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DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

Vol. 19.

TORONTO, DECEMBER 19, 1890.

No. 12.

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

**OUR JAMAICA EXHIBITION EDITION.**

The publishers propose getting out a special Jamaica Exhibition Edition of the CANADIAN MANUFACTURER about January 18th, 5,000 copies of which will be judiciously distributed to visitors there.

This distribution will be accomplished chiefly by those manufacturers who are to make displays, and by the agents and attendants employed by the Canadian Government, acting under the supervision of Mr. Adam Brown, M.P., Honorary Commissioner representing Canada.

The arrangement for the distribution will be so perfect that none of the copies will be wasted, but each and every one of them will be placed in the hands of intelligent visitors, where they will do the most good.

According to a recently published report of Commissioner Brown, about 300 Canadian manufacturers will make displays of their products at the Jamaica Exhibition. These displays will include about every line of manufactures produced in Canada suitable for the trade of Jamaica and that portion of the world. The Exhibition opens the latter part of January next, and will continue about three months. The Jamaica Government have expended large sums of money to ensure the success of it; and the visitors to it will assemble not only from the British Islands but also from the Spanish Islands and the neighboring South and Central American Republics. These British Islands alone have an area of over 13,000 square miles—three-fourths the size of Nova Scotia—and contain an aggregate population of 1,500,000 souls; the population of all the West Indies Islands being about the same as that of Canada.

These facts being considered, it is readily seen there is a large demand in that part of the world for many such articles as our manufacturers produce; and it is with the object of introducing these products into those markets that the Canadian Government are making such strong exertions. All visitors at exhibitions carry away souvenirs, and this Exhibition Edition of the CANADIAN MANUFACTURER will be a souvenir that business men will preserve and refer to long after the Exhibition has closed.

There can, therefore, be no better method of bringing one's business to the attention of these prospective buyers than by judiciously displayed advertisements in this Exhibition Edition of the CANADIAN MANUFACTURER. The paper will be of the usual size—columns 10 inches long and 3 5/8 inches wide—two columns to the page, and every feature of it will be first-class in every respect. The advertisements will be classified. The type will be selected from fonts of great variety, and set by the most skilful job printers, thus ensuring pleasing novelty and attractiveness; and special care will be observed in doing the press work, producing clear and well-defined impressions of all cuts and illustrations. The reading matter will be prepared with special reference to the occasion, and in the interests of advertisers.

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CANADIAN MANUFACTURER PUBLISHING Co.

Toronto, Canada.

**THE SUDBURY NICKEL MINES.**

REPRESENTATIVES of this journal were of the party who last week went from Toronto to Sudbury to view the nickel mines there, the extent of the development of them, and the smelting works by which the ore is reduced to matte

The deposits of nickeliferous ores there seem to be practically inexhaustible. There are three companies who are mining it, and there are probably a half-dozen mines being worked. Each of these companies have smelters. That of the Vivian Company was not in operation, it having been shut down for the purpose of introducing more machinery; but it was stated that it would be in operation again in a few days. There seemed to be less development made by this com-

pany than by either of the others. The smelter of the Dominion Mineral Company was in active operation, and considerable matte was being accumulated. Everything about it denoted thrift and good management. The works of this company, including their mine, are illuminated by incandescent electric lights. The Canadian Copper Company have pushed their development further and spent much more money in doing so than either of the others. They are taking out large quantities of ore, and their one furnace smelter is in operation night and day. They have a pile of matte at their smelter that was stated to contain several thousand tons. There were some 50,000 tons of ore in the roasting beds, the expectation being that by next summer the roasting beds would contain about 200,000 tons. These roasting beds are simply large piles of ore placed upon cordwood, which, when fired, ignites the sulphur contained in the ore, by which process much of it is driven off, thus preparing it for the smelter. In the process of smelting, the matte resulting therefrom represents about six times its weight of ore; that is, it requires about six tons of ore to produce one ton of matte. The ore contains a larger proportion of copper than nickel, and as much or more of iron than both copper and nickel. An average yield of nickel from the matte is about sixteen per cent. The separation of the different constituents of the matte—nickel, copper, iron and sulphur—requires the employment of extensive and expensive machinery, and there is but one works of that description on this side the Atlantic—at or near New York. The Vivian Company own an extensive plant of this sort at Swansea, Wales, and all the matte produced at their Sudbury works is sent there to be refined. The mining of the ore and the production of matte can be limited only by the capacity of the operating companies to lift the ore from the mines, and of the smelters to reduce it to matte.

It is not understood that the three companies now carrying on mining operations in the Sudbury district own or control the entire ore field. This ore field covers an area hundreds of square miles in extent, while these companies control in the aggregate probably not more than thirty or forty square miles. There are many known deposits of rich ores that have not yet had any development work done upon them, and considerable areas of land are in the hands of speculators; but if no other deposits of ore are ever worked than those in the possession of the three companies here alluded to; and if these are worked in the most energetic manner, producing thousands of tons of pure nickel each year, it is not probable that any person now living will ever witness their exhaustion.

While the nickel contained in these ores is the most valuable constituent of them, it should be remembered that they contain even a larger percentage of copper than of nickel; and that in the process of separation the copper is neither destroyed nor lost. If these ores were treated only for the recovery of the copper contained in them the industry would be an exceedingly valuable one. When the nickel is to be used as an alloy of steel in the manufacture of nickel steel, it is not necessary to separate it from the iron contained in the ore.

### CANADA'S GOLDEN OPPORTUNITY.

In another article reference is made to the Sudbury nickel mines. The richness and extent of them is alluded to, and it is shown that in them Canada has a practically inexhaustible store and a virtual monopoly of a metal that all the world is now enquiring for. With the possession of nine tenths of all the known nickel deposits of the world, and with facilities for converting it into an article of commerce that will be in unlimited demand wherever human beings exist, it behoves Canada to so observe the proprieties of the occasion as to reap a golden harvest from her present opportunity.

Much interest has been excited in regard of these nickel mines growing out of the proposition made by Mr. S. J. Ritchie representing the Canadian Copper Company and the Central Ontario Railroad Company to the Dominion Government, asking that a bonus of \$6,000 per mile be given his railroad to aid in its extension from the Coe Hill terminus to Sudbury, a distance of about 206 miles, and a bonus of \$3,200 per mile on the portion of the road already completed between Coe Hill and Trenton, a distance of about seventy-two miles, this last to be used in building blast furnaces upon the line of the railway; and for the purpose of building and operating a large steel plant upon the line of this railway for the manufacture of nickel steel from iron ores found along the line of road, and from the Sudbury nickel, Mr. Ritchie asks the Government to guarantee the interest at the rate of three per cent. per annum on a capital stock of \$5,000,000 for a period of ten years.

The distance from Toronto to Sudbury by an existing rail route is about 300 miles; and there is no difficulty in the way of bringing nickel matte from Sudbury to Toronto by that route. It is a haul of only a few miles from Sudbury via the Sault Ste. Marie branch of the Canadian Pacific Railway to Algoma Mills on the North Channel of Lake Huron, from whence water transportation via Lake Erie and the Welland Canal could be had to Toronto. We mention Toronto because this city seems to be the most advantageous place for the erection of the proposed steel works; and there does not appear to exist any necessity at present for any further railroad construction for the purpose of bringing nickel matte from Sudbury to Toronto. The Central Ontario Railway is now in operation from Trenton to Coe Hill, and along the line of it and quite contiguous thereto there are said to be practically inexhaustible deposits of iron ore of a character suitable for the manufacture of steel. There are other iron ore beds in that section, and there are railroads contiguous to them, and if it were desired to bring those ores to Toronto to be made into iron, it could be done at less cost than from any point on the line of the proposed new road from Coe Hill to Sudbury. Toronto could be reached by all rail from Coe Hill; or an available route is open from Coe Hill to Trenton by rail and from Trenton to Toronto by water. There are also extensive iron ore beds in the vicinity of Ottawa, some of which have been or are being worked, convenient to railroad transportation to Toronto. All these lines of transportation are now existing, and there is abundance of iron ores contiguous to them, so that there does not appear to exist any necessity at present for any further railroad construction for the purpose of bringing iron ore or pig iron to Toronto or any other point where steel works might be built.

Subscribe for the Canadian Manufacturer.

It is not likely steel works will ever be built at or near Sudbury or at any point on or near the north end of Lake Huron; and it is equally unlikely that any nickel refining works will ever be built there. In building nickel refining works and works for the manufacture of nickel steel, reference must be had to the conveniences of transportation. Nearly all of the output of such works would be sent to foreign markets, and it would have to go by those routes where freight charges would be lowest. Much of what might be said of Toronto might with equal force be said of some other ports on Lake Ontario; and at any of these the nickel, the iron and the fuel might be assembled quite as cheaply as at Toronto. The peculiar advantages of these locations would have to be considered, and these would determine the choice. If Toronto could offer essential advantages that other places could not the works would probably be located in Toronto.

If it is necessary to render financial assistance to secure the establishment of nickel steel works in Canada, that assistance should be rendered. This point admitted, the manner and character of that assistance should be considered—whether it were better to guarantee the interest on the capital stock of the proposed steel company, or to grant a bonus for a term of years upon the output of the works. The question as to who should pay this inducement is of secondary importance. The Dominion Government already pay a bonus of one dollar per ton upon all pig iron made in Canada, and this amount might be increased; and in view of the fact that Ontario is to be so largely benefited by what seems to be in store for the Province, it would seem but just that the Ontario Government should lend material assistance.

In some minds there is a doubt regarding the value of the iron ore found in the Coe Hill region for steel making purposes. Mr. Ritchie professes to believe that they are suitable. If they really are, well and good—if they are not, then other ores that are suitable must be produced; and until this question is definitely settled it would not be wise in our opinion to build the Coe Hill-Sudbury road.

What if the Dominion and the Ontario Governments do not view Mr. Ritchie's proposition in as favorable light as he wishes? Will he build his steel works regardless of that fact? It is to be hoped that he will, but does not an element of doubt intrude itself here? It is said that Canadian iron ores can be placed at furnace mouth considerably cheaper than American ores; and that this fact would of itself influence the erection of the steel works in Canada regardless of other considerations. But what if there are no suitable Canadian ores? A mere belief in their existence does not demonstrate the fact; and it is quite possible that Mr. Ritchie, failing to obtain the subsidies he asks for his railroad, might conclude that, even with more expensive ores, it would be to his interest to build his nickel refining works in Ohio, as he at first proposed doing, and also his nickel steel works. The question then for consideration of Canada is whether, to prevent such a turn of affairs, it would not be better to impose an export duty upon nickel ore and matte—whether it would not be well to do this under any circumstances. The duty would not at all prevent or interfere with the establishment of the proposed works in Canada, even if they were to be supplied with American iron ores. Placing an export duty on nickel ore and matte would only be throw-

ing a safe guard around a purely Canadian interest which, if properly fostered and protected, would make Canada the greatest manufacturer of nickel steel in the world.

Impose the duty.

### IMPOSE THE DUTY.

UPON the passage of the McKinley Bill this journal suggested that the Dominion Government impose an export duty upon all nickel ore and nickel matte going out of the country. The naval experiments at Annapolis had demonstrated the imperative necessity of nickel in the manufacture of armor plates for war vessels, and these and other experiments, made before and since, have shown that nickel is an alloy that must go into the manufacture not only of armor plates, but of heavy and light guns and fire arms, of heavy and light projectiles, and indeed into all domestic products where great tensile strength is required and where it is desirable to reduce the weight of such things as heavy machinery, etc. In fact nickel steel, if all or even any considerable part of what is said if it is true, is the coming metal that is to supplant most forms of steel and iron.

We are standing on the threshold of that event; and the eyes of all the world are watching its introduction.

Of course the first and most important question that presents itself is, "Where is the world's supply of nickel to come from?" As far as is now known, the known deposits of nickeliferous ores in Canada constitute at least five-sixths—perhaps nine-tenths of all in the world. There is only one other deposit that is of much commercial value—that in the French penal settlement of New Caledonia, in the South Pacific; but even this is supposed to be inadequate to supply the prospective demands of France; and it seems to be a foregone conclusion that whatever nickel the nations of the earth may require for manufacturing armor plates and heavy guns, and for the thousand different purposes to which it is to be applied, must be obtained from Canada.

This is Canada's opportunity. The possibility lies with Canada not only to supply the world with nickel, but also with nickel steel. Here we have vast deposits of iron ore entirely suited for the purpose, and there is no feature embraced in the manufacture of the article that is not quite as possible to Canada—nay, more so—than to any other country. We have the nickel, we have the iron, we have the labor, we have the natural advantages, and we are fully able to supply ourselves with all the other advantages requisite to successfully and economically inaugurate and carry on the industry. If Canada fritters away this great opportunity; if she does not make herself equal to the occasion; if she does not seize and hold the key to the situation, it will be because she listens to the counsels of unwise men. It may be deemed an act of extreme selfishness for Canada to take full advantage of the situation. That is, there may be some who would thus think. Some of them already say that Canada, possessing these great riches, should be generous with them, offering them freely for the enjoyment of the whole world, claiming that in doing this we would receive quite as much benefit from them as we ought to hope for. Generosity properly exercised is a good thing; but in this matter the question of generosity does not enter. It is



better to be just than generous. We should be just before we are generous. Canada must be just to herself.

The knowledge of the existence of these large deposits of nickel ore has dawned upon us but recently. We are but just now realizing the great wealth we have in them, and the advantages that may accrue to us by a judicious management of them. But the knowledge of the existence of our large and valuable deposits of iron ore is not so new. We have known of them for many years, and yet they are not being utilized. That is, not to any great extent. Canada consumes about 300,000 tons of iron products a year, but we manufacture barely a tenth of that quantity of pig iron. Among other reasons for this is the fact that many other nations besides Canada possess valuable deposits of iron ore, and that no one country possesses a monopoly of either the ore or the manufacture of iron. Being but a general sharer of the blessing of iron ore, and laboring under difficulties the character of which it is not now necessary to allude to, Canada has never been an iron producing country; and it is not probable that she ever will be except under some peculiar circumstances that do not now exist. We have it clearly within our power to force the existence of at least one of these circumstances; and if this were done perhaps another important circumstance would either eventuate almost spontaneously and simultaneously, or cease to be an important factor.

