000,000 tons a year the supply would last 800 years. According to this authority the nickel contents of the deposits, computed at an average of two and one-half per cent. would be 16,750,000 tons, or 33,500,000,000 pounds. At fifty cents per pound, which is about the present price of refined nickel, the product would represent the enormous value of \$16,750,000,000; and even if the price fell to ten cents per pound it would represent \$3,350,000,000. The copper contained in these ores computed at five per cent. would be 67,000,000,000 pounds, which, at only ten cents per pound, would be \$6,700,000,000. There are no works in Canada for advancing the metals contained in these ores towards commercial refinement except the smelters that produce the matte from the ores; nor is it probable that there soon will be unless steps are taken to force the industry. With refining works and skilled labor already at hand in other countries, the only thing likely to secure similar advantages in Canada is the imposition of an export duty. Impose the duty.

## CHARGED TO THE WRONG ACCOUNT.

THE number of unemployed in this country at the present time is variously estimated at from four to five hundred thousand, and it has also been ascertained that every seventh person in the United States is either a pauper or a recipient of charity.—*New York World*.

On the other hand, a list is published of 133 people who are known to be worth more than \$5,000,000 each. They, by means of "protection," are enjoying the money which used to belong to the farmers, artisans, etc., who are now either paupers or recipients of charity.—*Montreal Herald*.

If a manufacturer fails in business, it is because the tariff does not give him a fair chance. If he grows wealthy, it is because the tariff enables him to rob his customers. If a strike takes place in the United States, it is because the tariff enables the greedy monopolists to oppress their workmen: if it takes place in England, it is because free trade enables the workmen to assert their rights. If the whole community were poor, and none could amass fortunes, it would be because the tariff had made them poor: as a large number have grown very wealthy, it is because the tariff enables them to accumulate unjust gains. No event can occur in the heavens above, or the earth beneath, or in the waters under the earth which cannot be shown to have its origin in the tariff.—*Hamilton Spectator*.

The "variously estimated" estimates of the *World* are made to order in the brain of the writer who makes such silly

assertions. What is meant by being "unemployed," and who are included by the term? Apportioning these unemployed equally among the sixty millions of population, and we find that where there is one such person there are one hundred and twenty who are employed—not a bad showing. So also regarding the every seventh person who is either a pauper or a recipient of charity. If this estimate is correct the result shows that for each such pauper there are nearly a hundred who are not paupers to contribute to his support. It is a dirty bird that fouls its nest; and the *World* is welcomed to all the glory and satisfaction it can find in doing so.

The *Herald* bathes in the same dirty pool with the *World*, and, in showing that the wealth of the United States is unequally divided, attempts to show that this inequality is caused by protection, and at the expense of farmers and artisans who are now either paupers or recipients of charity. The fact is, of the large numbers of the many times millionaires in the United States alluded to, those who have acquired their wealth in manufacturing enterprises can properly be counted on the fingers of one hand.

The Standard Oil people obtained their enormous wealth not by manufacturing but by the control they obtained of the mineral oil products of the country. The Astors never invested a dollar in manufacturing enterprises, their great wealth accruing to them through the appreciation in the value of lands. Jay Gould obtained his money wholly through speculation in railway and telegraph stocks. So too with the Vanderbilts. Carnegie was the owner of many millions before he ever invested a dollar in the manufacture of iron.

These social and financial differences are not confined to the United States, and are in no manner to be attributed to protection. What made Abraham the richest man in his age? Was it protection? What made Solomon a monopolist in wisdom and women? Was it protection? What made such of the English nobility as Dudley and Portland among the richest men in the world? Was it protection? What makes one-tenth the population of England paupers, as stated by General Booth? Is it protection?

#### THE POULTRY AND MEAT TRADE.

The *Globe* objects to our article regarding the poultry and meat trade in our last issue, and accuses us of dodging the question by taking up a point outside of the controversy. This because we furnish the market quotations at Milwaukee and not at Boston, and not for the same date as that referred to in former statements of the *Globe*, but two weeks afterwards.

In reply we insist that the quotations ruling for poultry and meat at an interior and important market like Milwaukee afford a much better illustration of the prices which Canadian farmers might expect to realize in the interior of this Province than Boston quotations furnish. Then as to the objection to the date taken by us for comparison, December 24th. This date was selected on purpose, as being the day before Christmas, and on that account likely to show the highest prices of the season. By referring to its own exchanges, the *Globe* would have found that the quotations of the articles of produce in question, on December 10th (or the two weeks earlier which

the *Globe* refers to), were actually lower in Milwaukee than on December 24th.

There was no dodging or necessity for dodging on our part. In our article we challenged the advocates of Commercial Union to find a single market in all Canada where Christmas prices ruled as low as in Milwaukee. We invite the *Globe* to take up the challenge. Let there be no dodging.

The next important point in the controversy is in the relative value of dressed hogs. These are quoted in Milwaukee on 6th instant at \$4.00 to \$4.15 per 100 lbs., with inferior, dirty and stags lower, down to \$3.00. The *Globe* of 7th instant quotes dressed hogs in Toronto: "Receipts are small, and the demand good. Three cars of heavy sold to-day at \$6 10, delivered here." Will the *Globe* inform farmers how such a difference could be maintained if American dressed hogs are admitted into Canada free of duty? Dare it deny that, in this article alone, the National Policy does very largely benefit the Canadian farmer? The *Globe* and other newspapers of same political stripe insisted that the McKinley Bill would utterly ruin our egg market. False prophets! Eggs are quoted in Milwaukee at 18 to 22 cents per dozen. The *Globe* gives Toronto quotations, fresh, 25 cents; limed, 22 to 23 cents. Hamilton newspapers report that a dealer there has been able to import eggs from New York and make a fair profit on his purchase. Every week is furnishing fresh testimony as to the independence of our market of the American market in many articles of produce, and as to its superiority in not a few. By all means let us support a liberal commercial policy between Canada and the United States, but all the liberality must not be on our side.

#### ASTONISHING IGNORANCE.

In the London *Timber Trades Journal* of Nov. 29th, is a letter from a Liverpool timber merchant in which, speaking of the shipment of deals during the winter from Halifax, N. S., and St. John, N. B., says that he is aware those ports are open so far as the water is concerned, but that "the deals are mostly away from the port and are frozen so hard that it is impossible to ship them: and it is very exceptional to hear of a cargo being shipped from St. John." Commenting upon this the *Timber Trades Journal* says:—

We always thought that the reason for the supply ceasing from countries far north was not that the commodities were frozen, but that the ships could not get away en voyage when the goods were put on board in consequence of the ports being icebound. Admitted that St. John is open on the 1st of January, we should like the Liverpool firm to give a fuller explanation of the difficulties that lie in the way of loading a steamer that is ready to receive cargo on the date and at the place mentioned. We are quite aware there are seasons when the cold is so intense as almost to stop labor of any kind, but these are exceptional, and when they do happen St. John is closed by ice and navigation stopped.

It is astonishing that such ignorance exists regarding Canada among such people in England as those engaged in the timber trade. For probably three-quarters of a century New Brunswick has been shipping timber to England at all seasons of the year. The port of St. John is never closed by ice, and the Bay of Fundy is always as clear of ice as the British Channel.

The *St. John Evening Gazette*, showing the absurdity of the English idea, gives a statement contradictory thereof, showing that from November 1, 1883 to March 31, 1884, no fewer than forty-four vessels sailed from St. John to the United Kingdom with cargoes of deals, of which nine were steamers: that during the same period in 1887-88 there were thirty-three such clearances including ten steamers, and that during the same period of 1888-89 the clearances numbered forty-seven vessels including nine steamers. At Christmas there were five large vessels in the port of St. John loading with deals for the United Kingdom, one for France and one for South America, four other such vessels being then expected to arrive there to load deals for Europe, two of them steamers.

According to the *Gazette* :—

It is really pitiful to find such a paper as the *Timber Trades Journal* showing such dense ignorance as to say that there are seasons when St. John is closed with ice, and navigation stopped, and gravely informing its readers that vessels sailing in the Bay of Fundy in winter are in danger of encountering huge icebergs. What sort of an atlas does the *Timber Trades Journal* consult when it describes St. John as a port "far north," the fact being that St. John is six degrees or 360 geographical miles further south than London and eight degrees or 480 geographical miles further south than Liverpool. If such absurd blunders had appeared in any other English paper but one devoted to the timber trade they might have been forgiven, but in such a journal they are to us altogether incomprehensible. Let the *Timber Trades Journal* understand once for all, and let him and all other British editors paste in their hats the following paragraph, which contains the facts of the case with regard to St. John :—

The port of St. John is open all the year round ; it is never obstructed by ice to the slightest degree, and there is no more difficulty in a vessel loading deals or any other cargo at St. John in mid-winter than there is in a vessel taking in a cargo at Liverpool or London.

#### EDITORIAL NOTES.

It is sincerely to be hoped that the Nova Scotia Steel Company will experiment in the manufacture of nickel steel. The production of that article has passed the experimental stage elsewhere, and Canada is waiting to see its only steel works also producing the article.

A CHICAGO steel manufacturing company are reported to have bought a valuable nickel property in the Sudbury district, and that they will begin developing the same immediately. This means that this company comprehend the value of nickel in the manufacture of steel, and that they depend upon Canada for their nickel supply. Without an export duty upon nickel ore and matte, all that Canada will have to show for her interest in this enterprise will be the hole in the ground from which the nickel ore is taken. With a duty of say \$300 per ton, the Chicago company would remove their works to Canada. Impose the duty.

THE Nova Scotia Steel Company manufacture steel by the Siemens-Martin process, and their product is in demand throughout Canada. A few days ago experiments made at one of the Carnegie works demonstrated that steel made by the Bessemer process, but containing a certain quantity of nickel

alloy, possessed an elastic limit and tensile strength almost double that reached in the best grades of boiler-plate steel. It is to be sincerely hoped that the Nova Scotia Steel Company will make similar tests, and begin the manufacture in Canada of nickel steel. It would be an epoch in the history of that company and of Canada, of which all Canadians would be justly proud.

THE Canadian American Club of Minneapolis, has directed a communication to the Board of Trade of that city asking its co-operation in securing a larger percentage of Canadian trade in farm machinery to the manufacturers and jobbers of Minneapolis.—*St. Louis Farm Machinery*.

This is rather premature, and the communication has not been directed properly. The Minneapolis manufacturers of farm machinery cannot secure the Canadian market without the consent of the Canadian people, which, we are prepared to say cannot be had. That market is reserved for Canadian manufacturers. The way for our Yankee friends to obtain a percentage of Canadian trade is to establish their works in Canada.

DURING the year just closed the extraction of iron ore from the mines, like the production of the goods of which it forms the base, was the largest in this country's history, also larger than ever produced by any other country in a single year. The total product, although not yet officially announced, may be estimated close to 16,500,000 tons. The increase in the Southern mines, although not yet ascertained, is known to have been on a commensurate scale. The year's consumption of Chicago furnaces is officially stated at a trifle over 1,250,000 tons, about all of which comes from Wisconsin, Michigan and Minnesota mines grouped under the head of Lake Superior ores. The range for the year was \$5.50@6, according to quality, the outside for Bessemer ores.—*Cleveland Marine Record*.

It is a fact well known to business men generally that the moment a particular interest is started in Canada the price of the article manufactured drops. We could name scores of special lines, both in woolen and iron manufactures, upon which prices were lowered immediately, with a view of holding the market and, if possible, of killing off home competition. Every importer knows that this is the case. He knows also that prices quoted here are used to bear down the foreign maker ; and, furthermore, everyone knows that no stone is left unturned to decry the goods of every Canadian manufacturer and exalt that of the foreign maker. Of course there is always a selfish object at the bottom of this, but the effect upon Canadian industries is sometimes hard to bear. When Canadian manufacturers, who have themselves come through this ordeal, so far forget themselves as to join in the cry, our wonderment increases.

WE accept the "enlightenment" offered by the *Cleveland Iron Trade Review* re the clucking hen business and the export duty on nickel. But we are pleased to call attention to the fact that the CANADIAN MANUFACTURER has never been numbered among those who denounce any American capitalists for investing their wealth in Canadian enterprises of any sort. On the contrary we have always invited them to come and partake of the good things Canada has to offer. In this coming, however, we have always demanded that the investors

cease to distinguish themselves as distinctively American and become Canadianized. One should always praise the bridge that bears them over safely. We shall always be pleased to see Americans identifying themselves with Canadian enterprises and Canadian prosperity; but when they come they should expect no different treatment than such as is accorded to Canadians. With this understanding we extend a welcoming hand.

A YEAR ago ninety per cent. of the total trade of the Spanish Americas was controlled by European countries. They still have eighty per cent. of it, but they are fast losing their hold and the United States is edging in. The best evidence of this is that half of the intelligent people of Mexico are studying English, while many of our people are studying Spanish. Americans are starting stores and even factories in Mexico right along, and with wise legislation to help us we will soon have that trade under our control.—*St. Louis Farm Machinery.*

This item is somewhat involved, the meaning not being clear. If Americans are starting factories in Mexico we do not see how any American legislation will help to place these factories under American control. The true road to Mexican independence is in Mexico encouraging manufacturing industries at home which will supply the home demand. Mexico should be in a condition to manufacture every article possible to be made there, and with wise legislation this is what she will have.

THE genius who has been harrowing up the feelings of the people of Canada, through the columns of the *Globe*, by exposing the extortions practised by what he calls the nut and bolt combine, has succeeded in making himself ridiculous. He does not seem to know that the majority of our Canadian manufactures of binders make their own bolts, and thus escape that burden. The cost of the blank nuts per machine is less than seventy-five cents, which pays for over twelve pounds of nuts. The overcharge on this quantity may be very serious and burdensome to the agricultural population, but we fancy that every sensible business man will agree with us that, if shorter credits will reduce the interest and cost of collection from \$15.00 to \$20.00 per binder, both manufacturer and farmer will be benefited very much more. The truth is that the undue facilities afforded by the banks have led to both over-production and long credits, which reaches every branch of manufacturing business, and when that evil is remedied in Canada, the cost of every necessary will be greatly reduced.

RECENTLY published British consular reports disclose the condition of the tariff question in different European nationalities. In France, it is stated, the proposed duties upon tissues of cotton, mixed with other materials, for furniture, hats, etc., is, minimum, 5,200 shillings per ton; maximum, 4,000 shillings; on stationary and portable engines and boilers, where the present rate is 48 shillings per ton, the proposed rates are 56 shillings and 72 shillings. This gives an idea of what France proposes doing in the way of protection. In Spain, the Committee upon Financial Reform have recommended a general advance in duties upon imports: while, with regard to railway materials, the Government are advised to abolish the privilege enjoyed by certain companies in importing rails, rolling stock, etc., the object

being to encourage home manufactures. Canada should profit by this suggestion. In Russia, the tendency is towards ultra protection. In Switzerland, the existing general tariff dates from December, 1887, when it was deemed expedient to furnish the Government with efficient weapons for negotiating fresh commercial treaties with Germany, Austria-Hungary and Italy. The conventions subsequently concluded with those countries will lapse early next year, and it is considered that still stronger weapons will then be required for the protection of Swiss commercial interests. The object of the new general tariff is to protect native industries, and to serve as an efficient weapon for commercial negotiations.

IN our last issue we discussed the statement made by Mr William Risdon, a manufacturer of agricultural implements at St. Thomas, Ont., in the *Toronto Globe*, in which he stated that in his business he could not afford to use Canadian bolts and nuts because of their inferior quality, preferring those made in Cleveland, Ohio. We also reported the substance of an interview held with Mr. James Worthington, President of the Ontario Bolt Works, this city, in which Mr. Worthington showed that the nuts and bolts manufactured by his company are the equal of any made in Cleveland, and that at that very time Mr. Risdon was being supplied with nuts and bolts from the Canadian works. A copy of this journal containing this article, marked, was sent to Mr. Risdon for his information, but up to the time of writing this that gentleman has not thought proper to deny the statement of Mr. Worthington. As might have been expected an American trade paper, the *Cleveland Iron Trade Review* has taken up Mr. Risdon's statement, and draws comparisons therefrom not at all complimentary to Canadian mechanical workmanship. And thus it is that dirty birds befool their own nests. No doubt the products of Cleveland factories are quite as good as the best; but the same may be said of Canadian factories, Mr. Risdon to the contrary notwithstanding. Our Cleveland contemporary thinks that Mr. Risdon is "entitled to the floor." So he is, and we would be pleased to hear from him in defence of his strange and untenable position. Will he respond?

COMPLAINT has been made by the Legislative Committee of the Toronto Trades and Labor Council that by the connivance of a factory inspector certain manufacturers in this city ignore the law relating to granting their women and children employees a full hour at noon for dinner. No complaints have ever been made by these employees against a curtailment of this hour. They expect to work ten hours a day, and they have never been asked to work more than that length of time. Their noon hour is curtailed with their own free consent, to enable them to quit work earlier than six o'clock in the evening. If the Government insist that their inspector shall require a strict compliance with the law, great inconvenience will result to those whom it was intended to benefit; and it is to be hoped that the Government will not so insist. We do not understand that the Government have any desire to unnecessarily hamper the manufacturers in carrying out the details of their business, but rather to remove obstacles, and to so shape their policy as to maintain the kindest feelings between the manufacturers and their employees. But it is painfully notice-

able that for years they have furnished a downy nest for a mischiefmaker named O'Donoghue, and allow him to draw a liberal salary, while he plays the part of a dangerous socialistic agitator on this and other labor questions. The Government should allow this man's place to be filled by a gentleman. We do not deny the right of the Trades and Labor Council to entertain this man, and to be led and influenced by him, but we protest against the Government paying him a salary while he antagonizes the best interests of the community.

THERE are more than a hundred manufacturers of sewing machines in the United States, while according to the *Globe* there is but one in Canada. This gives to each American manufacturer an average market of 600,000 persons and to the Canadian manufacturer an average market of 5,000,000. This one Canadian manufacturer produces about 10,000 machines a year, at which rate the American manufacturers should produce a million machines. There are few American factories that do not produce many times 10,000 machines, as might well be imagined when it is observed that the output here attributed to them gives a machine to each sixty persons: while each machine of Canadian production represents an apportionment to each 50,000 persons. The Canadian manufacturer has a much larger market in Canada than he would have if he were one of the hundred American manufacturers. According to this Canadian manufacturer, at an extra expense of one dollar on each machine he makes his machines are as good and valuable in all respects as American machines. He cannot supply the Canadian demand, for in 1889 the importation of American machines into Canada amounted to over five thousand, the average duty paid upon each being about \$7.50. Yet this Canadian manufacturer who has an entire monopoly of the business, complains that he cannot make his business a success, and that free access to the American market, and fierce competition with the hundred other manufacturers there, is the sort of salvation he desires. In other words his business cannot be made remunerative in a monopolized market of 5,000,000 people, therefore he wants to have access to another market where he will have to find purchasers in a proportioned population of 60,000, and where his chances for success are correspondingly reduced. It is a big card to play to cry for access to another market when the player can't occupy the better one he already has.

FOURTEEN of the largest axe factories in the United States have been organized under a trust, and they have managed to raise the wholesale price of axes in the course of a few months from \$5.25 to \$7 per dozen. Before the combine was formed, too, manufacturers paid freight on the goods; but they pay no freight now. They also gave a warranty with the axes, so that, if one was broken or turned out to be of poor quality, it was replaced by a good one; but no warranty is given now. And to show what power the combine possesses, every retail dealer is furnished with a slip which reads: "There is now but one axe company in the United States, and that is called the American Axe and Tool Company, with headquarters at Pittsburg. This company has purchased outright every axe factory in the country of any importance, and by thus controlling the production have advanced prices on an average of \$2 per dozen. This company also controls the manufacture of axe polls (or the heads of axes), the machinery of which is patented, and this enables them to keep the prices so high no one else can

afford to make axes." The free-born American citizen will be able, perhaps, to discover a vein of humor in this manifesto of the axe combine; but it is such humor as the Sioux Indian practises upon his victim. Another trust, more recently formed, is that of the reaping machine manufacturers, and one of the first fruits of it is the discharge of 10,000 workingmen, as it has been found that under combination the labor of this number of men can be saved. But the price of machines will go up for the farmer all the same, and the McKinley tariff will leave him without redress.—*London Advertiser*.

Our respected contemporary, the *Advertiser*, is a shrieker for unrestricted reciprocity with the United States, and does all it can to precipitate that calamity. It tells its farmer readers that with reciprocity they would have cheaper axes and cheaper reaping machines than now, obtaining them from the Yankees. But Canadian farmers know that the wholesale price of Canadian axes have not been nor is it likely could be raised in a few months from \$5.25 to \$7 per dozen, except Canada were brought under the operation of Yankee reciprocity. And by the same token the price of reaping machines would also go up, as the *Advertiser* says, in Canada as well as in the United States.

ONE of the consolations afforded to the farmer for the loss of the American market is the hope that Canada may increase its sales of canned goods to Great Britain. "There are no good reasons," says THE CANADIAN MANUFACTURER, "why Canada should not do an extensive export trade in canned goods." Undoubtedly, if great quantities of Canadian canned fruit and vegetables could be sold in Great Britain it would be a good thing for the farmers and for the canners. But if the proposal of THE MANUFACTURER be carried out, instead of the export being increased, the canning industry will stand an excellent chance of being killed outright. This organ of the monopolist manufacturers actually proposes that a tax shall be levied upon the tin plate of which the cans are made, in order that somebody may try the experiment of making the plates in Canada. If this advice be accepted by the Government the effect will simply be that the canners will have to pay a tax either into the Dominion Treasury or into the pocket of the tin plate manufacturer which will effectually prevent their producing canned goods cheaply enough to compete in the British market. Again, while the restrictionists are telling the Canadians to "cultivate the British market," one of the restrictionist journals is advising Parliament to cut off an important branch of trade with Great Britain. We imported \$871,856 worth of tin plates in 1888-9, and of this \$777,138 came from Great Britain, the great tin-producing country of the world.—*Toronto Globe*.

MANUFACTURERS of tinware and the people who use it may as well make note of the fact that THE CANADIAN MANUFACTURER, the special organ of the protected combines, is calling for the imposition of a duty on tin-plate, so as to foster the establishment of a tin-plate industry in Canada, as if we had not now a sufficient number of sickly, wet-nursed industries in this country. High duties on tin-plate mean dear raw materials for tin-ware manufacturers, and dear tin utensils for the farmers and workingmen and their families.—*Montreal Herald*.

THE reason why Canada has never had a tin-plate industry is because the Dominion Government has never attempted to encourage the establishment of it. If it was encouraged properly the industry would materialize and the duty would be no more oppressive to us than the American duty is to the people there. There has never been a ton of steel rails made in Canada because the industry has not been encouraged. We could have tin-plate works and steel rail mills fast enough if they were properly encouraged.

THE CANADIAN MANUFACTURER demands the imposition of an export duty on nickel ore and matte, which, it says, would enable us to manufacture nickel steel and dictate terms to everybody. A while ago we undertook to dictate terms to mankind in the article of spruce and pine by putting an export duty on logs, but the results were not encouraging. If we had an absolute monopoly of all the nickel in the world, something might be said in favor of an export tax on it; but it is by no means certain that we possess such a bonanza. Imposing an export duty would be equivalent to offering a premium for the discovery of other mines and other processes of alloying steel. THE MANUFACTURER, in its enthusiasm over this one-eyed proposal, speaks almost in disparaging terms of the iron industry. We consume, it says, about 300,000 tons of iron goods every year—the figure is probably too low—but produce only a tenth of that quantity of pig iron, whilst there is only one steel plant in the Dominion. Instead of clamoring for an export duty on nickel, our contemporary would render a greater service by demanding the reduction of the iron tariff of 1887, which, on its own showing, is nothing more or less than a useless burden upon the country.—*Toronto Globe*.

There are none so blind as those who refuse to see. According to the statements frequently made in the *Globe*, and verified by such testimony as that of Mr S J. Ritchie, Canada possesses five-sixths—probably more—of all the known deposits of nickel in world. If the *Globe* supposes that no search is going on in many quarters of the world for nickel deposits; or if it supposes that this search would be suspended if it were known that Canada would impose no export duty upon nickel ore and matte, it is exceedingly verdant. The fact is, it supposes nothing of the sort—it knows better. The condition of Canada, relative to the rest of the world as regards nickel, is very different from that regarding spruce and pine timber. Canada has no monopoly whatever in these latter articles, as she has in nickel: and if this country never exported a foot of spruce or pine lumber the world would not be a terrible sufferer therefrom. If the iron manufacturing industry of Canada is in a forlorn condition, it is because the Dominion Government have always declined to protect it to a point at which it would become firmly established. What that industry requires, seeing that a duty of \$4 per ton is not sufficient to establish it, is to raise the duty to say \$7 per ton, which would then be not as high as the American duty was for some years. Without an export duty upon nickel ore and matte, Canada could never hope to have nickel refining works nor works for the manufacture of nickel steel. With that duty we would have both. Impose the duty.

## 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. Subscription \$1.

FOR SALE in Kent County, Michigan, the Buchanan Mill property consisting of a first class lumbering mill the extensive water power in connection with it including the entire power furnished by the river with real estate on both sides of sixteen acres, situate one mile from Main Street of Lowell, a rich farming country surrounding an excellent location for paper mill, furniture factory, woolen mill and the many uses that require power. Also a splendid home and farm of 87½ acres with buildings, fruit, evergreens, etc. For further information call at the premises of JAS. R. BUCHANAN, Lowell, Michigan.

THE January number of *Wives and Daughters*, a journal written for women by women—conducted by Mrs. John Cameron, assisted by Miss Ethelwyn Wetherald—is perhaps the brightest number issued. Among the friendly words is a warmly commendatory note from the Countess of Aberdeen, recently in Canada. For specimen copies, address *Wives and Daughters*, London, Ontario.

SISTER ROSE GERTRUDE, the young woman about whose work among the lepers of Molokai so much has been written, has been induced to reply to the charges made against her for renouncing her work. Her article, the first from her pen, is to be published in *The Ladies Home Journal* for February, and will contain a full explanation of what she has accomplished among the lepers, and why she was obliged to forsake her work.

If you have "a bee in your bonnet" or a hive in your garden, you want a journal that will tell you how to handle them to make the most profit at the least expense. The *Canadian Bee Journal*, a large 24-page semi-monthly, published at Beeton, D. A. Jones, editor, does all this and more. It gives you practical articles from the best bee-keepers of Canada and the U. S., and the cream of all the apicultural literature published in the English language. Questions of all kinds are asked and answered through its columns. The subscription price is 75 cents a year.

THE Perth *Expositor* has favored us with "The People's Almanac for 1891," issued as a supplement by our excellent contemporary. It contains an array of facts and figures for the consideration of the electors of Canada, and when we remark that this feature is taken from the standpoint of the N. P., and that it sustains the existing government of Sir John A. Macdonald, it is a foregone conclusion that this almanac will be in great demand. It contains a number of suggestive pictures that are free from acrimony and vulgarity, and are a reflex of the political situation of the country.

THE first number of the year of *Vick's Magazine*, the popular garden monthly, has a feast of good things for its readers, both in reading matter and illustrations. The frontispiece is a colored plate of a beautiful new variety of forget-me-not, called Victoria; it is a fine shade of blue, quite dwarf, and produces great numbers of flowers. Among the illustrations are a number showing prize vegetables, made from photographs, thus correctly representing some of the finest specimens of cauliflower, celery, cabbage, onions and tomatoes. Various other engravings brighten its pages.

*The Dominion Illustrated*, published by the Sabiston Lithograph & Publishing Co, Montreal, are offering one hundred prizes, the value of which exceed \$3,000, and to subscribers only, for the most correct answer to a series of thirty questions, six of which will be sent out each month to competitors. On receipt of the subscription price—\$4 per year or \$2 for six months—a special numbered coupon will be sent entitling the subscriber to compete. *The Dominion Illustrated* has been enlarged to twenty-four pages, weekly, and profusely illustrated throughout in the most artistic style. Further information regarding the prize competition may be had on application to the publishers.