Canada is almost entirely devoid of pig iron manufacturing enterprises. It is true we have a few blast furnaces that produce about a tenth of the iron we require. We have but one steel plant, but the capacity of it is small. We have no works for the separation of nickel from the constituents of the ore. We have no works that are capable of manufacturing nickel steel. We have no works in which nickel steel could be converted into merchantable shapes and forms, and prepared to enter into the great consumption that awaits the article. Canada can have all these if she declines at this time to consider the question of maudlin and sentimental generosity, and gives herself entirely to the consideration of how she can best—selfishly if you please—develop the industries alluded to, in which nickel—our own nickel—would play so important a part.

The only argument we have heard advanced against Canada forcing the establishment of these industries by the imposition of an export duty upon nickel ore and matte, is to the effect that it would be an act of apparent commercial hostility to the United States, for which that country would certainly retaliate by tariff legislation hostile to Canadian interests. We are urged not to become "bumptious" by imposing the export duty, but rather endeavor to conciliate our neighbor and try to induce him to moderate the hostility he already practises towards us by letting him have all the nickel he wants without restriction. Owing to our geographical proximity and the manufacturing facilities already in existence in that country, without the restriction of an export duty the United States would become the manufacturer of nickel steel for all the world, and all that Canada would have to show for her share in the industry would be the holes in the ground from which her wealth of nickel had been extracted. Nothing more. There would be no holes in the ground where our deposits of iron ore are, for they would never be developed—there is

abundance of iron ore in the United States—and a high duty would keep out Canadian ore. There would be no blast furnaces and steel works in Canada, for nickel being an imperative necessity in manufactures of iron and steel, would force the closing of those which we now have. Whatever supplies of nickel steel we might require would be drawn from the United States, and that country would experience the greatest aggrandizement through the unwise refusal of Canada to impose an export duty upon nickel ore and matte.

Impose the duty.

#### PROSPEROUS CANADIAN FARMERS.

THE judges selected by the Agriculture and Arts Association of Ontario have completed their account of their inspection of the several farms entered for competition in the group embraced in Algoma county, Muskoka, Parry Sound, etc. There were a large number of entries, and the report gives minute descriptions of those to which were awarded the gold, silver and bronze medals offered by the Association. From these descriptions one may obtain correct ideas of what Canadian farming really is, and how the farms are managed. Mention is made of the thorough underdraining of the land, the well-kept roads, the straight and sufficient fences, the well-made gates, the absence of stones, sticks and rubbish, the absence of thistles and other noxious weeds, and the abundance and evenness of the crops. The size and arrangement of barns is alluded to, showing that regard is had for the comfort and welfare of the animals that are kept in them, their neatness and conveniences, and the supplies of water to them. Mention is also made of the stock-raising carried on on these farms, and the large returns obtained therefrom, and the care observed in looking after the accumulating manures; and the systems of crop rotations are fully described. The homes and the domestic arrangements of these representative Canadian farmers are spoken of, showing the comforts that are observable in them, and the air of prosperity that pervades them.

It is refreshing to encounter such reading and to learn from it of the prosperous condition of Canadian farms and farmers. The report tells us nothing new, for the prosperity is proverbial; but in reading such pessimistic papers as the *Globe*, *Advertiser*, *Herald* and other Grit journals are, if they were believed the impression would prevail that the farming interests of Canada were going or had already gone to everlasting smash. Therefore it is pleasant, we repeat, to see such information as that here alluded to published in such a blue ruin journal as the *Globe*, even if it has no comments whatever to offer relating to this prosperity. The Agricultural and Arts Association is not a political or partisan concern, and therefore their report may be accepted as truthful and correct. Every word of this report breathes a spirit of hope and encouragement, and teaches that the Canadian farmer is a happy, contented and well-to-do personage. Indeed, what is said of many of these Canadian farms sounds as though reference was had to some of the richest and best farms in Old England.

No doubt there are many farms in Canada that are not well kept, and that are not as productive as those described



by the Association judges; but the owners of them could and should do quite as well with them as their neighbors do; and if they do not it is owing to their mismanagement and lack of persistent and intelligent application. And it is from this class that the blue ruin newspapers obtain the whining complaints that occasionally find expression in their columns.

Intelligent Canadian farmers do not have time or inclination to indulge in lamentations over the imaginary woes that the Grit press say environ them on every hand. They are too busy making money and improving their property. They are the ones who do not have time or inclination to walk across the road to see or hear Sir Richard Cartwright; but who always go to the polls when election times come to vote for Sir John and the N.P.

### CLOSER TRADE RELATIONS.

THE Brockville *Recorder* is one of those sore headed and disgruntled pessimistic Bourbons who never learning anything good and never forgetting anything bad, and would rather see Canada go to the demnition bowwows than the great and prosperous nation it is under the aegis of the N.P. It notes the fact that there are a few men in Canada engaged in manufacturing who pretend that they are fairly dying to have "closer trade relations" with the United States, and seizes upon this straw to urge that they "form an organization of their own, having no connection with the Red Parlor." It says:—

"Such an association would wield an immense power for good, and would effectually counteract the tactics of the monopolists. It would teach the artizans and mechanics that they have nothing to fear from a greater freedom of trade, in fact that their condition would be bettered; it would give all a higher respect for the land of their birth or adoption, by teaching them that capital had sufficient faith in their skill and ability to rank them as the equals of any other nation on earth."

The men to whom the *Recorder* appeals are not fools. Some of them may be insincere. As has been repeatedly shown in this journal, some of those who desire access to the American market do so because under existing circumstances they are compelled to maintain factories and works in both countries. They have to have works in Canada from which to supply their Canadian trade, and works in the United States from which to supply their American demand. It is clear that if reciprocity prevailed there would be no necessity for maintaining these dual establishments; and it is equally clear that, under Reciprocity one of them would be abandoned. Which would it be? Ask any of the men to whom the *Recorder* alludes, and if a candid answer is made, it will be that the smaller would give way in favor of the larger; that the works erected to supply the demands of the sixty million market could be more cheaply enlarged to meet the demands of the five million market than the Canadian works could be enlarged to meet the demand of the American market.

From the business point of view of the man who cares no more for Canada than for the dollars he can get by doing business within her borders—from the standpoint of extreme and unpatriotic selfishness—the desire for "closer trade relations" is natural and to be expected. It is akin to the selfishness of

the hog which climbs into the swill trough with four feet and snout, in an endeavor to prevent others from sharing the food.

Such men are not representative Canadians: they would not be representative Americans even under reciprocity, for they represent none but themselves, and nothing but their own unadulterated selfishness. With most of these men the object they have in having themselves interviewed by newspaper reporters is the cheap advertising and notoriety growing out of it. Some of these men who say they are, under the operations of the N.P., "caged and restricted in a market of only five million consumers," are manufacturers of agricultural implements. They advance queer arguments to show how this "caged and restricted" business works, and these all go to prove that there are men in the world who, through incapacity, lack of capital, and unbusinesslike methods make failures in small places and forthwith desire to rush to larger ones to "try their luck," taking with them there just the qualifications that environed them before, but no profit from the experience of their previous condition. Unsuccessful men are always sore-heads and grumblers, and they are always well loaded with "ifs" wherewith to prove that the failure that is staring them in the face would have been an unbounded success 'if' things had been different. The dog would have caught the rabbit "if" etc. These are the men who desire these "closer trade relations" with the United States. Contemptuously scorning the competition of successful Canadian manufacturers of agricultural implements, they want to have a chance to try issues with such American concerns as that recently organised there with a paid up capital of \$35,000,000, and which has absorbed and gobbled up every large agricultural implement concern in that country. We say gobbled up every large concern, for these, or some of them are the ones which are to manufacture all the agricultural implements to be hereafter sold in that country. The little fellows are to go to the wall *volens volens*—frozen out.

We do not charge these disgruntled Canadian manufacturers with idiotcy. They are not simpletons. Perhaps they have a few cool millions salted down in their old stockings that they cannot invest to advantage in Canada, and are languishing to invest in the United States, so that they can beard the American eagle in his den and burst the American Harvester Company or force it to admit them on the ground floor of one of the worse combines ever organized to suppress competition and bleed the helpless farmer. Under no other circumstances could they hope for success from their coveted "closer trade relations."

But perhaps they haven't the necessary millions, and perhaps they are not mourning to any great extent for reciprocity. Perhaps all they expect out of the discussion is the evanescent notoriety of posing as they do, and for advertising purposes only.

### INTER-LAKE TRAFFIC.

THE St. Mary's Falls Canal, Michigan, was opened for traffic April 17th, and closed December 3rd, the season being the greatest in the history of that great work. Following is a comparative statement of the amount and value of commerce through that canal for the years 1889 and 1890:

ITEMS.	QUANTITY.		VALUATION.	
	1889.	1890.	1889.	1890.
Vessels, number.....	9,579	10,557		
Lockages, number.....	4,684	4,970		
Tonnage, registered, net tons	7,221,935	8,454,435		
Tonnage, freight, net tons	7,516,022	9,041,213		
Coal, (hard and soft) net tons	1,629,197	2,176,925	\$ 5,702,189	\$ 7,619,237
Flour, barrels.....	2,228,707	3,239,104	11,143,535	16,195,520
Wheat, bushels.....	16,231,854	16,217,370	15,907,216	15,893,022
Grain, (other than wheat) bush	2,133,245	2,044,384	2,090,580	2,003,496
Manufactured Iron, net tons	31,545	93,615	1,577,250	4,680,750
Pig Iron, net tons.....	26,016	22,712	422,272	386,104
Salt, barrels.....	168,250	179,431	168,250	179,431
Copper, net tons.....	33,456	43,729	6,691,200	8,745,800
Iron Ore, net tons.....	4,095,855	4,774,768	14,335,492	16,711,688
Lumber, M feet, B.M.....	315,554	361,929	5,679,972	6,514,722
Silver Ore and Bullion, net tons	5,947	3,432	914,589	527,807
Building Stone, net tons.....	33,538	47,973	335,380	479,730
Unclassified Freight, net tons	312,410	372,294	13,744,602	22,277,641
<b>TOTALS.....</b>			<b>\$83,732,527</b>	<b>\$102,214,948</b>

The canal was open to navigation during 1889 234 days, and in 1890 228 days.

Included in the item "Vessels," in 1890, were 7,268 steamers, 2,872 sail and 417 unregistered.

Included in "unclassified freight" for 1890 were 3,451 tons of wool and 495 tons of hides.

The valuation of merchandise passing through the canal was as follows:—

1885.....	\$ 53,413,472
1886.....	69,080,071
1887.....	79,031,757
1888.....	82,156,019
1889.....	83,732,527
1890.....	102,214,948

### TRADE BETWEEN CANADA AND THE UNITED STATES.

The following figures, taken from bulletin No. 3, 1889 90, of the chief of the Bureau of Statistics, at Washington, show the extent of the commerce between Canada and the United States, during the last three fiscal years ending June 30, 1890:

1886-87.

Imports of Merchandise into Canada, from the United States.....	\$44,795,908
Imports of Merchandise into the United States, from Canada.....	37,847,277

Balance of trade in favor of the United States .. \$6,948,631

1887-88.

Imports of Merchandise into Canada, from the United States.....	\$46,440,296
Imports of Merchandise into the United States, from Canada.....	42,924,554

Balance of trade in favor of the United States..... \$3,515,742

1888-89.

Imports of Merchandise into Canada, from the United States.....	\$50,029,419
Imports of Merchandise into the United States from Canada.....	42,738,074

Balance of trade in favor of the United States.. \$7,291,345

The imports into Canada include only the merchandise entered for consumption.

The imports into the United States, include all the merchandise imported from Canada, whether for consumption or for export.

If the merchandise for export were deducted from total imports into United States, it would be found that the balance of trade in favor of that country, was more than double that which appears above.

In 1886-87 the proportion of imports into Canada from United States, free of duty, was.....	31.75 per cent.
In 1886-87 the proportion of imports into United States from Canada, free of duty, was.....	31.31 per cent.
In 1887-88 the proportion of imports into Canada from United States, free of duty, was.....	41.65 per cent.
In 1887-88 the proportion of imports into United States from Canada, free of duty, was.....	30.01 per cent.
In 1888-89 the proportion of imports into Canada from United States, free of duty, was.....	42.07 per cent.
In 1888-89 the proportion of imports into United States from Canada, free of duty, was.....	31.48 per cent.

The average rate of duties levied on dutiable imports from Canada into United States was very much higher than that levied in Canada on imports from United States.

Under such circumstances, it is clear that any concessions tending to the increase of the commerce between the two countries shall be tendered by the United States because the existing relations show conclusively that at present that country is occupying the position of greater advantage. By all means encourage mutual commerce, but insist that its extension shall be based upon equitable principles.

### CANADIAN EXPORTS OF CATTLE.

The total exports of Canadian cattle during 1889 were valued at \$5,708,126, the value of those going to Great Britain being \$4,992,161 and of those to the United States only \$488,266. In other words we sold more than ten times as much to Great Britain than to the United States. It is surprising how rapidly our export trade in cattle is growing, in fact it is now of national importance.

Regarding this trade a recent issue of the *Toronto Globe* contained an illustrated article concerning it from which we gather some of the facts. Speaking of how closely all of the conditions are guarded that might interfere with the business, allusion was made to the existing strict quarantine regulations and the elaborate preventive measures against diseases getting into this country. There was widespread alarm throughout Canada recently when a despatch to the newspapers from Dundee, Scotland, told that a cargo of Canadian cattle had been refused admittance because pleuro-pneumonia was suspected. To those ignorant of the dimensions to which the cattle trade has grown, and ignorant of the advantage of being able to ship live beef into the British Isles, the alarm must have been puzzling. Why all this fuss about a cargo of cattle? Because if it had been proved that those animals were tainted with pleuro pneumonia the advantage Canada has over the United States, her business rival in this trade, would have been lost, for while the latter can only ship dead meat into Britain, Canada can send live cattle. No need to tell the farmers how important the cattle trade has become. They look anxiously for the money the cattle buyers distribute, and the profits from their steers enter largely into their yearly calculations. The ocean cattle trade means almost \$6,000,000 a year to Canada.