A BRILLIANTLY told story of travels in the lands where "Ben-Hur" lived, by the wife of the author of "Ben-Hur," is entitled "The Repose in Egypt: An Orient Medley." Mrs. Wallace writes with a peculiar charm. There is a happy abandon and winsome cheerfulness manifest, that gives the narrative a character of its own. The volume is a handsome one, finely illustrated, such a book as commonly sells for a \$1.00 to \$1.50; but, like other publications of this house generally, the price is nominal—only 50 cents, plus 12 cents if by mail. Descriptive Catalogue, 132 pages, of popular and standard books, may be had free by addressing the publisher, John B. Alden, 393 Pearl St., New York.

ABOUT a year ago the publishers of the *Illustrated American* entered upon a costly and dangerous experiment—the issuing of a weekly journal which is now so well known and highly appreciated by the reading public. The period of probation has passed, and what is now a thoroughly well-established and exceedingly popular pictorial news magazine enters upon the current year under the most flattering auspices. The writers and artists employed upon it are distinguished at home and abroad, the aim of the publishers being to place the best fruit of their labors, week by week, into the hands of readers who know a good thing when they see it. An evidence of the popularity of the *Illustrated American* in Canada is the fact that it is to be found on sale in about every news stand in this city, no difference where located. It is worth more than what it costs.

THE wife of a famous man will oftentimes be completely hidden by the dazzle of her husband's fame, and it is astonishing how little is known of those women whose husband's names are household words

throughout the country. While the newspapers teem with the name of Thomas A. Edison, nothing is comparatively known or heard of Mrs. Edison. Every newspaper reader knows the name of Chauncey M. Depew, but of Mrs. Depew only the most casual reference is made. Even in England, one seldom hears of Lady Tennyson, or of Mrs. Gladstone. And the same is true of the wives of such men as P. T. Barnum, Will. Carleton, John Wanamaker, Spurgeon, W. D. Howells, Dr. Talmage, "Mark Twain," and James G. Blaine. Often these very wives have been the makers of their husband's careers. Their portraits are even less known than their lives. In a splendid series to be called "Unknown Wives of Well-known Men," *The Ladies' Home Journal*, of Philadelphia, will, during this year, sketch all these women and others, presenting their portraits, in many cases, for the first time to the public.

*Good Housekeeping* appears in its handsome monthly form for January, and while there are some new features in connection, and many improvements, those qualities which have endeared it to the "Homes of the World" are still present, so that it is seen to be the same familiar and welcome guest. The first thing to attract attention, as well as one which will receive the especial interest of the housewives, is the opening of a series of papers by Miss Parloa on "Ten Mornings in the Kitchen," written in her usual and attractive and practical manner. As the number of pages is more than doubled, to compensate for the monthly instead of fortnightly issue, opportunity is given for a greater range and variety of subjects. Apart from those things relating to the routine of household duties, which are always prized by the housekeepers and homemakers of the land, the stories are entertaining, the poetry is of more than usual excellence; while the departments for the young people, which are extended and improved, form by no means the least valuable portion of the publication. It is a periodical which should find a welcome in every home, whether humble or pretentious. Clark W. Bryan & Co., Springfield, Mass.

"The Industrial Revolution of the 18th century in England," by Arnold Toynbee, in two parts, 30 cents each. The Humboldt Publishing Company, 28 Lafayette place, New York. The point of view of the author of this important work is that of one who, while he admits the benefits conferred upon mankind by the old school of political economists—Adam Smith, Ricardo, Malthus and the rest—believes that their work is done, and that the world has got beyond them, and stands in need of something more. The work is a history of "the bitter argument between economists and human beings," to use the striking phrase of his chapter on "Ricardo and the old political economy." When the economic relations of men are studied by an observer who, to abundant learning, adds the quality of human sympathy, the result is no "dismal science." Besides the treatise named above, the present work contains three popular addresses on "Wages and Natural Law," "Industry and Democracy" and "Are Radicals Socialists?" as also papers on "The Education of Cooperation," and "The Ideal Relations of Church and State." There is a memoir of the author, by B. Jowett, Master of Balliol College, Oxford, England, in which college Toynbee was a lecturer on political economy.

*The Electrical World* has issued a four-page resumé of the contents of that paper during 1890. It assures us that the year was a period of a steady and rapid growth that placed the electrical industries far in advance of what they were a year ago, giving bright promises for the future. Different branches of electrical industry are alluded to, telling of what was done in the field of electric lighting during the year; how the stationary motor business developed, and what important new forms of motors appeared; how that storage battery transaction was growing rapidly and was attracting more and more attention, and that the system of electric traction had been increased. Somewhat analogous to electric railway work is that particular branch of motor service which deals with mines and mining. Among miscellaneous electrical inventions and improvements is mentioned the Fiske range finder, which has been subjected to many exhaustive sea trials that speak well for its probable usefulness in war. It has been the desire of this journal to present the whole subject of electricity in as full a manner as possible, and a reference to its files will give a better idea of how this has been done than what we can here say of it. Published every week by the W. J. Johnson Co., 167-177 Times building, New York. Subscription \$3 per year.

MESSRS. JOHNSON, WALKER & FLETT, proprietors of the Queen City Planing Mills, Victoria, B.C., are about making alterations and additions to their works which will enable them to more than double their output.

### THE LATE JAMES CROSSEN.

MR. JAMES CROSSEN, manufacturer of railway passenger and freight cars, of Cobourg, Ont., died suddenly at Montreal on December 9th last.

Mr. Crossen was born near the city of Belfast, Ireland, in 1826. When a young man he came to Canada, finally settling in Cobourg, where he engaged in the foundry business. Under his careful management this business developed into the manufacture of railway freight cars; and from the building of these the undertaking grew to the large dimensions prevailing at the time of his death.

Nearly every railroad in Canada, large and small, has drawn some of its rolling stock from Cobourg, from the coal hoppers used at Lethbridge, N.W.T., and Springhill, Nova Scotia, to the transcontinental trains running from the Atlantic to the Pacific. The finest products of these works may be seen in the electric-lighted train on the Canada Atlantic, running from Ottawa to Boston, the Canadian Pacific colonist cars, the first class cars and sleepers of that road and the Intercolonial, the lately finished vestibule trains of the Canadian Pacific and the model officials' or private cars of the Governor-General and Minister of Railways at Ottawa. The work upon these cars, their convenience and perfect running, and the beauty and elegance of finish have never been excelled in America.

The development of these extensive works at Cobourg from so small a beginning is due to the sterling character and wonderful business qualities of their originator. Mr. Crossen was a man of quiet but determined energy, a man always to be relied upon, kindly disposed toward all his employees and conscientious in the most minute details of every portion of his work. His word was as good as his bond, and his contracts were carried out to the entire satisfaction of all for whom he worked.

Apart from his business, and in addition to it, he never lacked time to devote to his family, his friends and his church. Many a business man has had relief in times of depression at his hands, money and words of advice and encouragement being often given; many a student of Victoria College and minister of the Methodist church has completed his education through the financial help extended during the past twenty or thirty years. His many gifts of a charitable nature were given in such a quiet manner that public reference here would not be in accordance with the wish or spirit of the man who gave them.

He was a loving husband and father, a true friend, a man of wide and tender sympathy, and his life proves that honesty, integrity and Christian character are not incompatible with business success and public esteem.

In the death of James Crossen, Canada has lost a man whose place will be hard to fill in the line in which he so well developed, a man who had solved the difficulty, at least so far as he was concerned, that confronts us as to the relationship of capital and labor, or from employer and laborer, by the treatment of men as men, as brothers, by taking a kind and sympathetic interest in his workmen and by doing well for them as well as for himself.

The business built up by Mr. Crossen will be continued by his eldest son, Mr. W. J. Crossen, and it is expected that his other son, Mr. Fred. J. Crossen, now a student in mechanical engineering in the Massachusetts School of Technology in Boston, will also engage in the same business when his education is completed.

### A DEFENSE OF CANADIAN IRON ORES.

WE find the following letter in the *Cleveland Iron Trade Review* :—

"The *Cleveland Marine Review*, commenting on a statement which I am said to have made, that Canadian Bessemer ores can be laid down in Cleveland for \$3.90 per ton, says that several hundred tons of the ore I refer to have been lying on Cleveland docks for some years, it being impossible to use it on account of the large percentage of sulphur contained in the ore. The *Marine Review* is mistaken. I did not refer to this ore at all, but gave the estimate regarding a new mine in the township of Belmont, situated about thirty miles further south than where the sulphurous ore came from. I made this estimate of the cost of ore delivered from the Belmont mine, and did not intend it to apply to the cost of Canadian ore generally. The ore that I refer to occurs in a large deposit which can be mined very cheaply, and appears to be so free from rock matter that it will require little cutting.

Several analyses of this Belmont ore have already been published, showing it to be remarkably free from phosphorus and sulphur. The following from the latest openings and pits, have lately been made by the purchasers' chemists, the first sample containing, purposely, some of the accompanying rock to show its nature, viz :—

	Metallic iron.	Phosphorus.	Sulphur.
No. 1	55.240	.019	less than .001
No. 2	60.376	.037	.007
No. 3	68.33	.016	.0375
No. 4	63.131	.023	.004
No. 5	68.65	.029	.042
No. 6	69.85	.013	.012
No. 7	70.325	.0056	.0023
Titanium	none.		

The last three analyses were of ore from No. 3 pit, 200 feet distant from Nos. 2 and 3, and upwards of 300 feet distant from Nos. 1 and 4, the intervening spaces apparently containing similar ore. I can show samples of iron ore from fully 100 different places in Canada, mostly from Ontario, some of which are in large quantity, and of excellent Bessemer quality. It is exceedingly unfair to condemn all Canadian ores because some Ontario mines have too much sulphur, for we have other ores which are remarkably free from impurities.

T. D. LEDYARD.

Toronto, Ont., December 27, 1890.

THE METAL OF THE FUTURE.

THE interest recently awakened in aluminum is justifiably great. Indeed, it is doubtful if any other discovery now thought probable would so thoroughly revolutionize industry as would the discovery of how to make aluminum cheaply. The supply of ore is immense. That word is used in its literal sense of "immeasurable," for aluminum is everywhere about us. As a metal it has qualities that make it a most desirable substance for almost all purposes for which other metals are now used. It melts at red heat, and can be cast in molds. When cast it is as soft as silver, but it can be then hammered or rolled to become almost as hard as iron. It can be drawn into wire as fine as a spider's web, or beaten into leaf as thin as gold. Neither air nor water affects it, for it neither tarnishes nor rusts. It can be alloyed, or made into a bronze, so that the composite metal will have a transverse strength equaled only by the finest quality of crucible steel, and a tensile strength greater than that of any other metal. Most important of all, it is far lighter than any of the metals now in general use.

Imagination shrinks from the possibilities of such a metal. We point with pride and wonder to the advance in civilization during the nineteenth century made possible by steam and coal. Electricity and aluminum may put the twentieth century as far ahead of this as this has led the eighteenth.

Though aluminum is plentiful the existence of its oxide has been recognized only since 1754, and it was seventy years from that time before any of it in separate form was actually produced. For thirty years more it attracted little attention, but in 1855 a French chemist mastered the secret of getting it in compact form, since which time investigators in every part of the world have been working at the problem of cheap production. It has not been found hard to produce it, judging by the number of inventors who have succeeded, but it has been found next to impossible to get it in useful shape. The great difficulty is the strong affinity of the metal for the elements with which it is combined. Its physical properties, such as tensile strength, malleability, flexibility, etc., are greatly affected by the presence of even small quantities of foreign substances, especially silicon and iron, and the trouble has been to separate these. The methods commonly used in extracting gold, silver, iron and lead have for this reason failed utterly when applied. It has been learned that any economical and considerable production must be made either chemically or electrically. The chemical methods have most adherents, and it is by one of them that a Chicago experimenter says he will reduce the cost to much less than fifteen cents a pound. The details of his process are, of course, secret, but it is asserted that the process is surprisingly cheap and easy. It is proposed to get the metal from clay—from 600 pounds of it, 100 of aluminum. If these claims are realized the reduction in cost will indeed be marvellous. For years the market price was about \$10 a pound, and most of it was made in France. Then English inventions brought the price down to less than \$3, and within five years American manufacturers have come into the market. The announcement of the Chicago project resulted in a big drop in the price.

At the previous price the metal was fast coming into mercantile use, and at \$1 a pound it bids fair to become really common. It must be remembered that at \$1 a pound aluminum is really not so high as it looks, for the relation of a pound of aluminum to a pound of other metals is something like that of the famous pound of feathers to the pound of lead. Aluminum is almost three times as

bulky as iron, weight for weight; it is more than four times as bulky as silver, and more than seven times as bulky as gold. Thus, if silver were \$1 an ounce and aluminum \$1 a pound, silver would be really fifty times the more costly, bulk for bulk; aluminum at \$1 a pound would be only twice as costly as copper at fifteen cents a pound.

As a conductor of electricity aluminum compares favorably with copper, and it is already in great demand for electrical uses. It is in this direction that it is most likely first to find general application. Next will doubtless come its use in connection with transportation, both by land and sea. Arrangements have already been made to construct railway cars with it, and reduced cost is sure to make it common for this purpose. The saving in dead weight, and consequently both in the cost of power and in wear and tear, will be enormous. In shipbuilding there will be even greater gain, for it will reduce by two-thirds the displacement and proportionately increase the tonnage capacity.

Aluminum has already been put to extensive use for alloys. Even very small percentages added to iron, steel, copper, etc., improve their quality remarkably. The most common alloy is that with copper, making what is known as aluminum bronze, consisting of pure copper and 2½ to 10 per cent. of aluminum. As the percentage of aluminum increases there is a proportionately much greater increase in the hardness. While the 2½ per cent. bronze is very easily worked, and even the 5 per cent. can be easily forged, rolled and drawn cold, the 10 per cent. is so hard that it is unexcelled for all purposes where great strength and resistance to wear and tear and to rust are desirable. Indeed, its great hardness and homogeneousness make it an excellent metal for ordnance.—Brad-streets.

THE E. & C. GURNEY COMPANY AND THE IRON MOULDERS.