This has grown from nothingness since 1874, when the first shipment of a living cargo of Canadian beef was made to Eng-

land. The vision of cattle dealers was turned across the ocean by the failure of the market the United States war had furnished. Thirty years ago New York, Albany, Buffalo and indeed all the other side of the Suspension Bridge, were centres for the sale of all classes of animals. During the time of the war of the rebellion when the farms over there were drained of men, and all branches of agriculture languished from neglect, there was scarcely a section of Ontario in which cattle buyers could not be found. Oxen which had been working for years and had assisted in turning forest lands into cultivated fields were sold at prices not obtainable in Great Britain at this day for the fattest and choicest stock. So during the existence of the war Ontario cattle-raisers had a harvest time. But to show the fecundity of live stock breeding, and how quickly depleted farms could have herds of cattle grazing on their meadow lands, it was only five years after the termination of the war that American stock-raisers were not only able to supply their home market, but were, like Canada, looking for a market for their surplus. Canada had gone to England and was first in the field. She put thousands of carcasses of beef into barrels, salted and prepared for Liverpool, Glasgow, Birmingham, Sheffield and all those great centres of population. This salt meat trade was continued for some time, but it was not a success and the idea was conceived of sending the meat over alive. The honor of being the pioneer was grasped by Ald. G. F. Frankland, of this city, then as active in promoting the interest of the cattle trade as now.

In the year 1874 the first shipment of note of Canadian cattle was made from Montreal. The cargo consisted of 270 head - an extraordinary cargo it was considered in those days. When the living cargo was driven on the dock to be put aboard an Allan steamer, Sir Hugh Allen, watching the impatient animals pushing and shoving about, declared it would be impossible to place so many aboard the waiting steamer; and now, after sixteen years that same steamer has delivered at ports on the other side of the Atlantic as many as 578 head. That first shipment realised a handsome profit and demonstrated the practicability of the ocean cattle trade. From 570 head of cattle that first year the trade has assumed such proportions that this year it will probably reach 110,000 beside sheep and hogs. Shipments are principally made to Liverpool, London, Wakefield, Manchester and Newcastle in England, and Glasgow, Aberdeen, Dundee and Edinburgh in Scotland. Ireland is herself in the cattle exporting business, and, except for one cargo, no Canadian cattle have been sent to that market.

Figures taken from the Trade and Navigation Returns show the growth of the trade since 1880 to be :-

	Number	Value
1880.....	54,914	\$2,764,437
1889.....	102,919	5,708,126
Increase .....	48,005	\$2,933,689

A trade of \$6,000,000 yearly is reason enough who no effort should be neglected that would contribute to its continuance. It is a splendid advantage Canada has in being the only country from which cattle may enter Britain through relaxed quarantine regulations. It is a trade worth the best attention of the Governments of the Dominion and Provinces. By preventing the entry into the country of contagious diseases the quarantine officers have done good duty, and the Government of Ontario has given a valuable stimulus by introducing such

strains of blood that it can be said that there is no country in the world that has finer breeds of finer stock than Canada. The shipments each succeeding year are showing improvement of stock. Breeders and shippers are learning that only the best bred stock will bring top prices in the fastidious British market, and are acting upon the lessons of the trade.

Looking over the past and, by the light of experience, into the future, there is every reason to believe this trade may still grow to dimensions compared with which the present is but infancy.

EDITORIAL NOTES.

As will be seen by reference to an announcement on page 400 of this issue, the publishers of this journal will issue a special Jamaica Exhibition Edition about January 16th, 5,000 copies of which will be distributed to visitors there. This exhibition is being exploited by the Government of that Island on strict business principles, the object being to induce manufacturers and merchants in other lands to display specimens of their goods there such as are suitable to the wants of the people; and to display to visitors the products and resources of the Island with a view to extending and enlarging trade therein. A special invitation was extended to Canadian manufacturers to participate, and the cordiality with which this invitation has been accepted is demonstrated in the long list of exhibitors and exhibits to be found on another page. As a representative of these manufacturers this journal will also visit the exhibition, and be placed in the hands of thousands of those who will regard it as a souvenir of the pleasant event. In doing this we are not selfish, but desire the companionship of all manufacturers and merchants who may be pleased to accompany us. This is a rare opportunity for those who wish to extend their trade to the West Indies to let the nature of it be known by placing their business cards in our special Jamaica Exhibition Edition.

IMPOSE the duty.

CANADA has the call on nickel.

BE just before you are generous.

BE just to Canada before you are generous to the United States. Impose the duty.

THE lobster pack of Westmoreland county N.B., during the past season was 5,400 cases larger than last year.

ONE hundred and fifty cargoes of grindstone were shipped from the Joggins, N.B., quarries during the past season.

WHAT! Two issues of the CANADIAN MANUFACTURER each month and only \$1 per year! Yes, this is a concrete and solidly congealed fact.

JUSTICE to Canada will secure the establishment in Canada of an immense industry that will supply the world with nickel steel. Impose the duty.

BE just to Canada by imposing an export duty upon nickel ore. before you are generous to the United States by allowing that country to reap the benefit accruing from our valuable nickel resources. Impose the duty.

WITH an export duty upon nickel ore, Sudbury, with a liberal bonus from the Ontario Government for the establishment of steel works, and a gift by the city of Toronto of a mud flat now of no value as a site for the location of such works, and Canada, Ontario and Toronto would boom a boom wonderful to behold.

A LARGE consignment of poultry for the Boston Christmas market passed through Ottawa yesterday, upon which the estimated duty is \$1,500, which it would seem is paid by the Canadian producer, as the price of poultry here is only seven cents a pound while it reaches seventeen cents in New York State.—*Mail*.

Wrong again. The price of poultry in Canada at this time is as high as it was at this time last year or the year before. Eggs likewise. The higher price in the United States indicates that the consumers there pay the duty.

THE nickel fever is spreading. A large deposit of iron pyrites near St. Stephen, N. B., has been found to contain a considerable percentage of nickel. A New York chemist found two per cent. in a sample of ore taken four feet below the surface, and a subsequent analysis of ore from the same opening, seven feet below the surface, shows nearly two and one-half per cent. of nickel. In consequence of this discovery, and in view of the importance which is being attached to nickel in connection with the manufacture of steel plates, New Brunswick journals are having large-sized visions of flourishing nickel industries. It is to be hoped they will not be disappointed.—*Montreal Herald*.

MR. WIMAN has furnished the country merchants of Canada with a sheet of cartoons from *Grip*, to be posted up in their stores for the education of farmers. The cartoons are ingenious, as all Mr. Bengough's work is, and our farmers will enjoy many a hearty laugh over them. But the Canadian farmer, as he is, has nothing in common with the representation of him as pictured by *Grip*. He will laugh at the cartoon, and continue to vote against Mr. Wiman and his policy. Erastus is out to the extent of his printing and postage bills.—*Kentville, N.S. Chronicle*.

IT gives the CANADIAN MANUFACTURER much pleasure to give a brief account of some of the manufacturing industries of the thriving and healthy town of St. Stephen, N.B., as published in another page. This is the sort of a town that must be valued as one would value a jewel—on its intrinsic merit, and not by the extent of territory it covers. It is to be regretted that the people of Ontario and Western Canada know so little about our more eastern Provinces, and that they do not realize what an active, energetic, pushing go-a-head people there are there.

A DESCRIPTION is given in another page of the new machinery depot of Mr. H. W. Petrie in this city. Mr. Petrie is a

young man who has been engaged in making and handling machinery from his boyhood. He began business for himself in Brantford, Ont., about fifteen years ago, where by thorough and honorable methods he built up a trade that has been extended throughout the Dominion. Two years ago he established a branch office in Toronto, and this venture has proved so successful that he has made this city his headquarters. Canada is proud of such men as H. W. Petrie.

THE *Iron Trade Review* and Mr. T. D. Ledyard, who owns iron ore property in Ontario, Canada, have been engaged in a controversy for some time past over a statement from Mr. Ledyard to the effect that good Bessemer ores from Canada can be laid down in Cleveland for \$3.90 a ton. On the docks of one of the river furnaces in Cleveland, there is a large quantity of Ontario ore that has lain there for years. All attempts at roasting the sulphur out of it have failed. This is the ore which Mr. Ledyard refers to, as good Bessemer ore, and there is no room for controversy.—*Cleveland, Ohio, Marine Review*.

FISH caught by Canadian fisherman in Canadian waters when entering the United States pay a duty of three-quarters of a cent per pound, while fish caught by American fishermen in Canadian waters enter the United States duty free. If this sort of reciprocity is kept up all fishing craft employed in the business will be forced to become Americanized, to the detriment of an important Canadian industry. All licenses to fish in Canadian waters expire, we believe, with the current year. Let the Dominion Government thereafter impose an export duty of three-quarters of a cent per pound upon all fish caught in Canadian waters and shipped to any country imposing a duty upon Canadian fish. Impose the duty.

A MINERAL called baraga has been discovered on an island near the north shore of Lake Superior, and several shipments of it have recently been made to various places. It is a clay-like mineral, and can be used in pottery ware and for foundry facings. Experiments have been made by electrical experts in Detroit with the result that this mineral is likely to play an important part in the electrical field in future. The clay, for that is the form in which it is found, just as it is mined, is placed in a cell, with common brine and the usual amount of zinc and produces a two volt current of electricity. After being used thus for three months, the baraga is dissolved, and then it is found to be pure graphite, and more valuable than before using.—*Modern Light and Heat*.

THE Americans are beginning to find out that in some items of their tariff the attempt to crush the Canadian farmer has recoiled upon themselves, and that they will have to pay the increased duty. The *New York Times* says that apples are scarce and high, and will remain high because of the tax of 25 cents a bushel of 63 cents a barrel put on imported apples. Good cooking apples that sold last fall for a \$1 a barrel are now \$2 and \$2.25. Potatoes are taxed 25 cents a bushel, and Canadian potatoes came in freely as soon as the price reached \$1.75 a barrel. They will not now come in till the price reaches \$2. Eggs which were 17 cents a dozen wholesale are now 22 cents, and Canadian eggs are usually better than the western ones which supply the cheaper stores. In barley also the brewers seem to have decided that they must have Canadian barley notwithstanding the duty. And even if there should not be a

good sale for the barley, it may result in benefit to our farmers in forcing them to feed it to their stock.—Perth, Ont., *Expositor*.

THE imposition of \$1.50 per head on sheep one year old and 75 cents on lambs, on animals entering the United States, by the McKinley Bill, has led many to believe that this would seriously interfere with the Canadian sheep trade, especially with those who have been in the habit of selling their lambs in the American markets. If it will affect the trade at all it will only be temporarily, at the British market is open for all the lambs and sheep we have at remunerative prices. Lambs have been most successfully shipped to Great Britain during the past season, and the venture has proved particularly advantageous to all parties concerned. The lambs arrived in the best possible condition, and found ready sale with English farmers for feeding on grass. At the present prices of sheep in England there is a good margin of profit for the grower as well as the shipper. What we had to spare has gone across as lambs to the United States, which, if they had been shipped to the English markets, would have realized double profits.—London, Ont., *Free Press*.

THE growth of the interprovincial coal trade is illustrated by the shipments of coal this year from Nova Scotia to points on the St. Lawrence. The shipments from the Pictou and Cape Breton mines alone this year show an increase of 122,000 tons over last year. This does not take into account the shipments by the Intercolonial Railway from the Cumberland mines, including Spring Hill, with its output of half a million tons, a large proportion of which went to Quebec. The probability is that Nova Scotia coal shipments to the upper provinces this year will reach 800,000 tons. The *Halifax Herald* says: "The most coal we ever sold to the United States in any year was in 1865, 465,000 tons. After eleven years of absolutely free coal, with almost as large a demand in New England for coal as there is now, and before the enormous development in United States coal mining that has marked the past twenty five years, we were only able to sell about half as much coal in the United States as we now sell in Ontario and Quebec, yet there are cranks that tell us that New England is a much better market for our coal than is afforded in Ontario and Quebec."

At the annual meeting of a farmers' institute held at Brantford, Ont., a few days ago, Mr. Thomas Elmes, of Princeton, read a paper entitled "Farmers of Canada are no Slaves or Vassals of the United States. Never!" the argument being that Canadians have a better market in Great Britain than the United States, and that farmers should be true to themselves in resisting Commercial Union or any other political arrangement that would lead to annexation. In the eyes of the *Globe* such language should not be tolerated, and Mr. Elmes is incontinently demolished by that paper. It accuses that gentleman of holding so mean an opinion of Canada as to suppose that under Unrestricted Reciprocity, we would be unable to hold our own against American competition, and that the tendency of Protection is to foster an industrial slavery and vassalage of the worse kind. Mr. Elmes is of that description of Canadian farmers alluded to by the judges of the Agricultural and Arts Association of Ontario who understand their business and become prosperous, contented and happy thereby. The abuse heaped upon such men as Mr. Elmes by the *Globe* makes many supporters of the N.P., and voters who will cast their ballots for Sir John every time.

SAMPLES of nickel-steel made in Pittsburg during the past week, under direction of Secretary of War Tracy, have stood such tests as amply demonstrate that we can turn out armor plate fully equal to the French plate which recently stood such severe tests, in comparison with English plate. The experiment was not conducted on a mere laboratory scale, but consisted of the melting and rolling of five tons of the new metal. Samples of three-quarter-inch plate forwarded to Washington and tested by Government experts gave surprising results. The elastic limit of two test pieces was, respectively, 59,000 and 60,000 pounds. The ultimate strength was 100,000 pounds and 102,000 pounds, respectively. The elongation was 15½ per cent. in each specimen, and the reduction of area at fracture was 29½ per cent. and 26½ per cent., respectively. These figures show that the elastic limit and ultimate tensile strength were raised by the nickel alloy to almost double the limits reached in the best grades of boiler plate steel, and the elongation was reduced to a scarcely appreciable extent. Thus the desirable qualities of hardness, strength and elasticity were combined in a wonderful degree in a metal of great ductility. These results, surprising as they are, were attained in the first attempt, and with steel made by the Bessemer process. It is believed that better results can be obtained even now by the open-hearth process, and it is reasonable to suppose that with more experience still further improvements will be made. Secretary Tracy, no less than the Pittsburg concerns, is to be congratulated upon these promising and significant results.—*Iron Trade Review*.

THE *Forum* for December contains an article by Commander Barber of the United States Navy, on "Armor for Warships," and this is what he says regarding nickel steel:

Various attempts have been made to improve the characteristics of steel plates. \* \* At present the tendency is to try alloys of manganese, chromium, tungsten, copper, nickel, etc., with the steel. The nickel alloy has given the best results, and has raised the standard of homogeneous armor permanently above that of simple steel. With less than five per cent. of nickel, it possesses greater tenacity, can be made harder and does not crack. A plate made by Schneider & Co., tested at Annapolis with the simple steel and compound plates, gave extraordinary results. After four 6-inch projectiles had been fired at it, its general appearance was much the same as that of the steel plate. There were no cracks in either, and about the same penetration in both; but the tenacity of the nickel steel was such that the holes were plugged water tight by the bodies or heads of the projectiles themselves, whereas three of them had rebounded from the plain steel after piercing it. A fifth shot fired at the centre from an 8 inch gun, touched the backing behind both plates. The plain steel was cracked, but the nickel steel remained uncracked and was ready to receive another shot. This was a tremendous test, standing to that with the 6-inch shot in the relation of 5,000 foot-tons to 3,000 foot-tons. Nickel steel plates will probably be made hard enough to break any projectiles that are manufactured at present.

If projects now on foot are materialized, Toronto in the near future will be a great iron and steel manufacturing centre. There will be a number of furnaces here for the manufacture of pig iron from the ore. There will be one or more works here for the refining of matte from the nickel and copper smelters at Sudbury. There will be works for the conversion of pig iron into steel and the manufacture of nickel steel. There will be rolling mills for rolling the thousand shapes of merchant steel and nickel steel. All this implies the hauling of almost countless tons of ores from the mines, and of coke and other fuel from Pennsylvania and other sources of supply, and the hauling away of the finished

products of the works, giving constant employment to railroads and vessels; and it implies the employment of many thousands of people, not to speak of the capital invested. There are five iron furnaces in Sheffield, Ala., and the *Enterprise* of that city has, in a recent publication, shown what demands they must make upon the railroads centering there. These five consume daily 2,500 tons of ore, 1,600 tons of coke (which is equal to 2,240 tons of coal) and 800 tons of lime stone. The tonnage of raw material required to keep these furnaces in blast for a year is nearly 1,800,000 tons. To mine this material and put it on the cars for shipment to Sheffield would require the labor of 2,500 men in the mineral region adjacent to Sheffield. At the lowest wages estimate this would compel the disbursement of \$18,750 per week to the miners and other employees. The amount of material required and the product of the furnaces would, loaded on cars, require a continuous freight train 975 miles long.

## 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.*

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

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

**FOR SALE.**—In town east of Toronto, Two Set Woolen Mill, fully equipped and in good running order; never-failing water-power, main building stone, 50x150 feet, three stories; picker house, brick, 24x30, two stories; railway and water convenient for shipping, will sell with or without machinery. For further particulars address this office.

**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.

**TO MANUFACTURERS.**—The most desirable factory site in vicinity of Toronto, or equivalent cash bonus will be given free to suitable parties who will erect a factory thereon. Correspondence invited. Address GEO. F. COOK, 92 Church Street, Toronto.

**TO MANUFACTURERS**—The Town of Thorold, Welland County Ontario, is a splendid site for manufactures of all kinds, and reasonable encouragement will always be given for the settlement of bona fide industries. It is situated on the boundary between the Counties of Lincoln and Welland; population, 3,000; lighted by electricity (public and private circuits);

electric street railway connection with the City of St. Catharines, four miles distant; nine miles from Niagara Falls; the New and Old Welland Canals, also the Welland (G.T.R.) and Niagara Central Railways, all run through the town; water power from the canal; bonded debt small; situation, on the brow of the mountain; overlooking Lake Ontario, most picturesque; public health not excelled; five churches; first-class High school, also two Public and one Separate school. Any information desired will be cheerfully given by application to JAMES LAWSON, Mayor.

**AN ENTERPRISING MANUFACTURING TOWN.**—West Toronto Junction, a town bounding the city of Toronto on the west—has had a phenomenal growth for a Canadian town. In 1885 its population was less than three hundred—to-day it numbers six thousand people and is a bustling centre of manufacturing enterprises. It presents especially good facilities for commerce—the main lines of the Canadian Pacific and Grand Trunk Railways, the T. G. & B., the C. V. R., and the N. R. R., all centre in the heart of the town and offer advantages for shipping to all parts of the Continent, which are unexcelled in the Dominion. The Town Council are alive to the interests of the town and have secured several very valuable factory sites on the lines of railway, which, together with exemption from taxes and free water, they offer as inducements for the establishment of first-class industries. Dr. Carleton is chairman of the Factory Committee.

*The Electrician* is a weekly illustrated journal of electrical, engineering, industry and science, published at 1, 2 and 3 Salisbury Court, Fleet Street, London, E.C., England. Subscription to all countries in postal union, £1 4s. per year. Address, The Electrician Printing and Publishing Company, as above.

IN the New York *Ledger* of November 29th, Robert Grant begins a brilliant and entertaining social satire under the title of "Mrs. Harold Stagg." The story is told with the amusing and quiet cleverness which has made the author's reputation, and contains many striking ideas which will cause Society's backbone to creep. Like "The Anglomaniacs," it places its heroine under a cross-fire from a wealthy swell and a talented youth to fame and fortune unknown—a situation which allows Mr. Grant a coveted opportunity to bombard New York society.

"My Own Canadian Home" is a beautiful song, the words of which are by E. G. Nelson and music by Morley McLaughlin. It is published by the St. Croix Soap Manufacturing Company, St. Stephen, N.B., of which Mr. J. E. Ganong is manager. In a note received from Mr. Ganong we are informed that his Company have already presented copies of this song to every school teacher in Canada, and that they are now presenting it to all the scholars in Public schools in the larger cities and towns, arrangements having been made with Mr. McLaughlin to do this.

THE *Young Canadian* is a new departure in Canadian journalism, and is a high class illustrated weekly magazine of patriotism for the young people of Canada. Its aim is to foster a national pride in Canadian progress, history, manufactures, science, art, literature and politics, and to inspire the youth of the country with a sense of the sacred and responsible duties which they owe to it. The first number of *The Young Canadian* will appear in the holiday season, and be published every Wednesday thereafter. Subscription price, \$2.00 per annum. Published by the Young Canadian Company, Montreal.

*Knowledge* is a unique little magazine which ought to have great popularity among all owners of Cyclopædias. It undertakes to supply the information which one ordinarily seeks in his Cyclopædia and fails to find there, because it is not "up to date"—it was published "last year," or, more probably, several years ago. "The world moves," and the most important questions that want answering are questions of to-day, not of yesterday; *Knowledge* answers, during the year, several thousand such questions. It is published weekly, for the amazingly small sum of 50 cents a year;



specimen copy free. John B. Alden, Publisher, 393 Pearl Street, New York.

THE *Ladies' Home Journal* is published monthly by the Curtis Publishing Company, Philadelphia—price, \$1 per year. The Christmas number of this elegant journal, together with a fifty-two page illustrated supplement accompanying it, contains an amount of most interesting reading matter that could not be had in book form for ten times the price of a single copy. It would not be just to the others if the names of only a few of the contributors to the *Ladies' Home Journal* were mentioned, but a catalogue of the names of all these contributors would include very many of the brightest authors and authoresses known to the American reading public. Many of the contributions are illustrated, and all of them are of the highest merit, written, as might be supposed, for the special pleasure of lady readers. All the different departments are intensely practical and useful, and such as will be sure to interest those for whose benefit they were written.

Vick's Illustrated Monthly Magazine will close its thirteenth volume with the December number. Its circulation is large and increasing, and it makes its monthly visits to all parts of the country, exercising educating and refining influence wherever it goes. On garden work, flower cultivation, house plants and fruit culture, there is no higher authority. Each number contains a handsome colored plate of flowers or fruit, and its editorials and correspondence are of the highest interest and practical value to all who cultivate gardens, fruit grounds or house plants. Some of the best writers in the country contribute to its pages, and the volume for 1891 will contain each month what will be worth many times its cost to its readers. Its editor, Charles W. Seelye, is thoroughly experienced in his work, and its publisher, James Vick, is doing essential service to the community in issuing this beautiful magazine. Price, \$1.25 a year.

BIBLIOTHECA POLYTECHNICA: A Directory of Technical Literature. A Classified Catalogue of all Books, Annuals and Journals published in America, England, France and Germany, including their Relation to Legislation, Hygiene and Daily Life. Edited by Fritz von Szazepanski. First Annual Issue. Crown 8vo, Cloth. New York: The International News Company, 83 and 85 Duane Street. 75 cents. We greet with much pleasure this new international index to the progress of technical science. It has been compiled with astonishing industry, and is a complete book of reference for all publications of a technical nature. The catch-words are given in three languages—English, French and German—so that readers of every nationality can at once turn to the branch he seeks in the literature of the latest investigations. An exhaustive enumeration of the technical journals in the three great languages of the world is also given. The work is carefully printed and elegantly got up, and we can confidently recommend it to our readers, assured that they will find that its value greatly exceeds the moderate price they will have to pay for it.

THE TRADE QUESTION.

To the Editor of THE CANADIAN MANUFACTURER:

My attention has been called to a report of an interview between a correspondent of the Toronto *Globe* and Mr. J. T. Macdonald of the Macdonald Manufacturing Company of Stratford, Ont., in which Mr. Macdonald is made to advance some statements which, if correctly reported, do not convey a very favorable impression as to Mr. Macdonald's knowledge of his special business or of his general business ability. I take the statement he makes and the figures he gives as the basis for my remarks. He claims to be able to sell a machine for \$400 which the manufacturers in the United States charge \$600 for; and yet he argues that under unrestricted free trade between the United States and Canada, the farmers in Manitoba would get machines for less than they do now in consequence of being able to buy in the American market. That is to say, a \$600 machine bought in the United States would be cheaper to a Manitoba farmer than a \$400 machine purchased in Stratford, Ont. And Mr. Macdonald accounts for the saving to the Manitoba farmer by saying that the freight from Stillwater, Mich. and other Western points in the United States to Manitoba is so much less than from Stratford that notwithstanding the difference in first cost the American machine would cost the Manitoba farmer less. This is the way he figures it:—

"I got rates from the G.T.R. only the other day and it costs \$131.00 to send a threshing and separator to Brandon, Man. Manufacturers who run the great risk of damage and breakage involved in so loading them, can send four machines on one car. The car costs \$192 to Brandon, so that even taking this risk, which we do not care to do, it costs about \$50 for freight on each machine. Properly, a car will carry but two threshers, and the freight on each to Brandon may therefore be said to be almost \$100."

Here are serious discrepancies. Mr. Macdonald starts out by saying

that it costs \$131 to send a machine to Brandon; then admits it may at some risk be done for \$50, and winds up by shewing it costs—when only using a car to half its capacity—nearly \$100. But, passing that and taking the freight from Stratford to Brandon as \$100, we have the following:—

Selling price of Stratford machine in Stratford.....	\$400 00
Freight thereon laid down in Brandon .....	100 00

Cost of machine laid down in Brandon .....	\$500 00
Selling price of machine at Stillwater, Mich., or other American manufacturing points.....	\$600 00

Difference in favor of Stratford machine \$100.00 exclusive of any freight from American factory to Brandon, which must be a few dollars, even if the manufacturers "run the great risk of damage and breakage involved" in loading four machines on a car.

If Mr. Macdonald can produce a machine that he can sell at \$400 profitably, whilst American manufacturers cannot do it for less than \$600, I am very much surprised that he would waste his time in Stratford and his energies in advocating "unrestricted reciprocity," so that he may get cheaper raw material and the sixty-million market. By moving across the line he will get both. If, with the disadvantages he is laboring under now in the "exorbitant" prices he has to pay for cylinder teeth, belts, pig iron, steel, cotton duck, etc., he can sell his machines in Stratford for \$400, he could no doubt produce the same machine in the United States for \$300, giving him an advantage over American manufacturers of \$300 on each machine. Surely that is sufficient to tempt any man to start a factory in the United States, where the sixty-million market is. If his figures are correct I will venture to promise him all the capital he may need to start operations, but the figures must stand investigation.

It is possible, probable even, that Mr. Macdonald's figures are not just as reliable in any point as they should be—they prove too much and contradict his own conclusions. They shew that American manufacturers would have no show against him in Manitoba even if the duty was removed, and that he could sweep them out of existence in their own market. In fact, with such an advantage in cost of machines, he could now almost pay the American duty and undersell them in their own market. He virtually admits this, and I think he is too modest in estimating his abilities, for his figures shew he can do it altogether, especially if he would only consent to put four machines on a car. It would not cost \$50 each to deliver them in Chicago, and he could stand \$50 and make it hot for the slow-going American manufacturers, thus:—

Selling price of machine in Stratford.....	\$400 00
Freight to Chicago, say .....	50 00
Duty in United States .....	140 00

Cost laid down in Chicago.....	\$590 00
Selling price of same machine in U. S. ....	600 00

I am however sorry to see that Mr. Macdonald is not as well up in the net cost of some of his raw material as we have right to expect from him. Speaking of cylinder teeth he says "Another heavy tax is that on cylinder teeth. They were not made in Canada at all when the duty was first put on them. A man began their manufacture in Dundas. He called on me to sell his goods and asked 8½ cents a pound. I told him I could buy on the other side at 5½ cents a pound. 'Oh yes' he replied 'but if you add the 30 per cent. duty you will find I am a shade lower.'" The natural inference is that Mr. Macdonald accepted the statement and bought from this man. Had Mr. Macdonald figured for himself he would have seen that he was under no necessity to pay the 8½ cents but could save his pocket, help the Dominion revenue, and hit the "parasitic" Canadian manufacturer all at the same time, by buying in the United States. Mr. Macdonald says he can buy

Cylinder teeth in United States for per pound. ....	5½ cents
Or per 100 pounds.....	\$5 50
Add duty 30%.....	1 65
Cost, duty paid.....	7 15
Against Dundas price.....	8 50
A saving of 16% or.....	1 35

as the freight would not make any variation worth speaking of, either way.