RATHER more than a year ago the E. & C. Gurney Company, this city, were operating their stove and radiator works with union men, and paying every man employed at the rate of \$2.40 per day. They felt that they could not afford to pay such wages indiscriminately to good and poor workmen alike, and the following proposition was submitted to the men:

1. That a rate should be fixed for the manufacture of certain goods by the piece.
  2. That in case this was not satisfactory a helper should be allowed for every one or two moulders who would do heavy work, such as carrying sand, or, in case this would not suit them,
  3. That the company should take the manufacture of radiators into their own hands, employ whom they pleased to turn them out, and leave the other goods to be manufactured entirely in the hands of the union upon old terms.
- To none of these propositions would the union agree, and the result was a strike. The moulders would not agree to anything but a minimum rate of \$2.40 per day, and did not want helpers in any of the departments. The strike being on the company at once set about filling their shop with non-union men. They succeeded in obtaining all the men required, and have since conducted their business without employing any union labor.

It would appear that the union men have experienced some difficulty in securing positions as lucrative as those they left, and last week a deputation from the union waited upon Mr. Edward Gurney for the purpose of effecting a settlement, if possible. The members of the deputation were: Mr. Martin Fox, President of the Iron Moulders' Union of North America; Mr. James Hickey and Mr. J. Pierce. Mr. Hickey and Mr. Pierce are members of local organizations.

President Fox stated that he had called upon the firm with the view to having the trouble amicably settled and matters so arranged that the shops would again come under the control of the union. He said that the union laws prohibited helpers, for the reason that after a time the helper was liable to displace the union man, and generally did so, at a reduction of wages. Mr. Fox stated that in accepting his present position as president of the organization he had done so with the determination that the Iron Moulders' Union would be run on strictly business principles, and that he considered it his duty to thoroughly investigate the matter of the present trouble, and if possible have an amicable settlement. The utmost good feeling and cordiality prevailed throughout the meeting.

Mr. Gurney stated his case simply and to the point. He said that under the union he had been compelled to pay inferior men the same wages as first-class men; that he had paid \$2.40 to men who actually had not earned for him more than \$1.50 per day, and

that he had become convinced that a change would have to be made. He had explained the situation to the men, talked it over with them and laid down the three propositions above named, to none of which they would agree. He had not turned them out; they had left of their own accord and turned the key of his establishment, locking the door against themselves. He said he had no cause to complain, for since they had left he had been able to manage the business in his own way, had secured the services of just as good men as had ever belonged to a union, and had found his business prosper under the new order of things. At the same time he wished it distinctly understood that he was in no way antagonistic to the union or union men, and if they thought fit to come back and fill any vacancies that might occur from time to time he would readily give them employment. In 1882 he had experienced difficulty in securing good men. He had built a new foundry and wanted skilled labor. He went to the union and asked for men, only to find that they could not be secured. He then sent to Scotland and brought out thirty first-class men, who, with his permission and consent, joined the union a week later.

At this point Mr. Fox stated that the object of his visit was to see if he could not arrange matters so that union men might return to work.

Mr. Gurney said that he had never hindered union men from working, but that he was at present morally bound to the non-union men in his employ, and he would not turn them out to make room for union men.

Mr. Fox enquired how many union men Mr. Gurney would take back, to which the reply was made that he could not tell at present. The works are shut down, but when they open shortly Mr. Gurney promised to take back any union men who might offer, providing there were any vacancies.

#### CANADA'S NICKEL DEPOSITS.

So far as the deposits of nickel are concerned, the future of Canadian mining appears to have been assured by recent metallurgical discoveries. The value of the metal is shown in the fact that the United States Government has just voted \$1,000,000 with the intention of obtaining a sufficient supply of the metal for armour-plate construction; and the researches of Messrs. Riley, Hadfield and Schneider have been followed by results which undoubtedly give nickel a permanent place as an alloy of steel. The United States' contemplated purchase of the metal, under the impression that it could thus monopolise the entire available supply, does not take into account the enormous resources of Canada in this respect. It would be almost impossible to form an adequate conception of the illimitable supplies in that country. It is known that nickel exists in great abundance over an area of several hundred square miles, and it is safe to conclude from surface indications that the ranges continue for many thousands of square miles, some of them passing through long stretches of unbroken wilderness. It is believed in one district alone, north of Georgian Bay, there is sufficient nickel to be found to serve the world's requirements for a thousand years to come. This estimated supply, too, is made on the assumption that the metal will enter very largely in the future into the manufacture of armour-plates. The value of nickel for toughening steel has become so generally recognized that at least one eminent firm of continental ordnance manufacturers has been personally enquiring into the resources of Canada in nickel, with a view of obtaining supplies of the metal, and only lately an offer was made on behalf of the Canadian Copper Co. to the authorities in Great Britain tendering them a free supply of nickel from Canada for the tests contemplated at Shoeburyness. The value of nickel as an aid to the perfection of metallurgical processes is so assured to the countries in which it is to be found in any abundance, and this will be particularly the case where the metal can be more economically treated than at present—for we firmly believe that the time is not far distant when nickel will be separated with the greatest facility and cheapness from its compounds. With such admirable possibilities for nickel in the future there is an obvious opening in Canada, which will without doubt lead to practical results in a very short period. This period will undoubtedly be shortened in proportion as the commercial relations between Canada and Great Britain are strengthened, since there is every probability of English capital being available to better purposes than that of other countries which still have their own internal resources to develop. Present financial conditions are not favorable to a new boom, but, when the next boom comes Canadian investments are not unlikely to be its object. This is the more probable because it is evident that the opening afforded

to new Canadian developments by the McKinley Tariff Bill is not likely to endure beyond the presidential election in 1892.—*The Colliery Guardian*.

#### CANADA'S MINERAL WEALTH.

At the recent banquet given to the members of the British Iron and Steel Institute at Niagara Falls, Mr. Erastus Wiman, speaking of the mineral wealth of Canada, said:—Canada is a land of surprises, and even to those who know her she is ever revealing some new source of wealth. Who could have imagined that Canada possessed within herself the potentialities for the defence of the world? Yet the visit just made by the Iron and Steel Institute to the Sudbury region, only twelve hours' run from Niagara, discloses the fact that her deposits of nickel are the greatest the world has ever seen. Now, it has recently been discovered by tests made at the United States navy that nickel-plated armour for ships is practically impenetrable for defensive purposes. Well was it said that these tests rendered it possible to make Behring Straits a closed sea, unless, indeed, the British Government drew on Canada for supplies of nickel with an alacrity equal to that with which the United States are making haste to gather it in from the same source." So impressed was the speaker with the importance to Great Britain of obtaining the supplies, that he had communicated an offer on behalf of the Canadian Copper Company to the authorities in Great Britain, tendering them a free supply of nickel from Canada for the tests contemplated at Shoeburyness. "The nations of Europe," Mr. Wiman continued, "seek with anxiety this peaceful land for the force for the defence of the world, as is shown by the visit of a member of the firm of Messrs. Krupp, who seeks, incognito, in the wilds of Sudbury, the power that will make guns unburstable, and armour impenetrable. A contribution to the peace of the world, may thus be made by Canada. That may not be the least of her many surprises, but with nickel in Canada, in the region hurriedly passed through by the Iron and Steel Institute, will be found sister minerals in abundance. Thus, in copper the deposits in the regions just visited are the largest in the world. The Aladdin-like story of the Calumet and Hecla mines, of sixty millions of dollars of profits and premiums on the capitalisation of less than three millions on the south shore of Lake Superior, can be retold in Canada in the Algoma district on the north shore, for here there is copper in sight at least twenty-five times the extent of the American deposits. The silver deposits, too, are most extensive, and their character is told in the familiar story of the Silver Islet, which a few years ago yielded within its small area more silver to the square foot than an equal space of the earth's surface had ever given forth. Gold is here also found, and the promise of the Vermillion and other mines equals the prospect of early California or later South Africa. Platinum is found in unusual quantities in these regions; and so complete are the surprises in this treasure-house of the continent that an entirely new metal has been revealed, and named Sperrylite, in honor of the graduate who discovered it. Canada is a surprise in that she specially possesses almost untold deposits of the greatest of the world's assets, the Imperial metal, iron, stretching far out to sea in the pier-like projection of Nova Scotia. Within six miles of the Atlantic is found an assemblage of the finest iron side by side with pure limestone, and with coking coal in seams twenty feet thick. These and other near-by deposits so splendidly located are testified to be equal in value to the mineral deposits of Pennsylvania and New York combined, furnishing a providential proffer to New England in her hour of need, if only she will accept it. Quebec, communicating with the iron sands of the St. Lawrence, contains throughout the province enormous deposits, awaiting only the touch of enterprise and an open market for a vast output. In Ontario the recent report of the Royal Commission makes it clear that a surprise awaits the world in the extent and importance of the iron deposits of that fairest and richest portion of the continent. The freedom from phosphorous in Canadian ore is important, and it has been aptly said that what the devil is to religion phosphorous is to iron. In British Columbia, a mineral wealth exists, only equalled by her enormous timber regions, her 5,000 miles of coast line fisheries, and her unlimited coal deposits, which recalls another of the surprises of Canada—namely, that it is only within her territory that coal can be found on the sea board equally on the Atlantic and Pacific, a fact of profound significance if this continent should ever wake up to the realization of the advantages of a foreign trade. Time fails to tell of the numerous other revelations which Canada makes to the observer of natural phenomena, such, for instance, as the possession of natural gas in great abundance within a radius of ten miles of Niagara Falls, to supplant the vast

water power which flows at your feet, and which is but a commencement of inexhaustible force in the water powers of the St. Lawrence, the Ottawa and the great rivers of Quebec, for it is well to realize that Canada besides being larger than the United States, and in area being forty per cent. of the British Empire, has more than one-half the fresh water of the globe. Still further surprises await him who follows the development of the oil deposits in the North-West, where, in the Mackenzie river basin, are found deposits of petroleum, the magnitude of which exceed that of the known deposits of the rest of the world. The gypsum deposits in Nova Scotia are the most valuable on this continent, while the eager hunt for asbestos in Canada confirms the recent boast that that Province alone possesses sufficient of the important mineral to pay the Dominion National Debt. In addition to this vast mineral storehouse, one recalls the enormous areas of the wheat-producing regions of the North-Western Territory, the future granary of the world; the five thousand miles of coast line fisheries, the limitless forests to supplement the treeless prairie of the west and other great national assets. But of all surprises in relation to Canada, that is the chief which blinds both Canadians and Americans, not only to the value of the country, but to the advantage of an unrestricted intercourse between them. It is especially surprising that the people of the United States, now so thoroughly equipped and needing new opportunities for continued expansions of trade, have not yet realized the influences they may set in motion towards shaping that commercial destiny of the continent. This they can do by opening up their markets, promoting development, and making haste to get control by occupancy and by individual purchase of a region far more desirable than Africa, which England and Germany carve in two for the purpose of trade. The Iron and Steel Institute of Great Britain have seen much of the United States, and have, no doubt, been duly and properly impressed with the greatness of their development, the magnitude of their trade, and the beneficial example for the good of mankind. But here, under the British flag, lies a region full of promise, possessing areas, potentialities, and a people fitted for just as great a career, and needing only the magic touch of freedom and appreciation of the American people to enormously enrich them, and yet still be the brightest jewel in the British Crown, without a red coat and without a ship of war. This vast treasure of the British nation may be left exposed as a hostage of peace in the practical safe-keeping of the American people. They will not capture it by conquest, neither will they seek to acquire it by territorial or national purchase, not even imitating their own policy of the past, but will follow the British policy of the present in the acquiring of breweries and other industrial interests by the English capital sent hither. Thus, without a change in the political condition or the deprivation of a foot of British territory, would be healed, by trade and commerce, the great schism of the Anglo Saxon race on this continent in a new union of interests that nothing could dissolve."

A SYNDICATE, composed of New York and Michigan capitalists, who have obtained control of valuable nickel deposits in Drury township, Sudbury district, will begin development on a large scale as soon as the snow is off the ground. Mr. Terrence Moore, of Marquette, Mich., is the moving spirit of the concern.

MR. W. J. PENDRAY began the manufacture of laundry soap in Victoria, B.C., several years ago. His beginning was small, but since then he has included the manufacture of toilet soap, washing soda, liquid blue, stove polish, shoe blacking, vinegar and paper boxes. Last year his average output of soaps was 40,000 pounds weekly.

The Westminster Woolen Mills have closed down for the season, and probably will not re-open till a new crop of wool comes in, towards the latter part of May. About \$20,000 worth of material has been the output of the establishment this season, the experiment in the operations of which have not been altogether unsatisfactory to the shareholders, though, of course, it has not been a mine of wealth to them. During last year there were about forty tons of wool consumed in the manufacture of the output, which is placing the average of a ton per week for every week in the year the mills were in operation. Every pound of British Columbia wool that could be had was purchased, except that belonging to one or two individuals who kept the price absurdly out of range, the consequence being that the management was obliged to take no notice whatever of their produce. Some Australian wool was used but as far as can be learned gave no better satisfaction to the various customers than did the home article.—*Westminster, B.C., Morning Leader.*

## 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. Subscription \$1.*

MR. WILLIAM DUNLOP'S saw mill at Thorndale, Ont., was destroyed by fire Dec. 21.

THE shingle mill of Mr. Joseph Larose at Hull, Que., was destroyed by fire Dec 13; loss \$4,000.

THE Halifax Shovel Company, Halifax, are putting in a lot of new machinery to enable them to increase their output.

THE Aylmer Canning Company, Aylmer, Ont., will make large additions to their works before the opening of next season.

MESSRS. George Baring and Oscar White are erecting and will operate an iron foundry and nail factory at St. John. N.B.

THE ARKELL grist mill, near Guelph, Ont., the property of Mr. W. T. Haines, was destroyed by fire Jan. 10th. Loss about \$8,000.

MESSRS. RUSSELL & BARNETT are pushing work in their nickel mine in Graham township, Sudbury district; and will probably erect smelting works there next summer.

MR. FRANK DOTY, representing the Doty Engine Co., Toronto, on a recent short visit to British Columbia secured orders for \$65,000 worth of machinery, boilers, etc.

MR. R. S. MACKENZIE, Virden, Man., who has been engaged in the manufacture of tents, awnings, mattresses, etc, has also begun the manufacture of shirts, overhauls, pants, etc.

THE Miner Carriage Manufacturing Company has been incorporated at Granby, Que., with a capital stock of \$50,000 to manufacture sleighs and all kinds of wheeled vehicles.

MR. R. J. MILLS' shingle mill at Kinmount, Ont., and Mr. W. T. Craig's shingle mill, at the same place, were destroyed by fire Dec. 21; loss to Mr. Mills \$3,000, to Mr. Craig \$500.