A blunder of this kind tends somewhat to shake confidence in the rest of his figures, and I must have it clearly understood that the figures showing such good profit must be fully verified before I am called on to take any stock in them.

W. C.

THE JAMAICA EXHIBITION.

FOLLOWING is a partial list of Canadian exhibitors and exhibits at the forthcoming Jamaica Exhibition, the principal exhibits of cheese and butter and some other manufactures being yet to be added to the list:—

- Agriculture, Canada, Dept. of, Ottawa, cereals in ear and cleaned.
- Amherst Boot and Shoe Co., Amherst, boots and shoes.
- Anglo-American Manufacturing Co., Wittenburg, window blinds.
- Archibald, A. A., Truro, carriages.

- Archibald, L. C., Antigonish, cheese and butter.  
 Arseneault, Joseph O., Wellington, canned lobsters.  
 Aurora Agricultural Works, Aurora, agricultural implements.  
 Austin, Mrs. L., Montreal, sisal hemp.  
 Automatic Refrigerator Co., Ottawa, refrigerators.  
 Ayr American Plough Works, Ayr, ploughs.  
 Baer, W. T. & Co., Toronto, electric goods.  
 Barber, Ellis & Co., Toronto, books, envelopes, etc.  
 Bartholomew, Henry, Vanessa, Ont., evaporated apples.  
 Bell, J. & T., Montreal, leather goods.  
 Bell Organ and Piano Co., Guelph, organs and pianos.  
 Bertram, Peter, Dundas, axes.  
 Bigelow, J. E., & Co., Truro, N. S., aerated waters.  
 Bigney Bros., Halifax, tinware.  
 Bishop, William, Halifax, marble work.  
 Bland, G. H. L., Montreal, iron.  
 Borbridge, S. & H., Ottawa, harness, etc.  
 Bowman Heath Lamp Co., Hamilton, lamps.  
 Brandon Manufacturing Co., Toronto, wooden-ware.  
 Bras d'Or Lime Co., Halifax, lime.  
 Bras d'Or Marble Co., Halifax, marble.  
 Breithaupt Leather Co., Berlin, leather goods.  
 British-American Starch Co., Brantford, starch.  
 British Elastic Stamp and Printing Co., Halifax, stamps.  
 Brown, George H., Belleville, vehicles.  
 Brown, R. M., Halifax, umbrella stands.  
 Brodie & Co., Hespeler, light tweeds.  
 Brown & Webb, Halifax, drugs.  
 Corby, H., Belleville, whiskeys and photos of distillery.  
 Campbell & Co., Toronto, photo, backgrounds.  
 Canada Office and School Furniture Co., Preston, furniture.  
 Canada Meat Co., Montreal, canned meats.  
 Canada Veneer Co., Sherbrooke, berry and fruit baskets.  
 Canada Wire Mattress Co., Toronto, bedsteads.  
 Canada Bung and Spile Factory, Manotick, samples of bungs.  
 C. P. railway, doors of B. C. wood and large photographs of Rocky mountain scenery, stations, literature, etc.  
 Carling Brewing and Malting Co., London, ale and porter.  
 Carlton, C. C., Souris, P. E. I., canned fish.  
 Chadwick, John E., Hamilton, brass and copper.  
 Cockshutt Plough Co., Brantford, agricultural implements.  
 Compaigne Canadienne de Conduites, Three Rivers, iron water pipes.  
 Cook Hardware Co., Hamilton, hardware.  
 Copp Bros., Hamilton, stoves, pots, etc.  
 Craig & Kent, Truro, soft wool hats.  
 Crosskill, James & Son, Halifax, fruit syrup.  
 Curry, Archibald, Souris, P. E. I., fish.  
 Dalley, F. F. & Co., Hamilton, drugs.  
 Davies, Brewing and Malting Co., Toronto, Beer.  
 Davis, D., Charlottetown, dried fish.  
 Davis, S. & Sons, Montreal, cigars.  
 De la Berderic, P. G., & Co., St. Malo, Man., butter.  
 Delhi Fruit and Vegetable Canning Co., Delhi, canned Goods.  
 Dempsey, E., Trenton, apples.  
 Dempsey, P. C. & Son, Trenton, Ont., apples and peas.  
 Dodge Wool Split Pully Co., Toronto, pulleys.  
 Dominion Paint Co., Dartmouth, marine paints.  
 Dominion Type Co., Montreal, type.  
 Doty Engine Co., Toronto, engines.  
 Dougherty, A. G., Montreal, engravings.  
 Downs, The Misses, Halifax, bark pictures.  
 Drumbo Chemical Light Co., Drumbo, matches.  
 Eager, M. F., Halifax, drugs.  
 Earle, Thomas (through Lucas Park & Co., Hamilton), Victoria, B.C., canned salmon.  
 Excelsior Boiler Cleaner Co., Toronto, boiler cleaner.  
 Farquharson, D. & Son, Charlottetown, farina.  
 Fearman, F. W., Hamilton, bacon, hams, cheese.  
 Fisheries Dept. Museum, Ottawa, stuffed fish.  
 Fitch, Edson Co., The, Etchemin, match splits.  
 Forrest & Co., Halifax, canned lobster.  
 Foster, S. R., & Sons, St. John, nails.  
 Fuller Manufacturing Co., Trenton, canopy hammocks.  
 Fulton, G. O., Truro, conglomerate rock.  
 Gale, George, & Sons, Waterville, mattresses.  
 Gananoque Carriage Co., Gananoque, carriages.  
 Gardner, Robert & Son, Montreal, biscuit machinery.  
 Gates, C., Sons & Co., Middleton, drugs.  
 Goldie, James, Guelph, flour.  
 Gould, Ira, & Sons, Montreal, flour.  
 Grant, James A., Charlottetown, canned meats.  
 Gray, Young & Sparling Co., Blyth, salt.  
 Greening Wire Co., Hamilton, wire work.  
 G. T. Ry. Co., Montreal, pictures of stations, bridges, etc.  
 Halifax Consumers' Cordage Co., Montreal, rope.  
 Halifax Shovel Co., Halifax, shovels.  
 Hamblen, J. B. & Co., Pictou, canned lobsters.  
 Hamilton, J. S., & Co., Brantford, wire.  
 Hamilton Whip Co., Hamilton, whips.  
 Harlow J. C., Shelbourne trunks.  
 Harris, Wm., Murray Harbor, dried fish.  
 Hart, Levi, & Son, Halifax, cured fish.  
 Henderson & Potts, Halifax, paints.  
 Hickey, D. Nicholson, Charlottetown, tobacco.  
 Hochelaga Cotton Co., Montreal, cottons.  
 Hopper, R. & Sons, Truro, lasts.  
 Howe, J. & J. D., St. John, chairs.  
 Hubbard Portable Oven Co., Toronto, ovens.  
 Hyndman, Charles O., Charlottetown, barley.  
 Hyslop, Caulfield & Co., Toronto, overalls.  
 Imperial Oil Co., Petrolia, petroleum.  
 Ives, H. R., & Co., Montreal, hardware.  
 Jardine, A. B., & Co., Hespeler, blacksmiths' tools.  
 Jardine, Richard, Murray Harbor, cod liver oil.  
 Jennison, C., New Glasgow, gypsum.  
 Jardine & Co., A., Toronto, Pure Gold baking powder, spices, soaps, etc.  
 Jones, D. F., Manufacturing Co., Gananoque shovels, etc.  
 Jones, John L., Toronto, engravings.  
 Karn, D. W., & Co., Woodstock, organs and pianos.  
 Kaufman, J., Berlin, sashes, doors, etc.  
 Kelly, John, & Co., Charlottetown, vegetables.  
 Kemp Manufacturing Co., Toronto, stamped tinware.  
 Kerr Veg. Evap. Co., Kentville, evaporated vegetables.  
 Knowles & Nott, Brantford, refrigerators and bicycles.  
 Kraft, E. L., & Co., Hamilton, leather goods.  
 Kramer, L. P., Weissenburg, penmanship.  
 Labatt, J., London, ale and porter.  
 Lager Beer Brewing Co., Halifax, lager beer.  
 Lake of the Woods Milling Co., Keewatin, flour.  
 Lawry, T., & Sons, Hamilton, bacon and hams.  
 Lawson, James C., Stanhope, map of P. E. I.  
 Leaman, J. A., & Co., Halifax, cured meats.  
 Le Boutellier Bros., Paspebiac, cured fish.  
 Lewis J., & Sons, Truro, lasts and pegs.  
 Lewis, Mrs. Anna, Halifax, pictures.  
 Library of Parliament, Ottawa, framed views.  
 London Soap Co., London, soap.  
 Lordly, A. J., & Sons, St. John, furniture.  
 Malone, Thos., Three Rivers, fire kindlers.  
 Manitoba Government, flour, etc.  
 Martin, Samuel, Bay View, sheaf oats.  
 Marsh, W. A., & Co., Quebec, boots and shoes.  
 Metallic Roofing Co., Toronto, model dwelling.  
 Millar, T. D., Ingersoll, paragon cheese in pots.  
 Mills and McDougall, Montreal, tweeds.  
 Misenor, George A., Dartmouth, school desks.  
 Montmorency Cotton Co., Quebec, cottons.  
 Montreal, city of, large painting of city and photo views.  
 Montreal Cotton Co., Montreal, cottons.  
 Moore, N. T., Truro, soap.  
 Morrice, D., Sons & Co., Montreal, textile goods.  
 Morse Soap Co., Toronto, toilet soaps.  
 Moseley, Henry, Dartmouth, boats and models of.  
 McArthur, Colin & Co., Montreal, wall paper.  
 McCaskill, D. A., Montreal, varnishes.  
 McClary Manufacturing Co., London, stoves and tinware.  
 McCurdy, W. E. Baddeck, N. S., gypsum.  
 McDougall, C. B., Halifax, whiskies.  
 McKay, John, Bowmanville, barley.  
 McKay, John, Murray Harbor, cranberries.  
 McKenzie, George, Thorndale, P. E. I., oats.  
 McLaren, The J. C. Belting Co., Montreal, horse sweat pads.  
 McLaren, W. D., Montreal, baking powder.  
 McLeish, E. H., & Co., Montreal, fancy Indian goods.  
 McLeod, J. D., Charlottetown, oatmeal.  
 McMullen, T. G., Truro, lumber.  
 Newberry, F. T., Charlottetown, canned lobsters.  
 New Brunswick Government, Fredrickton, N. B., trophy natural woods of New Brunswick.  
 New Rockland Slate Co., Montreal, slate goods.  
 Nova Scotia Cotton Co., Halifax, cottons.  
 National Manufacturing Co., Ottawa, awnings, flags, etc.

Nova Scotia Government, Halifax, trophy coal, natural products, apples.

National Supply Co, Ridgetown, washing machine.

Nelson, H. A. & Son, Montreal, brooms and whisks.

Ness, F. W., Montreal, electrical supplies.

Office Specialty Manufacturing Co., Toronto, office furniture.

Ogilvie, A. W., Montreal, flour.

Oland, S. Sons & Co., Halifax, beer.

O'Mullen, P. & J., Halifax, beer.

Ontario Canning Co., Hamilton, canned vegetables.

Ontario Canoe Co., Peterboro, canoes and boats.

Ontario Cotton Co., Hamilton, cottons.

Ontario Rolling Mills, Hamilton, nails and iron.

Ontario Straw Goods Manufacturing Co., Toronto, hats.

Ontario Government, trophy of cereals, photographs of educational institutions, books, etc.

O'Shaughnessy, R., St. John, N. B., trunks, fishing tackle.

Patriquin, Charles A., Wolfville, harness.

Peacock, William, Toronto, bats.

Pender, James & Co., St. John, nails.

Peterboro' Lock Co., Peterboro', locks.

Peters, John & Co., Halifax, indurated ware, etc.

Pineo & Clark, Berwick, school desks.

Post Office, Canada, Dept. of, Ottawa, full exhibit postal service of Canada.

P. E. I. Government, trophy of dairy products, canned fish, vegetables, etc.

Public Works, Dominion, Ottawa, views of House of Commons and public buildings.

Pugsley, Dingman & Co., Toronto, electric soap.

Quebec Government, general trophy of native woods, etc., in form of castellated wall.

Railways and Canals, Can., Dept. of, Ottawa, large maps of Canada.

Ralston, R. & Co., Hamilton, blacking.

Reclining and Hammock Chair Co., Parkhill, chairs and hammocks.

Rhodes, Curry & Co., Amherst, doors and sashes.

Robin & Co., C., Paspebiac, codfish.

Robin & Sadler, Montreal, leather.

Rogers, David, Summerside, white oats.

Rolland, J. B. & Co., Montreal, paper.

Roschman, Richard, Waterloo, buttons.

Rowe, John, Charlottetown, chicory.

Rutherford, Andrew, Hamilton, drugs.

Sanford, W. E., Co., Hamilton, clothing.

Shorey, H. & Co., Montreal, clothing.

Silver, John, Halifax, tweeds.

Slater & Sons, Montreal, boots and shoes.

Slawson, C. H. & Co., Ingersoll, cheese.

Slipp, J. E., Sussexville, butter.

Smith, J. Godfrey, Halifax, beef, iron and wine.

Stark, The Charles, Co., Toronto, watches.

Steel Harrow Co., New Glasgow, harrows.

Still, J. H., St. Thomas, woodwork.

Stormont Cotton Co., Cornwall, cheese.

Taylor, J. & J. Taylor, safes.

Taylor, Scott & Co., Toronto, brooms, etc.

Tees & Co., Montreal, office furniture.

Temple, E. M., Montreal, drawing method.

Temple, James T., Halifax, rhubarb wine.

Tessier, B. L. (through William Hare, of Halifax), St. John's Nfld., codfish.

Tessier, P. & L., St. John's, Nfld., codfish.

Thackray & Co., Ottawa, sashes, doors, etc.

Todd Milling Co., Galt, flour.

Truro Condensed Milk Co., Truro, condensed milk.

Union Furniture and Mdse. Co., Bass River, chairs.

Ventilated Barrel Co., Halifax, barrels.

Victoria Wheel Works, Galt, wheels and spokes.

Walker, Harper & Co., Norwich, flour, oats, etc.

Walker, Hirman & Sons, Walkerville, whiskey.

Watson, John C., Montreal, wall paper.