THE Quebec Machine and Foundry Company, with headquarters at the city of Quebec, is to be incorporated with a capital stock of \$30,000 to carry on the business of iron founders, machinists, etc.

THE Aylmer Furniture Company, Aylmer, Ont., who recently obtained possession of a large factory building there, will commence operations with a force of from twenty-five to fifty hands. Mr. James Hay, of Woodstock, is interested.

AMONG other work manufactured during the past year by Messrs. Gray & Munro, Victoria, B.C., were new engines and boilers for two large steamers, complete outfits for two large salmon canning establishments, a railway locomotive, etc.

THE Globe Furniture Company, Walkerville, Ont., shipped two large car loads of church furniture to Nova Scotia a few days ago. They have received a good order for school furniture, for the Mount Allison ladies' college, Sackville, N.B.

PRESANT'S flour mill, at Guelph, Ont., was destroyed by fire Jan. 11th. Loss about \$20,000. This mill was burned in 1860, and was replaced by the present solid stone structure, into which was recently introduced the latest machinery for flour making.

THE Richmond Slate Quarrying and Manufacturing and Asbestos Company has been incorporated at Richmond, Que., with a capital stock of \$150,000 for the purpose of quarrying and manufacturing roofing slate and products of slate, and of pottery, clay, asbestos, and other minerals.

THE Dominion Bridge Company, Montreal, are constructing a fine iron pavilion to be erected in Sohmer Park, that city. The building will be 120 feet wide by 175 feet long and sixty feet high. It will be open to a height of twenty feet from the ground, and inside will be a gallery containing 1,000 seats and a number of boxes.

MR. JACOB SEHL'S furniture factory at Victoria, B.C., is a three-story brick building 84x64 feet, the motive power being a 50-horse

power steam engine. He gives employment to sixty hands, and in addition to the manufacture of furniture he includes wood turning, scroll and band sawing, shaping and moulding, office fittings, etc.

It is claimed that an eastern chemist has discovered a process of making soap from corn. The discovery has excited considerable attention and promises to give not only a new corn market, but to revolutionize the art of soap making. The soap made from corn is said to be absolutely pure and better than the finest toilet soaps now made.

MESSRS. LEITCH BROS., of the Oak Lake, Man., flour mill, have sheeted their mill building all over with iron and made general improvements. This is one of the largest and best mills in Manitoba, being only exceeded in size by the Winnipeg, Portage and Keewatin mills. The mill building is first-class and there is elevator storage in connection for 30,000 bushels of wheat.

PAPER may be securely gummed to metal by the aid of onion juice. The dials of cheap clocks used to be printed on paper and then glued to a zinc foundation, but after a short time the paper came off the metal. Now the zinc is dipped into a strong solution of washing soda, and afterwards is washed over with onion juice. The paper is then pasted on and it is almost impossible to separate it from the metal.

MESSRS. CANT BROS., of Galt, Ont., manufacturers of wood-working and other machinery, have merged their business with an incorporated company with a capital stock of \$40,000, under the name: "The Cant Bros. Company, of Galt, Limited." The company will continue the manufacture of wood-working machines of all sorts. This concern exhibit a gold medal awarded them at a recent Toronto exhibition and another one at a London exhibition.

THE Steel Sink, Range, Boiler and Stamping Co. of Ontario, recently incorporated in Toronto with a capital stock of \$50,000, have secured a suitable location at Mimico and are advertising for tenders for the erection of their factory. They expect to be ready for operating their works early in the coming spring. Messrs. Thos. McDonald & Co., manufacturers of metallic roofing, galvanized pails, etc., and Mr. James Morrison, brass founder, comprise the company.

At the recent municipal election in St. Catharines, Ont., a by-law was voted upon to grant a bonus of \$10,000 to Messrs. Patterson & Corbin of that town, who intend to manufacture street cars on a large scale, they having secured orders for \$27,000 worth of cars. In the midst of the excitement over the municipal election, the by-law was overlooked, and it was defeated. This annoyed the firm, and it is said that the factory will be removed from St. Catharines.

CANADA has fifty-six paper and pulp mills now in operation, employing 2,250 hands. The manufacture of pulp is fast becoming a special industry, and it is probable that before long wood pulp will form a special item of export. The best wood fibre is made from spruce and poplar, of which the country produces unlimited quantities, particularly in Quebec and New Brunswick, and the conditions for manufacture in those provinces are very favorable. —*Lumberman.*

THE Menasha Wood Split Pulley Company, Menasha, Wis., inform us that they are in receipt of recent orders for their hickory split pulleys from the Woolen Manufacturing Company, Beaver Dam, Wis.; Minnesota Iron Company, Soudan, Minn.; Rhinelander Iron Company, Rhinelander, Wis.; North-Western Shoe Company, Belvedere, Ill., and Philbrook Shoe Company, Racine, Wis. Also for rope transmissions of power from Messrs. Williamson & Libby, Oshkosh, Wis., and Acme Harvester Company, Pekin, Ill.

THE Victoria Rice and Flour Mills Company, Victoria, B.C., is a branch of the Mount Royal Milling and Manufacturing Company, Montreal. The company established their rice mill some five years ago; and they own a 1,000-ton ship, which is constantly employed in bringing rough rice to it from China and the East Indies. Quite recently Messrs. Goldie & McCulloch, of Galt, Ont., have supplied the company with an entire outfit of roller process flour machinery for their new mill, with capacity to manufacture 200 barrels of flour per day.

AMONG the machinery lately added to Mr. H. W. Petrie's new and commodious warehouse, on Front street west, Toronto, are several planers, including a "Defiance" planer, shapers, bandsaws, saw tables, sand-paperers, lathes, a band saw filer, a band saw setter, tenoning, mitering, morticing, blind and re-sawing machines, etc., amongst them being several of new pattern, all manufactured by The Cant Bros., Co., of Galt, Limited, of whose various and well-known wood-working machines Mr. Petrie intends making a specialty.

MR. J. R. BOOTH has torn down his old mill on the Chaudierre, near Ottawa, and now has a large gang of men at work taking out the machinery. The erection of the new mill will be commenced as soon as the ground is cleared, and it will be fitted with the latest improved machinery throughout. The new machinery is being manufactured by Messrs. E. L. Perkins & Son, of Ottawa, and will keep a number of men busy day and night during a large part of the winter. The whole cost of the alterations is estimated to be in the neighborhood of \$250,000.

THE head quarters of the Ames-Holden Company, manufacturers of boots and shoes, is at Montreal, with a branch at Winnipeg and one at Victoria, B.C. This latter branch was started to meet the requirements of the North-West territory, such as heavy shoes, mining boots, etc. The enterprise has well repaid the gentlemen interested and they are now doing a very comfortable business. The Victoria factory is one hundred feet square, forty men are employed on an average, and there is a demand for all the goods they can turn out.

THE contract for furnishing the materials and labor and building the masonry of the new Government lock at the St. Mary's Fall canal, Mich., will be let on January 27th, 1891, at Detroit. This masterpiece of engineering skill will be 800 feet long between the gates, 100 feet wide and 23½ feet deep. Its capacity will be 3,440,000 cubic feet. The depth of water on the miter sills will be twenty feet, and the lift of the lock eighteen feet. The volume of water in the lock when filled to the level of the canal above will be 23,338,000 gallons, over six times the capacity of the first one built. It is expected that four vessels, each 350 feet long and forty-six feet wide, can pass through at one lockage.

THE following mixture has been used with great success, for the cementing of iron railing tops, iron gratings to stoves, etc.; with such effect as to resist the blows of a sledge hammer. This mixture is composed of equal parts of sulphur and white lead, with about one-sixth proportion of borax, the three being thoroughly incorporated together, so as to form one homogeneous mass. When the application is to be made of this composition, it is wet with strong sulphuric acid, and a thin layer of it is placed between the two pieces of iron, these being at once pressed together. In five days it will be perfectly dry, all traces of the cement having vanished, and the work having every appearance of welding.

THE Amherst Foundry and Machine Works, Messrs. A. Robb and Sons, proprietors, Amherst, N.S., manufacture high class engines and boilers for electric lighting, manufacturing, milling, etc., as well as saw mill and planing mill machinery. It will be remembered that this concern suffered the destruction of nearly their whole works, covering two acres, by fire last August. They have already rebuilt a considerable portion of their works, and are manufacturing to nearly their former capacity, and early next summer they expect to have shops completed, containing many modern appliances, which will give them very great facilities for doing heavy work. They will be glad to send estimates, cuts, etc., in answer to enquiries.

E. G. JOHNSTON, the practical man of the Western Woolen Mills, St. Boniface, Man., goes east to investigate late improvements in the line of woolen mill machinery. It is the intention of the company to enlarge its operations next season, and new machinery for the manufacture of blankets, cloths, etc., will be put in. The past season has been given mainly to the manufacture of yarns, from pure Manitoba wool, for which a ready local market can be found, on account of the superior quality of the article in comparison with eastern manufactures. H. S. Northwood, of Chatham, has taken an interest in the company, which will strengthen the institution financially and otherwise, he having had experience in this industry in the east. —*Winnipeg Commercial.*

THE scheme which Mr. J. A. Gemmill, of Ottawa, has submitted to the Government on behalf of an English and Vancouver syndicate in reference to the construction of a graving dock on Burrard inlet, is taking shape. The proposed dock is to be 600 feet long, with entrance of 80 feet and 28 feet of water on the sills. The estimated cost is about \$1,000,000. Under a Dominion statute passed some years ago, the company, on satisfying the Government of its bona fides and securing the approval of its plans by the Minister of Public Works, will be able to claim a Federal subsidy of \$10,000 a year for twenty years. The city council of Vancouver has decided to recommend to the ratepayers the passage of a by-law granting to the company \$10,000 a year for ten years.

THE Barber & Ellis Company Toronto, have the largest envelope factory in Canada, their product being about three hundred million envelopes per year, and they are also large manufacturers of blank

books. Their factory includes an imposing brick building fronting on Bay street, between Front and Wellington, five stories high and basement. There are only two processes in the manufacture of envelopes. The first is where the large sheets of paper are cut by peculiarly shaped knives into the required size and form, five hundred sheets being cut at one operation of the machine. The paper thus prepared passes to another machine from which it emerges complete in all respects. This machinery delivers the finished envelopes in lots of twenty-five each, the capacity of it being 6,000 envelopes an hour.

The saw mill of Mr. Andrew Haslem, at Nanaimo, B.C., is one of the most complete in the country, and has the newest and most improved machinery. Its equipment comprises the following: Three boilers of about 130 horse power; five steam engines; one pair of circular saws, with patent blocks; one fifty-inch gang edger, with six saws; one gang of counterbalanced compensating saws; Trimmers' lath and picket machine, etc.; one fast feed heavy flooring machine; one planer and matcher; one automatic filer, and all the necessary tools found in a complete modern mill. Besides the saw mill, Mr. Haslem runs a large sash and door factory, with all the modern and most improved machines and tools. He does a large business in this line, and both establishments together give employment to forty-five men.

The Nanaimo B.C. *Free Press* reports that the work of boring which has been going forward on Protection Island for the past few months has been very successful, both in the operation of the machinery and also in the findings. The coal has been met with exactly as anticipated by the officials of the New Vancouver Coal Company, who are quite jubilant over the find. The first seam has been struck at a depth of 581 feet from the surface, and on examination is shown to be a splendid seam of hard workable coal, which promises to bring a ready market for its excellent quality. The bore has been continued and at a further depth of sixty-seven feet another seam of superior coal has been met with, and on being tested, is even found to be better in quality than any of the coal yet found, not even excepting that of New Wellington. It is very hard and in good seam which will be worked as soon as the shaft looks like a course of sinking has been sunk to a sufficient depth. Protection Island is about one mile distant from Nanaimo City front, situated between the city and the gulf and forms, with the adjacent Newcastle Island, the harbors of Nanaimo and Departure Bay. Both islands are the property of the New Vancouver Coal Co., and are indeed valuable pieces of property.

The Dodge Wood Split Pulley Company, Toronto, are sending out a circular containing instructions "How to put the Dodge Patent Wood Split Pulley on the Shaft," in which they say: "In the first place it is important to see that the size of shaft be correctly given, in order that the bushing will be a perfect fit, as it is easily understood if the shaft should be one-sixteenth too small or too large for the bushing, the compression fastening or grip would not be perfect. In cases where a bushing has become imperfect from experimenting with the same unsuccessfully, it is advisable to get a new one, which involves the expense of a few cents only. Secondly, the shaft should be clean and thoroughly free from oil or grease. If the shafting is oily it should be cleaned with coal oil or acid and wiped dry (see letter of Vroom Bros., page 13 of our catalogue); then place the pulley in position and bolt it on carefully; don't bolt the hub down to the utmost on one side before tightening the other, but screw all the bolts up gradually and at equal strain all round. If these instructions are carefully observed every pulley must run perfectly true, if the shafting is true, and slipping is impossible. All pulleys should be examined after running a day or two, and set up tighter, if possible. After this no further attention need be given.

The new Dominion Cotton Mills Company have received their charter. The directors have elected Mr. A. F. Gault president and Mr. Jacques Grenier, vice-president. The head office of the company is in Montreal, and its capital \$5,000,000. The concern have purchased the following grey cotton mills: The Hochelaga Cotton mills; the St. Ann's Cotton mills; the Coaticooke Cotton Co.; the Magog Cotton Company; the Kingston Cotton Co., the Craven Cotton Co., of Brantford; the Moncton Cotton Co., of Moncton; the Nova Scotia Cotton Co., of Halifax, and the Windsor, Cotton Co., of Windsor, N.S. The purchase price of these mills mentioned as being \$3,800,000, all paid in cash, or its equivalent, their original cost having been \$4,800,000. It is the intention of the company to use two or three of the smaller mills to manufacture goods for export only, that is, for the markets of China, the West Indies and South America. All the mills are to run on full time, with no reduction in the number of operatives. Each mill will have its

local superintendent, but the name of Mr. Jackson, the well-known manager of the Hochelaga mills is mentioned as general superintendent of the whole concern. The promoters of the scheme claim that they can manufacture their goods cheaper than in England, as they can purchase the raw cotton here at a price less than it can be had for on the other side of the Atlantic.