Watson & Malcolm, Kincardine, furniture.

Watts, A., & Co., Brantford, soap.

Wenger, Isaac, Ayton, Ont., creamery butter.

Whitlaw Baird Co., Paris, flour.

Wilmont Spa Springs Co., Kentville, aerated waters.

Wisener, Joseph J., Monaghan, oatmeal.

Woodburn Sarven Wheel Co., St. Catharines, wheels.

Waterous Engine Co., The, Brantford, illustrations of engines.

Wright, A. M., Summerside, oats and oatmeal.

Wright & Co., T., Hamilton, bird cages, etc.

Yarmouth Duck and Yarn Co., Yarmouth, duck and twines.

# 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.*

THE cement works of Messrs. Wright & Sons, at Hull, Que., was destroyed by fire Dec. 2nd, loss about \$6,000.

THE capital stock of the Jenckes Machine Company, Sherbrooke, Que., has been increased from \$75,000 to \$150,000.

THE capital stock of the Standard Card and Paper Company, Montreal, has been increased from \$10,000 to \$30,000.

THE Lawton Saw Company is being organized at St. John, N.B., with a capital stock of \$20,000 for the manufacture of saws.

THE woolen mills of Messrs. P. Ewart & Son, at Yarker, near Kingston, Ont., were destroyed by fire Dec. 2nd, loss about \$7,000.

THE Steel Sink, Range, Boiler and Stamping Company of Ontario has been incorporated at Toronto with a capital stock of \$50,000 for the purpose indicated by the name.

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

THE Nova Scotia Glass Works, New Glasgow, N.S., are now working full time day and night. About 150 men are employed and the pay roll amounts to about \$1,000 per week. Some beautiful new designs and patterns in the line of tableware are now being turned out. The business is daily increasing.

THE Menasha Wood Split Pulley Company, Menasha, Wis., have recently filled orders for their hardwood split pulleys from J. J. Miller Shoe Company, Racine, Wis., and A. W. Rich Shoe Company, Milwaukee, Wis., and for rope transmission for the Racine (Wis.) Flour Mills and John Rice Bros, Benoistville, Wis.

THE Compagnie Canadienne Conduits d' Eau, whose iron foundry, mechanical works and head office are at Three Rivers, Que., was founded under the patronage of the Conduites d' Eau of Belgium with a capital of \$120,000 for the manufacture of cast iron water and gas pipe, and dealing in all water works and gas supplies. Addresser les lettres à Ludovic de la Vallée Poussin, I. C. directeur, Trois-Rivieres, Que.

A NEW industry is starting up in Ottawa. The old Baldwin foundry, having lain idle for some months, has recently been acquired by Messrs. Geo. Roe and Robt. Graham, who will run it under the style of the Baldwin Iron Works. The new firm have equipped their establishment with the latest machinery, and now prepared to handle all kinds of work appertaining to water wheels, mill machinery, engines, patterns and general repairs.

MESSRS. E. LEONARD & SONS, London, Ont., as will be seen by reference to their card on page 420 are manufacturers of steam engines for electric dynamos, for street railway service and for all other purposes. They are the sole makers of the celebrated Leonard-Ball automatic cut-off engine, made in sizes to suit from 10 to 100 horse-power, plain and compound condensing from 40 to 150 horse power. They also manufacture steel boilers in all desirable sizes up to 150 horse-power.

THE Dominion Cotton Mills Company, composed of wealthy Montreal men, has completed the amalgamation of the nine grey cotton mills of Canada. These mills, which were built at a cost of \$4,800,000, have been bought by the company for \$3,800,000, and will come under the new management January 1st. Two or three of the smaller mills will manufacture goods exclusively for export to China, the West Indies and South America. The capital of the company is \$5,000,000.

THE Irish mile is 2,240 yards, the Swiss mile is 9,153 yards; the Italian mile is 1,766 yards; the Scotch mile is 1,984 yards; the Tuscan mile is 1,808 yards; the German mile is 8,106 yards; the Arabian mile is 2,143 yards; the Turkish mile is 1,826 yards; the Flemish mile is 6,996 yards; the Vienna post mile is 8,296 yards; the Roman mile is 1,628 or 2,025 yards; the Werst mile is 1,167 or

1,337 yards; the Dutch and Prussian mile is 6,480 yards; the Swedish and Danish mile is 7,351.5 yards; the English and American mile is 1,760 yards.

The marine railway is still booming all along the line. At the Fort Lawrence Dock the work of excavation still goes on. The masonry for the hydraulic lifts as also the walls of the dock are beginning to assume large proportions. A line of rails has already been laid from the dock to a point about a mile above Long Lake. Much freight has already passed over that portion of the road. The other line will be commenced early in the spring; in the meantime the work will be pushed forward vigorously, and it is expected much will be accomplished during the winter.—*Moncton Transcript*.

THE Kingston Hosiery Company, Kingston, Ont., own the sole right in Canada for building and operating a machine for making full-fashioned hosiery, that will conform perfectly to all the parts of the foot and leg. It is claimed for this machine that it is the only one that can accomplish it. The machine, the right for which cost the company \$50,000, is quite complicated, but all the attention required is tying on the bobbins and putting on the belt. One operator can attend thirty of the machines. The company build the machines themselves, and have made a limited amount of goods for the fall trade.

The largest watch is the chronometer watch, which John Harrison, the Yorkshire carpenter made to secure the reward of £20,000 offered for the timekeeper which could determine the longitude to within half a degree or thirty geographical miles. This truly ingenious mechanic, who has not unworthily been styled "the parent of modern chronometry," made four timekeepers to this end. The first three were cumbersome machines, but the fourth—which, by the way, performed within the prescribed limits, and gained its maker the coveted prize—was in the form of a pocket watch, and measured 6 inches in diameter by 2½ in the thickest part.

In the Dec. 5th issue of this journal it was stated that the Bain Wagon Company, of Woodstock, Ont., would remove their works to Brantford, Ont. This statement is misleading. The original Bain Wagon Company is in Woodstock, and has no intention of moving from there. Two of the Bain Brothers, who were interested in the Brantford concern, have withdrawn therefrom and formed, we understand, a joint stock company, establishing themselves in Brantford; and this latter company are entirely distinct from the Bain Wagon Company, of Woodstock, having no connection therewith. We make this announcement in the interest of all concerned.

An invention, in the shape of endless chains, alternated with stationery timbers sloping to the lower part of the mill, for the safe transference of trimmed lumber is working very satisfactorily in the Brunette saw mill, at Westminster, B.C. The lumber is pushed on to a system of books attached to the chains after coming from the saws, and is gently and continuously deposited to where it is transferred to the waiting trucks by the men in attendance. The Brunette Mills, it is understood, were the first in the Province to take advantage of this way of carefully handling the lighter classes of lumber from the upper floors of the mill to the ground.

MR. H. W. PETRIE, dealer in machinery, etc., who has heretofore maintained his headquarters at Brantford, Ont., will remove his business to Toronto. He has obtained a suitable lot on Front Street, between York and Simcoe, and adjoining the Union Station, where he is erecting a large machinery depot, which he expects to be able to occupy in December. The building is being constructed of brick and stone, having a frontage on Front Street of 40 feet and a depth of 124 feet, four stories high, and will be equipped with every appliance and convenience necessary. The Barnum Wire and Iron Works are supplying the iron work, iron railings, office fittings, etc.

THE Waterous Engine Works Co., of Brantford, Ont., are furnishing the machinery for the new saw mill erected by the North Pacific Lumber Co., at Port Moody, on Burrard Inlet, B.C. The boilers and engines, comprising six car loads, have already been shipped, and they are now ready to ship the burner, that will make about four car loads. They have also near completion a pair of oscillating engines, 14 x 20, for driving the carriage, a six block carriage suitable for handling logs six to seven feet in diameter, eighty feet long; also a very large and heavy husk frame with top saw rig, and a six-saw Champion edger. This machinery will be shipped before the close of the year.

THE *Machinery Market and Expositor*, of London, England, contains the following paragraph relating to machinery manufactured by Messrs. Cant Bros. & Co., in use in Glasgow, Scotland: "It is a surprise to us to find in the manufactory of the Bennet Furnishing Company, Glasgow—where are made all kinds of school,

church, hall furniture and appliances, desks, benches, book-cases, pews, etc.—among the machines at work there, a planer, a hand-saw and a cross-cut saw, made by the Canadian firm of Cant Bros., & Co., Galt, Ontario. We understand that the manager uses them both because they were no dearer than those made in England, and also because they were better adapted to the work required of them."

MR. H. W. PETRIE, machinist and general machine dealer, 141-145 Front street west, Toronto, has issued the following notice to the trade, which explains itself:—"I take pleasure to announce the removal of my business from Brantford to Toronto. This step became necessary owing to the fact of my business having attained such proportions as to require the best facilities for transportation, also buildings and appliances for handling heavy machinery, etc. My new salesrooms and offices being near the Union station, in fact adjoining the station premises, gives visitors by rail an easy means of access. I also take this opportunity to thank all for the liberal patronage in the past, and trust with my new plant and better facilities, to be able to meet all demands, and receive a liberal share of your patronage."

At Reading, Pa., a manufacturing company has been organized under the title of the Inter-State Iron Company for the purpose of making a special brand of merchant bar iron by a peculiar process invented by H. Harris, the secret of which is in the sole possession of the company. It is proposed to manufacture the bar iron from the discarded and second-hand steel rails, which are now a drug on the market, and can be purchased at a cost but slightly above that of common iron. It is asserted that by a simple process invented by Mr. Harris, the steel in the rails is easily decarbonized and changed to iron of a very superior quality. A number of tests have been made, and specimens of iron by this process have been examined by iron specialists.

A LARGE scow load of choice hard timber arrived round from Howe Sound consigned to Messrs. Wintemute Bros., of New Westminster. The timber consists of maple, birch, ash and other hard woods, and among the maple there is some which is extraordinary in its way. This consists of a number of planks of bird's eye maple, many of the planks measuring as much as twenty-four inches across, and from twenty to twenty-eight feet long. This timber is beautifully marked and will make up into magnificent furniture and interior decorations. The fact of bird's eye maple growing in this country will, no doubt, surprise many who imagine that this species of the genus *acer* is indigenous to Eastern Canada. Some experts who have seen the timber say it is quite equal to the best they have seen in the East.—Westminster, B.C., *Columbian*.

MR. R. A. BORDEN and others, of Moncton, N.B., have been incorporated as the "Thomas Nut Lock Company," with a capital of \$250,000, for the purpose of manufacturing the patent secured by Mr. C. H. Thomas. This nut lock has now been tested for about two years on different railways and has everywhere proved a complete success. The mechanical superintendent and president of the Electric Car Company in Boston have both given the highest testimonials of the value of the patent on the street cars, which is the severest test to which it could be put, and it has also been tested on the Intercolonial Railway for upwards of a year without a single adverse report. The company have commenced manufacturing in the lock factory works in Moncton, and will shortly be in a position to put the lock upon the general market. It is adapted to an infinite variety of uses, including not only railways, cars, etc., but all sorts of agricultural implements, carriages, etc., and owing to its simplicity it can be manufactured at a price that will permit of its general use.

THE evaporators (two) at Annapolis will shut down for this season on December 1st. Owing to scarcity of apples they are prevented from running into January as was intended, and as in ordinary seasons they will do on apples. Their capacity is over 1,000 bushels a day, using 100,000 bushels apples. Too large a quantity of apples that should have gone into the evaporators (this season) have been put up with apples for the English market. It is a significant fact that the districts that have furnished the least apples for the evaporators have turned out the most objectionable lots of apples for shipment. These evaporators will open in our country a large and almost unlimited market for some varieties of our small fruits—such as cherries, raspberries and blackberries—for the cultivation of which our soil cannot be surpassed in America. In some districts over the border portions of twenty to thirty acres of the farm are devoted to raising raspberries alone, for which they find a ready cash market at remunerative prices at their doors for evaporation. The best markets for these evaporated small fruits as well as apples, are in Great Britain and Europe, making us independent of the United States market, which must be ours too as soon as the Protection walls are levelled. Let your motto be

continents for Canada, and not as now Canada for monopolists.—  
*Kentville New Star.*

Messrs. ROBIN & SADLER, manufacturers of leather belting, Montreal and Toronto, are also manufacturing a belt dressing, regarding which they say: "Having long felt the necessity of supplying our customers with a proper belt dressing, we have studied the matter from time to time, and with our knowledge and experience in the manufacture of belt leather, have succeeded in preparing a grease that we can confidently offer to users of leather belting. The majority of belt oils in the market cause a belt to become sticky and spongy by penetrating and destroying the fibre of the leather, while most of the belt grease for sale is of a sticky resinous nature that gums upon the surface of the belt, and is very injurious. Our dressing is free from all these objections, for, while making the belt pliable and smooth on the surface, so as to come into close contact with the pulley, it will not saturate or gum the leather, and as a very small quantity is required to produce good results, it will be found twenty-five per cent. cheaper than any other preparation. Especially do we recommend this dressing for use on all belts that are run at a high rate of speed, such as electric dynamo belts, etc." This dressing is put up in cans holding from five to fifty pounds each. Messrs. Robin & Sadler are also offering to belt users Snow's soft steel belt fastener, which they say is the acme of perfection and the safest fastener which can be applied for fastening a belt. The excellent quality of soft steel used in its manufacture will readily be recognized by mechanics as far superior to most other fastenings now in use.