In describing the manufacturing industries of Victoria, B.C., the *Colonist*, speaking of the Albion Iron Works Company, says that the works occupy three and a half acres of land; that the consumption of pig iron averages eighty tons and of copper four tons per month, and that the business has grown from \$170,000 in 1886 to \$430,000 in 1890. Employment is given to an average of 230 men whose wages amount to about \$15,000 monthly. Among the more important jobs of work done by the company during the past year was the repairing of H. M. steel S.S. *Amphion* at an expense of \$150,000. The ship had a hole knocked in her bottom 116 feet long, and she occupied the dry dock at Esquimaux six months while the repairs were being made. Another large job was the manufacture of the 400 horse-power Corliss compound surface condensing engines for the electric tramways in that city. Also the manufacture of six thousand feet of twenty-four inch steel pipe, and nine miles of sixteen inch pipe for Victoria and seven miles of the same dimensions for Vancouver water works. Two underground boilers for Messrs. Dunsmuir's Wellington mines and six thirty-ton cars for them to run the coal into Victoria with. Among other undertakings of the past year the Albion Iron Works furnished the engines and boilers for seven tug boats, the largest one being of two hundred and fifty tons, building two engines for the Vancouver Coal Company, and the machinery for three salmon canneries. The tug *Lorne*, which was fitted out by this concern, is the swiftest as well as most powerful and handiest craft on the coast.

The Victoria Lumber and Manufacturing Company has its big new mill at Chemainus, B.C., almost completed, and they are now putting in the machinery. The old mill has a capacity of 30,000 feet per day, but it is inadequate to the demands upon it, its machinery is old, and it will be pulled down. The new mill will be one of the largest on the Pacific coast, being 384 feet long by 72 feet wide. It is two stories high, roofed with corrugated iron, and is built on piles out into deep water. On one end is a large platform, with an inclined plane, up which an endless chain with patented dogs drags the logs from the water. At the other end is the assorting platform, and from this end of the mill run two wharves at right angles to each other, one 282 by 85 feet and the other 320 by 85 feet. There is water at the wharves for large ships at low tide, while the anchorage in the bay is fifteen fathoms. The machinery includes two band saws which cut the timber into given lengths, when they are passed through the gang saw, which, with its forty saws and 54-inch stroke, cuts up the timber by wholesale, into any required dimensions. A feature of this mill is the system of automatic rollers and carriages by which the log leaves the water, is cut up into lumber and boards, and is carried forward and deposited alongside the waiting vessel, without being touched by a single hand. Adjacent to the mill proper is the machine shop, 24 by 120 feet, and the boiler house, 60 by 60, of solid masonry. The whole business is built on piles, and this foundation will be filled in solid with earth washed down from the neighboring bluff by hydraulic process. There will be two engines, each of 225 horse power, supplied by two batteries of four boilers each. The mill will have a capacity of 150,000 feet per day of ten hours, and will employ an average of 200 men. The village of Chemainus, which is the offspring of the mill company, will have a little boom of its own, as forty new houses will be built at once by the company for its employees. The old mill has employed forty five men, and furnished all the lumber for the new mill, including frames, pulleys and other fixings. Mr. J. A. Humbird, of Mason, Wisconsin, is the president of the company.

#### THE CANADIAN CHICORY INDUSTRY.

AMONG the numerous foreign colonies surrounding and tributary to Whitewood, Assiniboia Territory, that of St. Hubert, situate on the banks and occupying several miles of the valley of the Pipestone, but ten miles south of the town, has developed into one of the most prosperous and successful.

Some four years ago Baron de Brabant and family and the Count de Roffignac located in close proximity to the ever running Pipestone, and after two years experience of the climate and a thorough test of the capabilities of the soil, conceived the idea of establishing a French colony. The securing for their compatriots free and com-

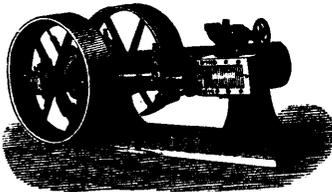
fortable homes, liberty and remunerative employment were the investigations that prompted the actions of the projectors. With this end in view some ten thousand acres of good arable land were secured and a number of French families induced to transport themselves across the Atlantic and locate within the limits of the settlement, one quarter section (160 acres) being apportioned to the head of each family. The general object of the promoters was to enter largely into the cultivation of chicory and sugar beet and the raising of horses, cattle and sheep. At the head of the chicory enterprise are Baron de Brabant and Count de Roffignac who have formed a partnership for the growth and manufacture for this now indispensable article under the firm style of "The Bellevue French Coffee Company" with headquarters at Bellevue, where the Baron has erected a commodious dwelling, and where the principal drying and manufacturing buildings are situated. The general management of the firm is under the direct supervision of the proprietors. The drying of the root, which requires considerable experience and skill is in charge of S. Brabant, while the secret of the final preparation is entirely entrusted to O. Brabant, son of the Baron, and who has had a thorough training in its manufacture. Over fifteen practical men are employed in the different departments during the winter season, but as the production is yearly being greatly augmented, the number of workmen will next season be largely increased. During the "pulling season" this year assistance was so scarce that numbers of Indians were employed and paid in proportion to the work performed. To encourage the more extensive growth of both the chicory and beet root the company offer to supply small packages of seeds. This was done last year and many of the farmers outside of the colony here obtained a profitable return and intend to more largely enter into the cultivation of these roots next season, claiming that the venture is the safest one they can make. Frost neither retarding the growth nor injuring the quality. The price paid at the factory is sixty cents per bushel of sixty pounds, which yields a large and sure advance on the time and money invested. The company last year were unable to supply the demand, and have already booked several large orders for both the eastern and western wholesale markets. The settlers who have already arrived are well pleased with their newly adopted homes and express themselves to be heartily glad to escape the excessive taxation exacted from them while in the old country. They also claim that fifty per cent. less labor is required to be expended on North West soil to produce an equal result with that obtained at home, while fertilizing can be entirely dispensed with. It is the intention of the company this season to increase the capacity of their works and next fall "dryers" will be placed into other districts for the better accommodation of settlers who produce in quantities. The results so far in the manufacture of chicory have been highly satisfactory to the company and remunerative to the producer, and as the colony is part and parcel of the Whitewood district, the results will be generally beneficial and productive.

O. Brabant will spend the winter in France attending to immigration business in connection with the colony. Among other enterprises worthy of note in St. Hubert is the Rolandie Farm and Stock Company. They possess ten sections and 150 head of cattle which are gradually being increased and improved, Count de Seysie and Mons. Jannet combine farming and ranching, being firm advocates of mixed farming. Count de Jumellac and Messrs. de Soras and Wolf have two thousand head of sheep and intend considerably increasing their flock. The ranch is situated at Richelieu in the Moose Mountain district.—*Regina Leader.*

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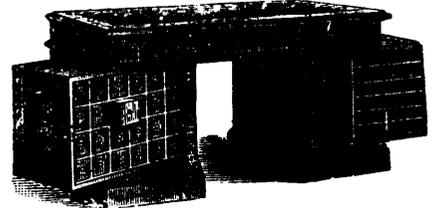
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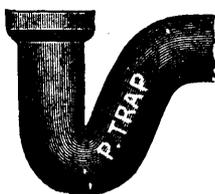
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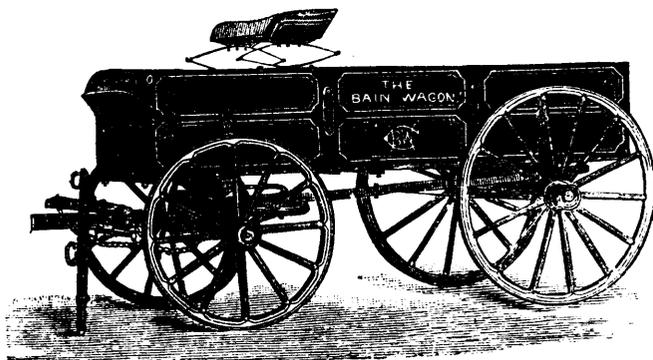
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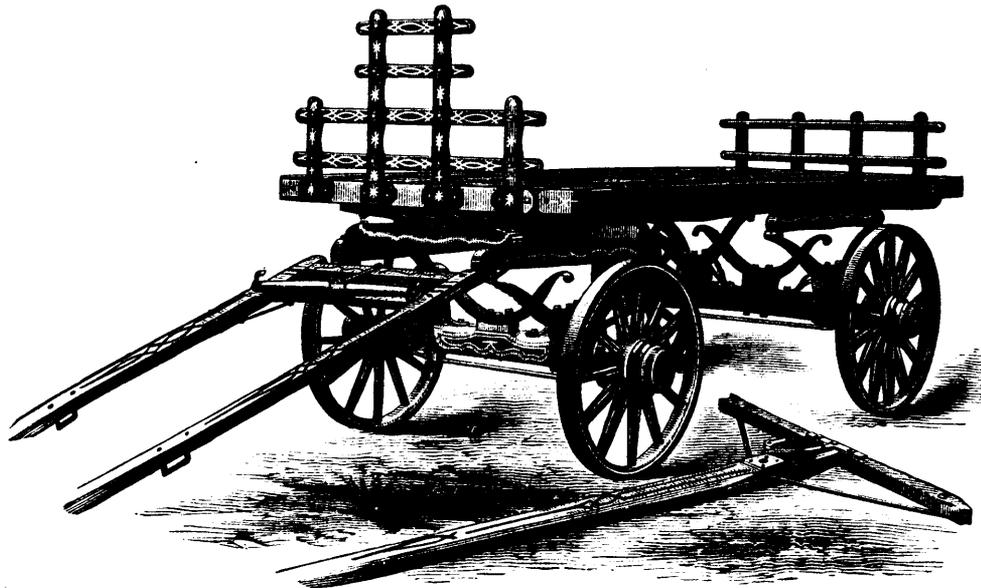
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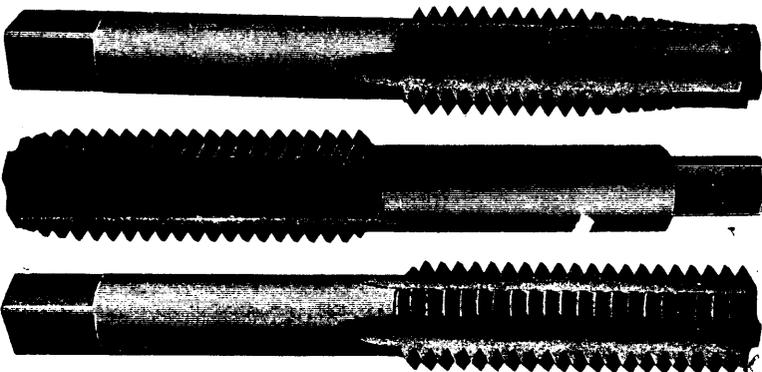
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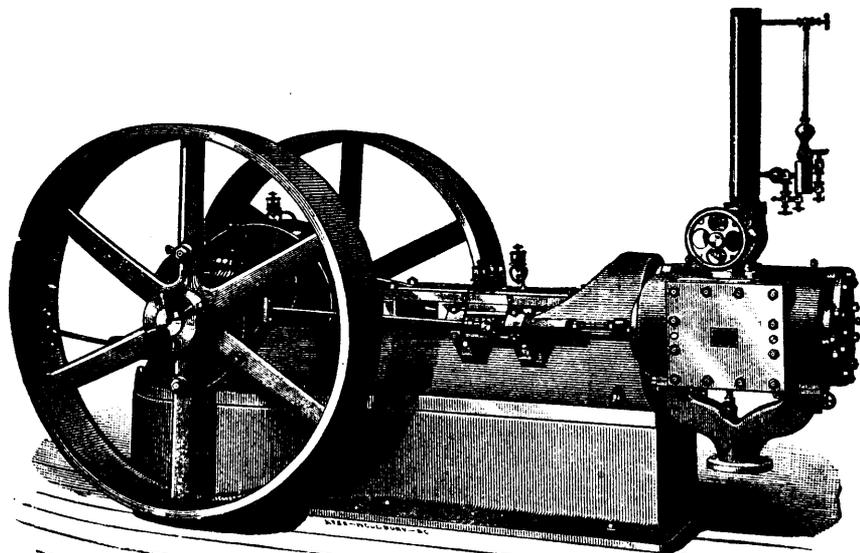
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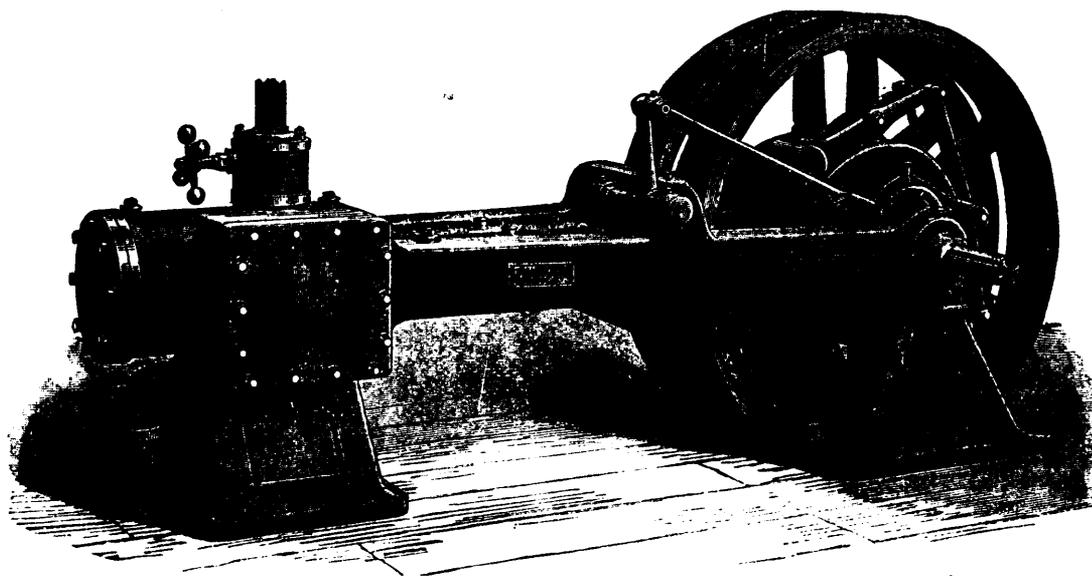
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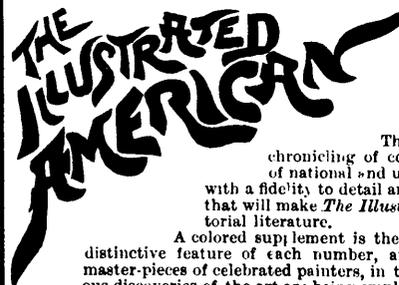
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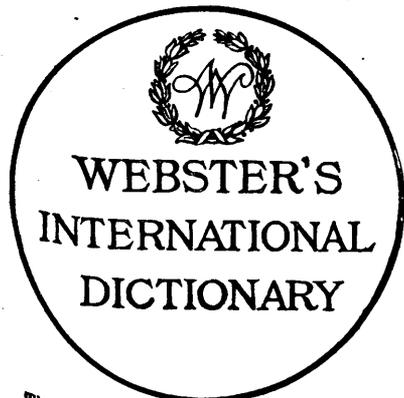
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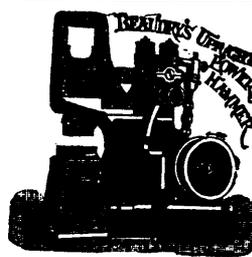
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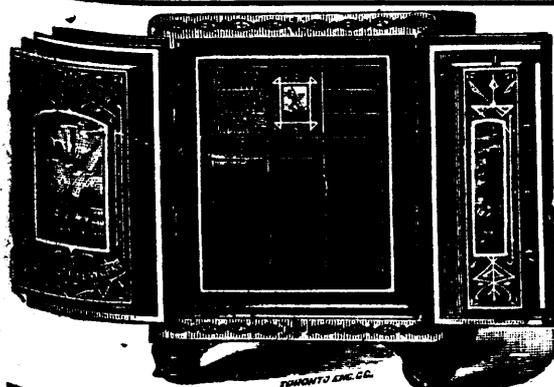


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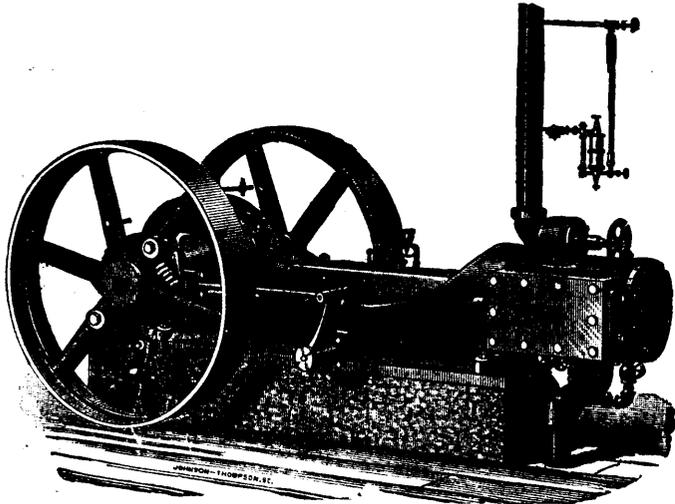
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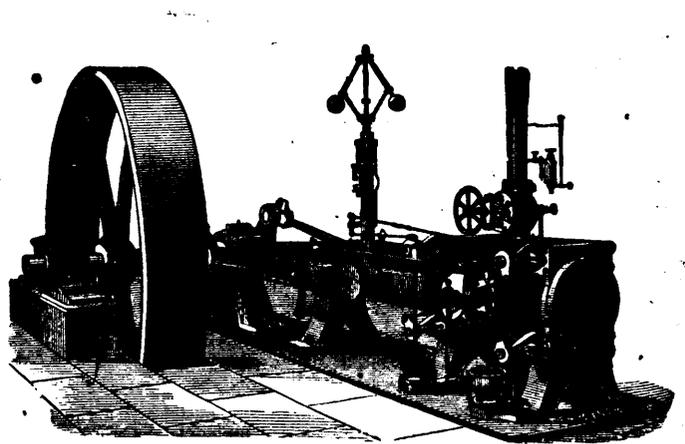
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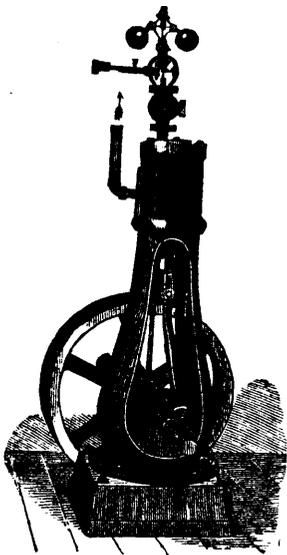
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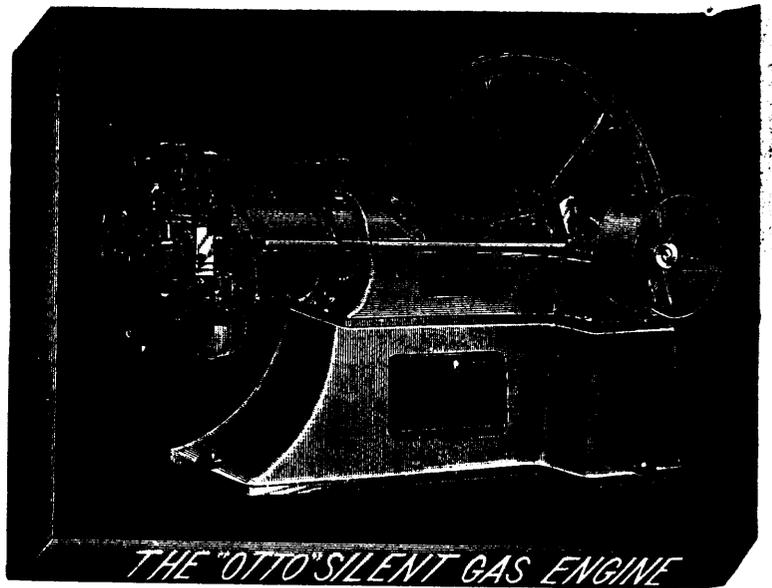
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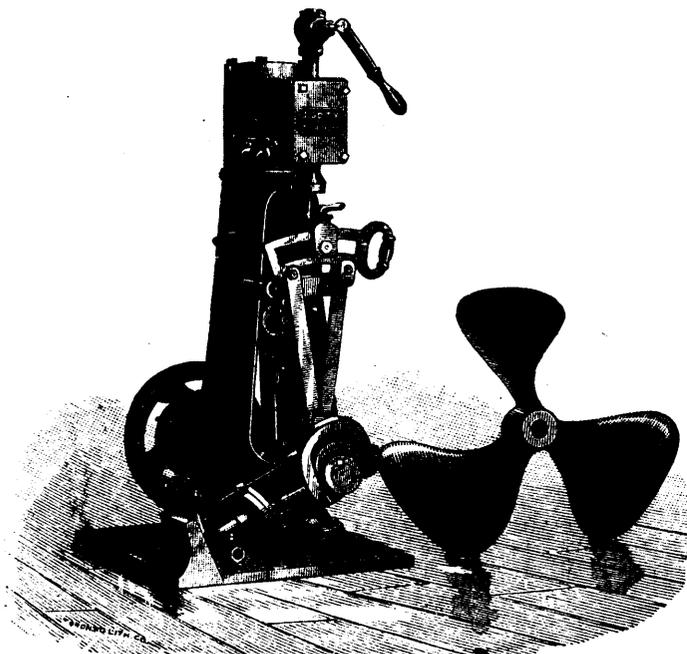
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*Best Belt Surface, Lightest, Strongest, Best Balanced, and Most Convenient Pulley in the World.*

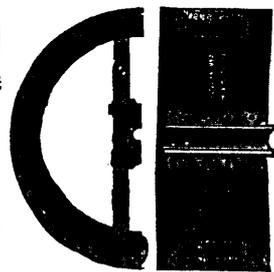
## EVERY PULLEY A SPLIT PULLEY.

*The hole in every pulley can be readily bushed to fit any sized shaft. Bushings furnished with each pulley. Guaranteed to give from*

### 30 TO 60 PER CENT MORE POWER THAN ANY IRON PULLEY.

*Strong enough for any power required. Made in any size and width, from twelve inches to sixteen feet diameter.*

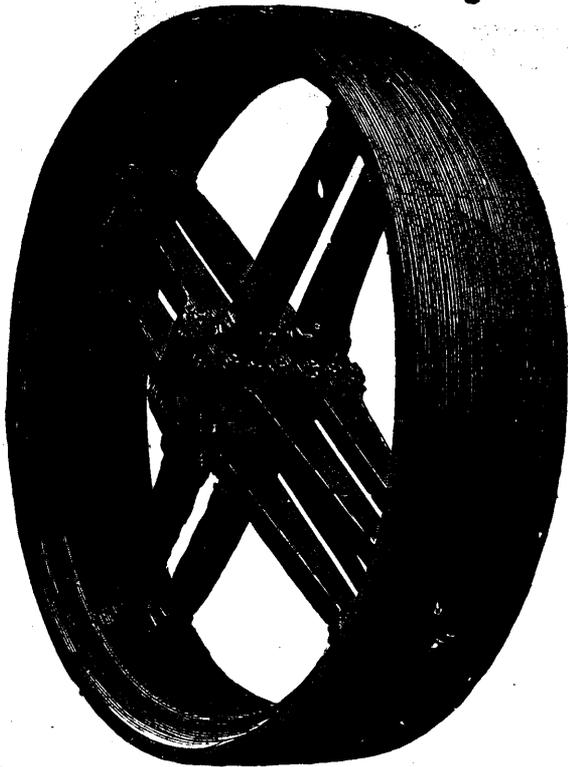
## EVERY PULLEY WARRANTED.



*We will furnish a Pulley for any service for 30 days free of charge, if it does not meet the warranty. Prices as low as any other good Pulley. Send for Catalogue, Price List & Guarantee*

## 70 PER CENT. LIGHTER THAN CAST IRON

*And 50 per cent. Lighter than Wrought Iron or Steel Pulleys.*



### READ THE FOLLOWING :

Messrs. LEITCH & TURNBULL, Machinists, Hamilton, Ont., in their latest Catalogue, say :  
Although skeptical at first, to the many advantages claimed for this pulley when introduced, we, after repeated tests, driving our elevators and seeing them at work in the various factories throughout the country, and in many unfavorable situations such as soap factories and tanneries, have come to the conclusion that, apart from their lightness and cheapness, their advantages over the old iron pulley are many. Its ease to take on or off shafting, its non-liability to injure the shaft by keys or set screws, while holding just as well, the cheapness by which it can be changed from one size to another, and in giving 30 to 60 per cent. more power with the same belt, with less tension. With all these advantages we have not only concluded to recommend it unsolicited, but intend to keep them in stock and supply them to our regular customers and the public in general.

To THE DODGE WOOD SPLIT PULLEY CO., ADELAIDE STREET, City. TORONTO, Dec. 6th, 1886.  
DEAR SIRS,—In reply to your favor asking how we like your split pulley, we would say : We are very much pleased with them. We are using about seventy of them, from 25 in. face by 48 in. diam. down to 9 in diam., every one of which is giving satisfaction. We don't have to take down our shafting to change a pulley or put on a new one. We are not troubled with set-screws breaking or slipping ; for these and various other reasons we prefer your pulley to any other we know of.  
Yours truly,  
FIRK BROOK BROS.  
Toronto Packing Case Factory and Planing Mill.

To THE DODGE WOOD SPLIT PULLEY CO., 81 ADELAIDE STREET W., City. TORONTO, Dec. 6th, 1886.  
GENTS,—The Wood Split Pulleys we purchased from you have given perfect satisfaction. We have much pleasure in stating that we have found them to be everything you claim for them, and much superior to the old kind.  
We remain, yours truly,  
McDONALD, KEMP & CO.

To DODGE WOOD SPLIT PULLEY CO., TORONTO. Dec. 10th 1886.  
GENTLEMEN,—We have given the Wood Split Pulley a thorough test in our works, and we are well pleased with their working, and can recommend them to our customers and others requiring pulleys.  
Yours truly,  
JOHN DOTY ENGINE CO.  
F. W. Doty.

### WASTE OF POWER.

According to the best scientific authority it cost one horse power to keep in motion one ton of metal or weight ; thus for every unnecessary 2,000 pounds weight on your line shaft, cost you one horse power. To maintain a horse power cost from \$25 to \$125 per year. Any manufacturer who will take the pains to investigate the unnecessary weight by Heavy Iron Pulleys, too tight belts, etc., will be surprised to find the enormous waste of power consumed in this manner. 60,000 Dodge Patent Wood Split Pulleys now in use. Our capacity being now equal to 100 Pulleys per day, we stand here ready to accept in stock for immediate shipment all sizes.