THE Richelieu Woolen Mills Company, of Chambly, Canton, Que., of which Mr. S. T. Willett is proprietor, has a plant covering about fifteen acres of ground. Back in 1824, nearly three score years and ten, the father of the present senior of the Richelieu Woolen Mills began in a small way the manufacture of Etoffe du pays. His faculties at that time were somewhat limited, but he continued on until 1830, when the foundation of the vast and productive interests now flourishing at this point was laid. Mr. S. T. Willett, son of the original founder, took possession and began the manufacture of tweeds in 1848. In 1881 a large new building was added to complete their flannel mill, which is now regarded as one of the finest in all points of mechanical equipment in the Dominion. It has ten sets of cards and a capacity for one million yards of flannel annually. During that year, 1881, they also erected another mill, with one set of cards and all other machinery, especially devoted to the manufacture of woolen blankets. They do a very large business in this line. But their building record in that year did not stop at these two new woolen mills. They also erected, in 1881, a large cotton mill, representing 7,000 spindles and 160 looms. They immediately leased the cotton mills and power to the Chambly Cotton Co., who furnished it with all equipment. The principal owners of the Chambly Cotton Company are Messrs. Rankin, Beattie & Co. Other enterprises here, of which Mr. S. T. Willett is proprietor, are a shovel and spade factory, which was established in 1870. These works have a daily capacity of twenty dozen shovels. There is also grist mill belonging to this fine manufacturing property, capacity for five run of stones. Chambly has a fine water power, and the transportation facilities for shipping the manufactured products, or for receiving the raw material worked up here, could hardly be improved upon, either by the Chambly Canal to the United States, or via Richelieu River, which empties into the St. Lawrence at Sorel, and by all rail routes to Montreal.

#### ST. STEPHEN, N.B.

THE town of St. Stephen, N.B., is situated on the St. Croix river, opposite the town of Calais, Maine. Adjoining St. Stephen, and a suburb thereof, is Milltown, the population of the two averaging about 7,000 souls. It is well situated as a manufacturing centre, its railway connections being the Canadian Pacific and the Intercolonial railways; and it has steamboat connection with St. John and other Canadian, and with American ports. It is nearer to Montreal and the west by fifty miles than St. John.

Among the chief industries of St. Stephen are the St. Croix Cotton Mills, one of the best equipped factories in Canada; the confectionary factory of Messrs. Ganong Bros., the largest concern of the sort in the Maritime Provinces, if not in all Canada, and the St. Croix Soap Manufacturing Company's works. These three establishments find many of their largest and best customers in Ontario and Quebec.

St. Stephen is not a large town in the matter of population, but it challenges any town of its size in Canada to produce any more

flourishing and well equipped factories than those here mentioned. The cotton mill is too well known to require special mention, but a few words would not be amiss in regard to the confectionery establishment of Messrs. Ganong Brothers, and the works where "Surprise" soap is made. The confectionery factory gives employment to from 125 to 150 hands; and an indication of the amount of business done there is the fact that recently a shipment of thirty-five tons of its products was made to Winnipeg, Man., competing successfully against more western makers. The "Surprise" soap of the St. Croix Company has achieved a wonderful character for itself. For years its sale in the Maritime Provinces has been exceedingly large; and this great success in the east has induced the manufacturers to "try their luck" in central and western Canada, and in doing this they have advertised it most liberally, and at an expense of many thousands of dollars, to make its merits known to the Canadian public. The factory is a three and a-half story building, 100 x 60 feet, and equipped throughout with the latest and most improved machinery and appliances. There are five immense kettles or boilers used for manufacturing the soap, the largest of which has capacity to turn out eighteen tons of soap at a boiling.

There are many other manufacturing concerns in St. Stephen other than those here alluded to. Messrs. Vroom Bros are large manufacturers of furniture; Mr. C. N. Vroom is a large manufacturer of lanigans, slippers, etc.; Messrs. C. N. Vroom & Co. manufacture carbonized drain pipe, etc., and Messrs. E. Broad & Son manufacture axes, edge tools, etc., and the saw mill and lumbering industry is very large.

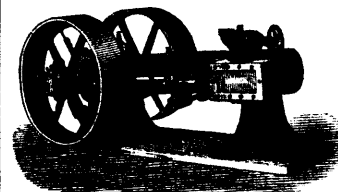
St. Stephen is willing and anxious to welcome factories and industries of any kind, and would make liberal concessions to any such. The town is supplied with a good, efficient and cheap water service, has electric light, a telephone system, two banking institutions, the taxes are low, and is, in every way, a pleasant and profitable town for live energetic men to live in.

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These three numbers contain the following reading matter:—(1) Mrs. Amelia E. Barr's new serial, "The Beads of Ta mar." Mrs. Barr is the author of that most successful serial, "Friend Olivia," just completed in *The Century*; but hereafter Mrs. Barr will write exclusively for *The New York Ledger*. (2) Hon. George Bancroft's description of "The Battle of Lake Erie," beautifully illustrated. (3) Margaret Deland's latest story, "To What End?" (4) James Russell Lowell's poem, "My Brook," written expressly for *The Ledger*, beautifully illustrated by Wilson de Meza, and issued as a four-page souvenir Supplement. (5) Mrs. Dr. Julia Holmes Smith starts a series of articles giving very valuable information to young mothers. (6) Robert Grant's entertaining society novel, "Mrs. Harold Stag." (7) Harriet Prescott Spofford, Marion Harland, Marquise Lanza, Maurice Thompson and George Frederic Parsons contribute short stories. (8) James Parton, M. W. Hazeltine and Oliver Dyer, author of "Great Senators," contribute articles of interest.

In addition to the above, Sparkling Editorials, Illustrated Poems, Helen Marshall North's Chatty Column, and a variety of delightful reading of interest to all members of the household. The foregoing is a sample of the matter which goes to make up the most perfect National Family Journal ever offered to the American people. Send Ten Cents for these three numbers and judge for yourself, or send only Two Dollars for a year's subscription to

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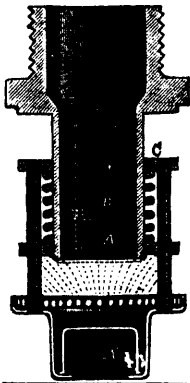
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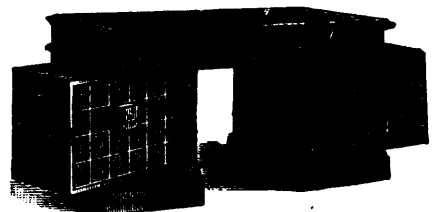
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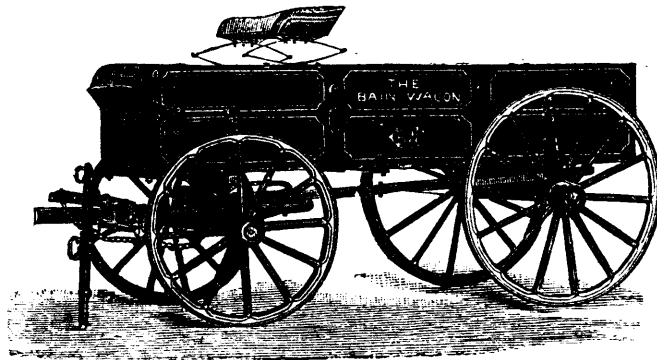
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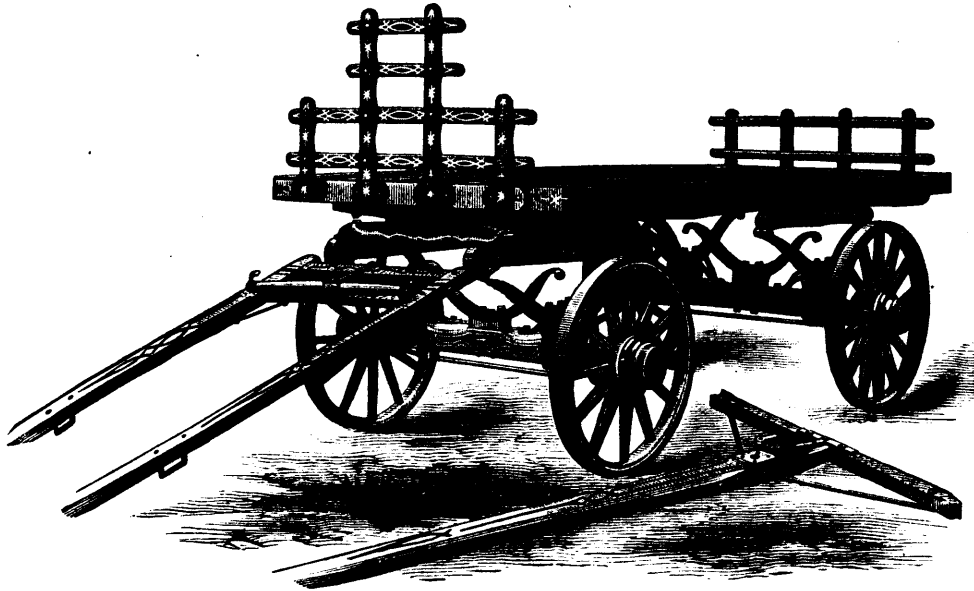
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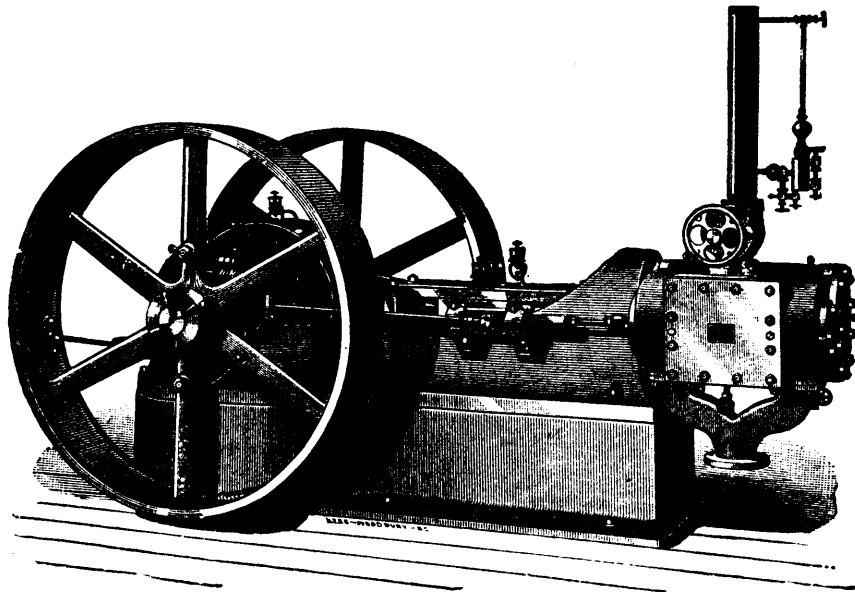
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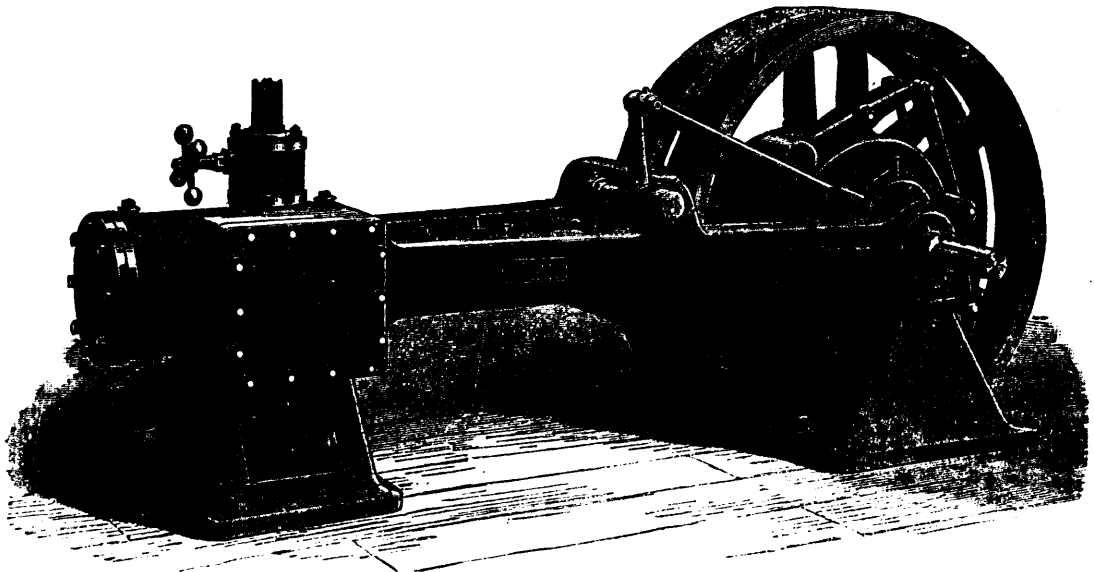
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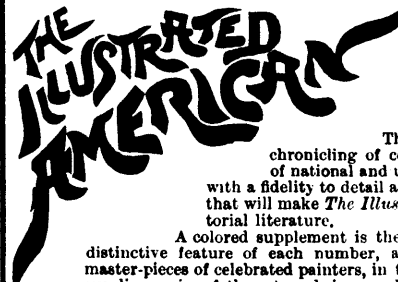
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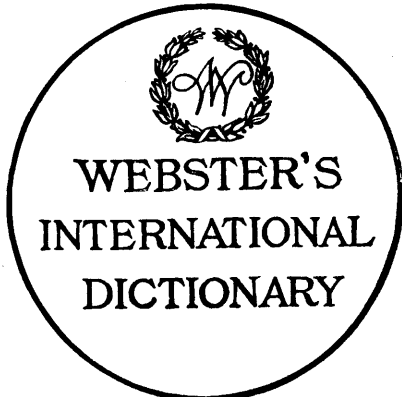
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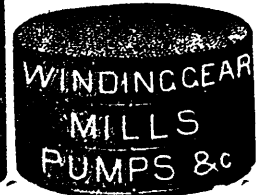
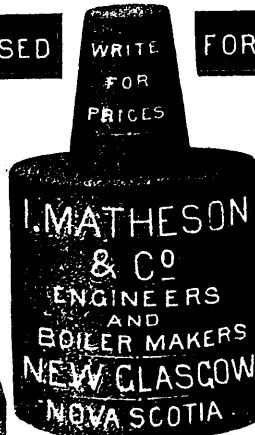
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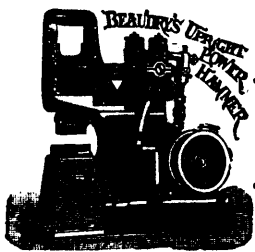
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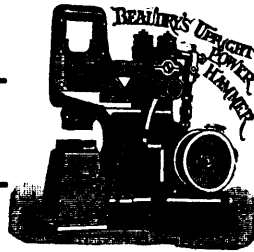
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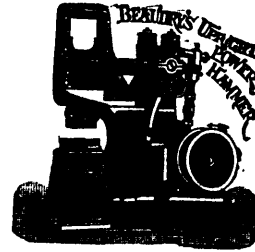
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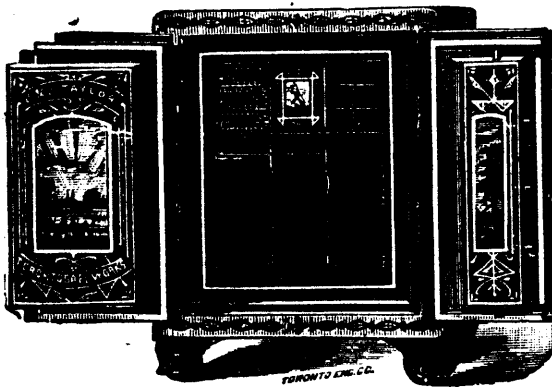