**SEND FOR ILLUSTRATED CIRCULAR AND REFERENCE LIST.**

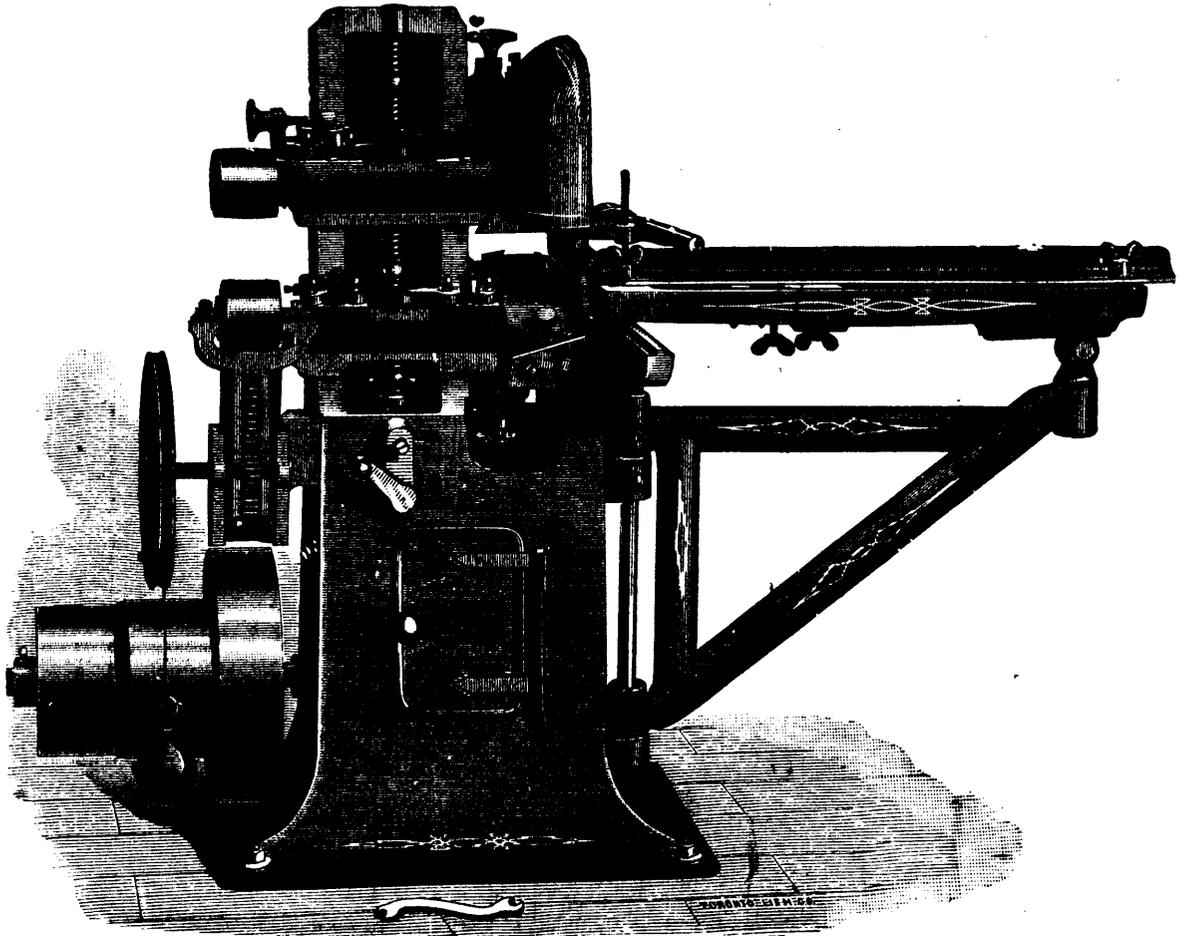
# THE DODGE WOOD SPLIT PULLEY CO., TORONTO.

FACTORY.—  
West Toronto Junction.

GENERAL OFFICES.—  
83 King Street West, City.

**TAKE NOTICE:—Our List of Prices for the DODGE PATENT WOOD SPLIT PULLEYS is for ALL SPLIT-PULLEYS.**  
We beg you will note this fact when comparing our List with others which are for SOLID RIM, and NOT for Pulleys in HALVES.

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.**

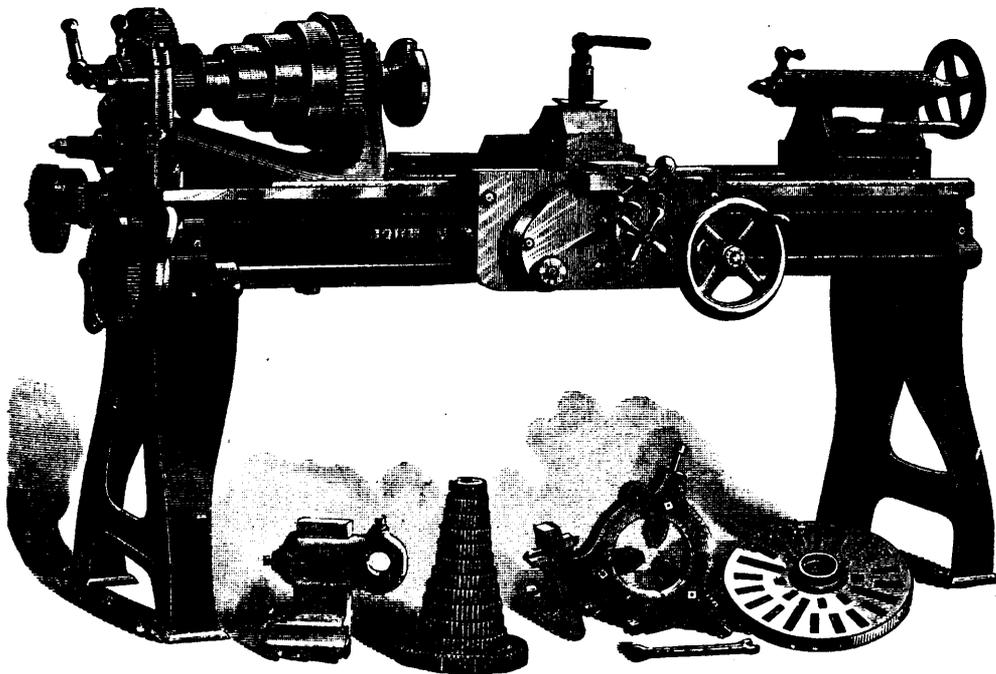
**"Galt Foundry" Engine and Machine Works, GALT, ONTARIO, CANADA**

*Corliss and Slide Valve Engines, Boilers, and Wood-Working Machinery, all kinds New Patterns, Highly Finished.*

Canada Tool Works,

# John Bertram & Sons,

DUNDAS, ONT.



16-in LATHE.

Manufacturers  
of  
**Machinists' Tools**  
and  
**Woodworking**  
**Machinery.**

LATHES,  
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MACHINES,  
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SHEARS,  
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CUTTERS  
SLOTTING  
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.,

BUILDERS OF

SINGLE AND DUPLEX

Steam and Power

### Pumping Machinery

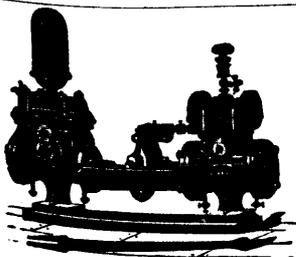


BOSTON,  
FEDERAL STREET

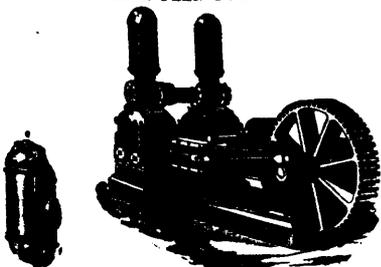
NEW YORK!  
95 & 97 LIBERTY STREET.

SEND FOR ILLUSTRATED CATALOGUE.

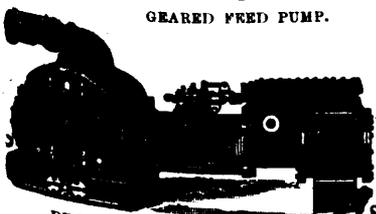
These goods may be seen at the Permanent Exhibition 63 to 69 Front Street West, Toronto.



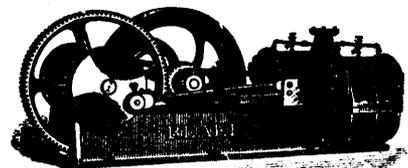
BOILER FEED PUMP.



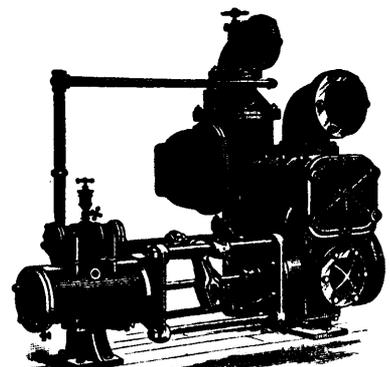
GEARED FEED PUMP.



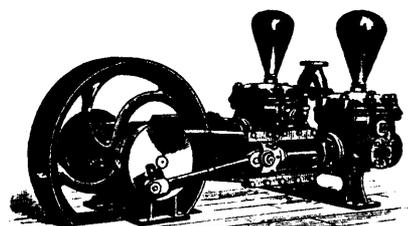
DUPLEX COMPOUND ENGINE



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,  
COULTER STEEL HARROW DISCS,  
AGRICULTURAL STEEL CUT TO PATTERN, SPRING, SLEIGH SHOE, TYRE, TOE CALK AND CROSS BAR STEEL  
STEEL NAIL PLATE.

 *Binder Bars, Z and other Special Sections.*

STEEL MOWER BARS.

Particular attention given to the manufacture of Rake, Cultivator and Harrow Teeth, and other Agricultural Spring Steel Forgings.



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93 Liberty St., New York.

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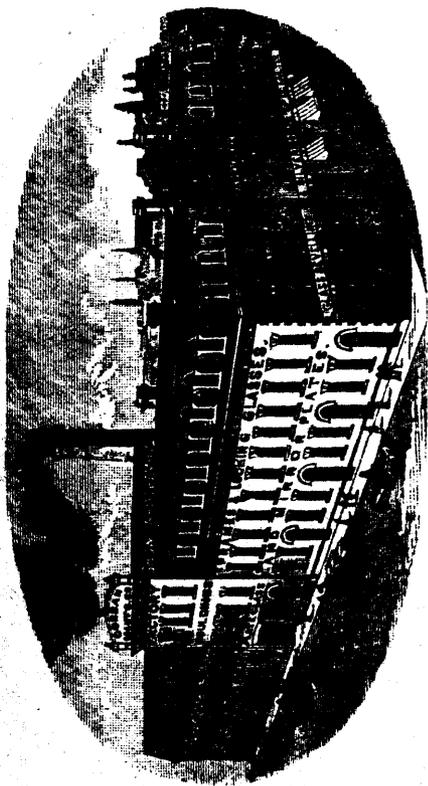
FOR SALE BY THE

Polson Iron Works Company, 38 Yonge Street, Toronto, Ontario.

WHERE MANY SIZES MAY BE SEEN IN STOCK.

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**Cobban Manufacturing Co'y** Factory & Head Office: Toronto.



MANUFACTURERS OF  
Mantles, Over Mantles and Mirrors in Finest Hardwoods. Mouldings, Picture  
Frames and Looking Glasses. Mirror Plates: British, French, German,  
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CLOSE PRICES. LIBERAL TERMS.  
MONTREAL. TORONTO.

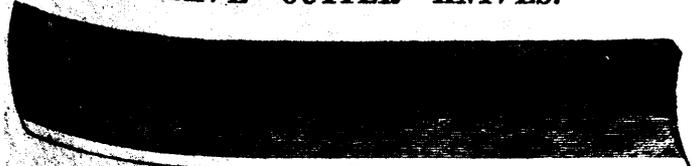
Branch: 140 McGill Street, Montreal.

**GALT MACHINE KNIFE WORKS.**

PLANING MACHINE  
KNIVES.



STAVE CUTTER KNIVES.



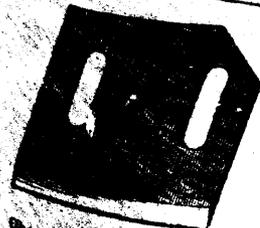
STAVE JOINTER KNIVES.



MOULDING, TENONING  
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SHINGLE JOINTER,

And other irregular shapes.



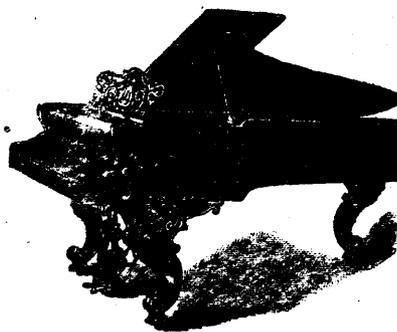
Chisel-box and Veneer, Paper Cutting, Leather Splitting and any special knife made  
to order. SEND FOR PRICE LIST. ALL WORK WARRANTED.

PETER HAY,

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**HEINTZMAN & CO.**

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SQUARE,  
AND UPRIGHT  
**PIANOFORTES.**

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**Iron & Steel Ship Builders & Engineers**

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**METALLIC LATHING.**

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**CASTINGS TO ORDER**

FOR ALL KINDS OF

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**HICKORY PULLEYS.**

We make only hardwood bent rim spoked arm split pulley; only small split pulley; only split loose pulley with oilless bearings; only wooden hangers, in the market.

Send for discounts and circulars.

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MALLEABLE IRON  
WORKS**

**WM. H. FROST**

MANUFACTURER TO ORDER OF

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This Space for Sale.

**W. S. McGregor,  
Manufacturers' Agent  
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Office, 11 & 13 Front Street East,

TORONTO.

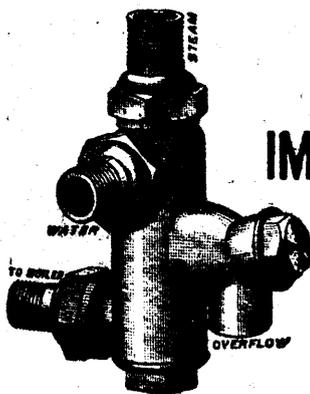
Correspondence solicited with Manufacturers desiring representative in Toronto and East.

**FEED YOUR BOILER WITH A**

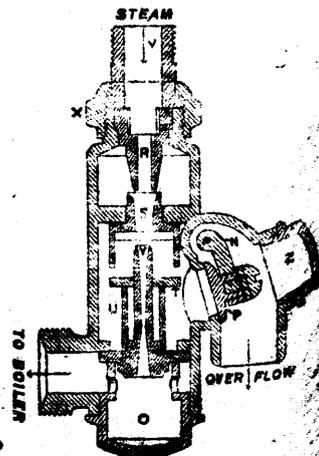
**PENBERTHY**

**IMPROVED AUTOMATIC INJECTOR.**

**10,000 IN USE IN CANADA.**



**Cheaper than a Pump, takes up Less Room and  
Feeds the Boiler with Water at  
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**SIMPLE, ECONOMICAL AND DURABLE.**

**And the Only Absolutely Automatic Injector in the Dominion.**

**PROMINENT FEATURES ARE:** They start at about 25 lbs. steam pressure and work to 150 lbs. Lift water up to 90 feet, and work from a head as well. They require little watching, as, being automatic, they restart if feed to boiler is broken by air or sudden jarring. The parts are interchangeable and can be removed without uncoupling machine. Send for pamphlet to **PENBERTHY INJECTOR CO., Detroit, Mich.** Factory at Windsor, Ont. Handled largely also by **Waterous Engine Works Co., Limited, Brantford, J. H. Taylor, Montreal; S. J. Shaw, Quebec; Park Bros., Chatham; McDonald & Co., Limited, Halifax, N.S.; A. R. Williams, Toronto.**