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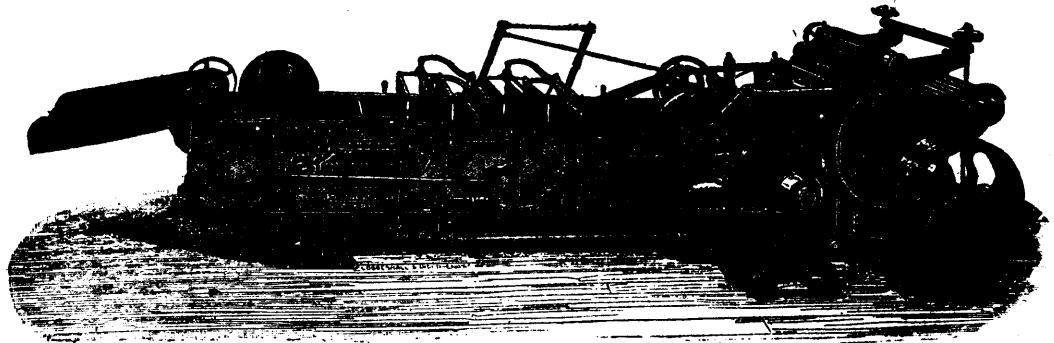
**C.G. Sargent's Sons**

Graniteville, Mass.,

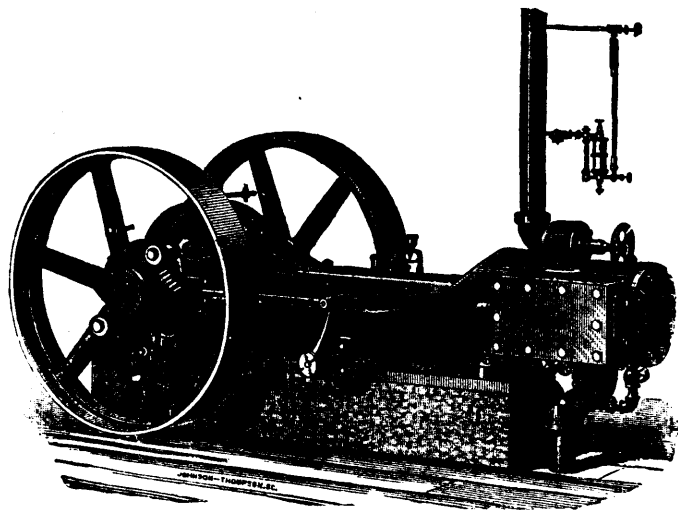
U.S.A.

Builders of Wool Washers.

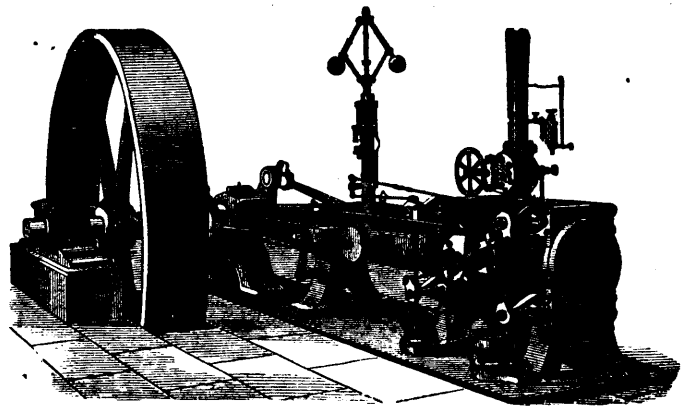
Burr Pickers, Wool  
Dryers, etc.



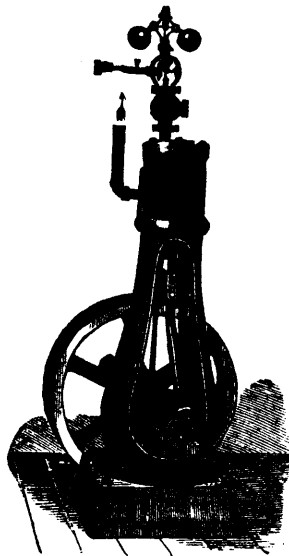
The above represents our New Hydraulic Wool Washer, superior to Rake Machine. Send for Illustrated Catalogue.



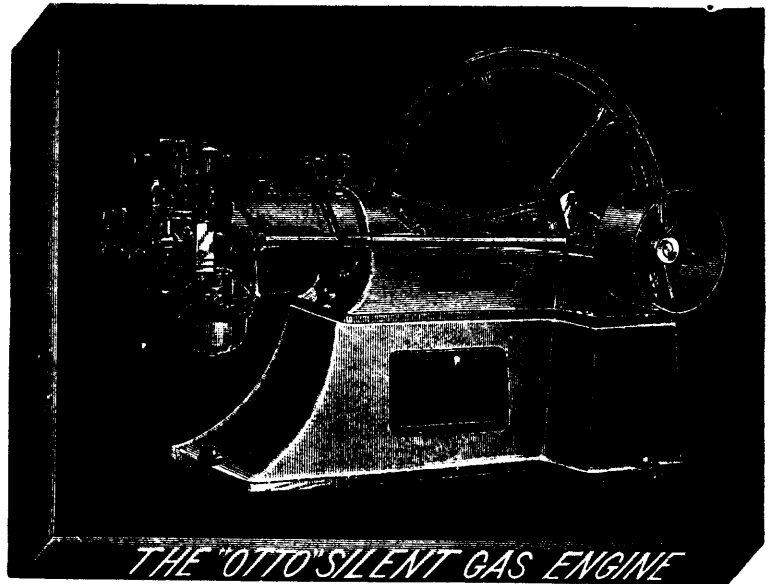
Armington & Sims Electric Light Engines.



Reynolds-Corliss Engine.



Vertical Engines.



# John Doty Engine Co.

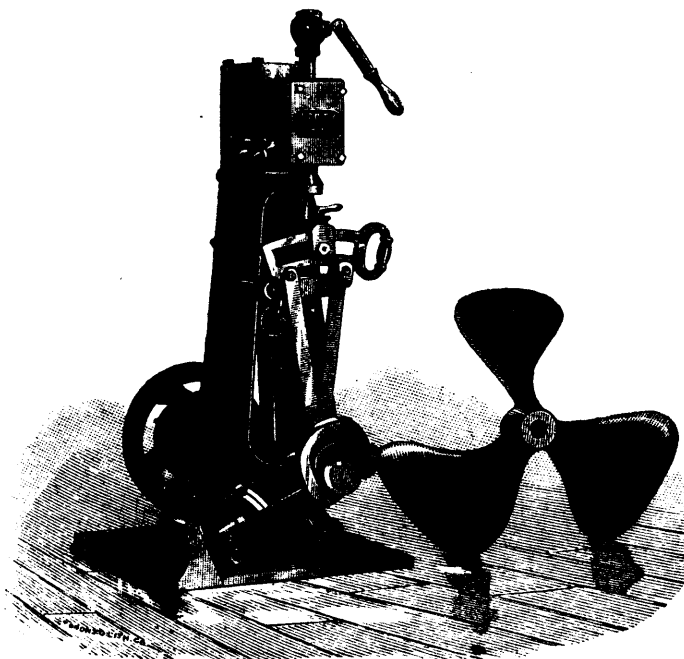
TORONTO, ONT.

MANUFACTURERS OF

# Engines & Boilers

OF EVERY DESCRIPTION.

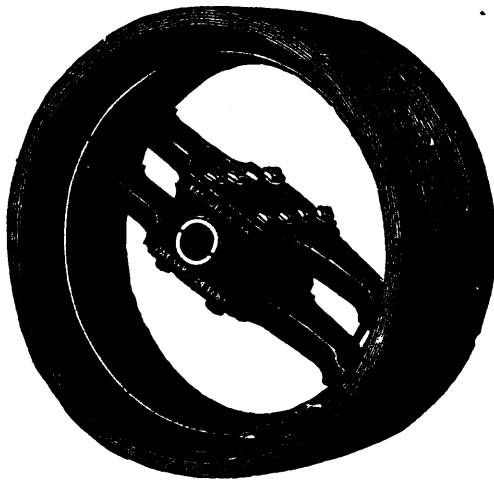
SEND FOR CATALOGUES.



Yacht Engines.

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# The DODGE "INDEPENDENCE" WOOD SPLIT PULLEYS



**WITH PATENT BUSHING SYSTEM**

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

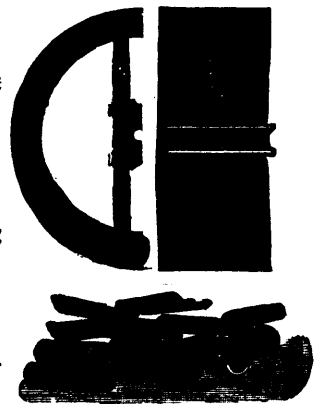
**EVERY PULLEY A SPLIT PULLEY.**

*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.*

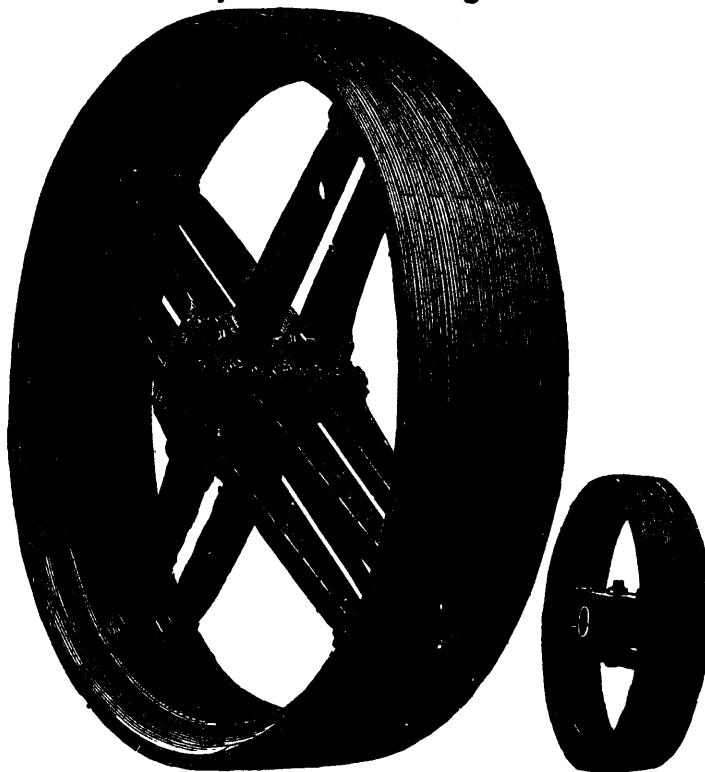
### READ THE FOLLOWING.

NORTHWESTERN MANUFACTURING & CAR COMPANY,  
SHATTO & DENNIS, MINNEAPOLIS, MINN. STILLWATER, MINN., August 15, 1884.  
*Gentlemen:* You ask why we use the Dodge Patent Pulley. I answer because we consider them the cheapest, most convenient and satisfactory in all particulars.  
Yours truly,  
S. R. STIMSON, General Manager.

OFFICE OF NEWTON WAGON CO.,  
C. L. RICE, AGENT, CHICAGO, ILL. BATAVIA, ILL., Feb. 17, 1885.  
*Dear Sir:* Replying to your favor, will say that after using the Dodge Wood Split Pulley for a year or more we are satisfied they are a good thing, if not the best Pulley made, and shall use them hereafter in preference to any other we know of.  
Yours truly,  
NEWTON WAGON CO.

We have sold these pulleys for one year, and they have been put to every kind of service, and their popularity is wonderful. We refer to the following users for proof of the above statements: Pillsbury & Hulbert Elevator Co., Minneapolis; R. M. Pratt & Co., Elevators; Northern Pacific Elevator Co.; The Pacific Elevator Co.; Minneapolis Harvester Works; Minneapolis School Furniture Co.; M. & St. L. R. R. Co.; Willford & Northway; Washburn, Crosby & Co.; St. Paul Electric Light Co.; St. Paul Roller Mill Co.; Minneapolis Brick Co.; N. W. Mfg. & Car Co., Stillwater, Minn., and very many others.  
SHATTO & DENNIS, MINNEAPOLIS MINN.

THE WORLD'S INDUSTRIAL AND COTTON CENTENNIAL EXPOSITION,  
W. H. DODGE, PREST. NEW ORLEANS, March 19, 1885.  
DODGE MFG. CO., MISHAWAKA, IND.  
*Dear Sir:* I have a number of your Patent Wood Split Pulleys in use here at the Worlds Fair and Cotton Centennial Exposition, driving Dynamos for Electric Lighting. They are doing heavy work, and are held upon the shaft by the compression of wood on iron. They hold firmly, and do not slip. I have watched with a great deal of interest the many Pulleys of your make running at this Exposition; and I think them the best Pulley I have ever seen. I believe them to possess the following points of merit over any other Pulley: All Pulleys being split or in halves; best belt surface; best shaft fastening; best method of utilizing Pulleys to shafts of different sizes; best balance; lightest on the shaft; strong, and I believe durable. I heartily recommend them.  
Yours very truly,  
S. H. GILMAN,  
Chief Consulting Engineer.



### Waste of Power.

According to the best scientific authority it costs 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 costs 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 shall hereafter keep in stock for immediate shipment all sizes.

*Send for Illustrated Circular and Reference List.*

## THE DODGE WOOD SPLIT PULLEY CO.,

FACTORY.—  
West Toronto Junction.

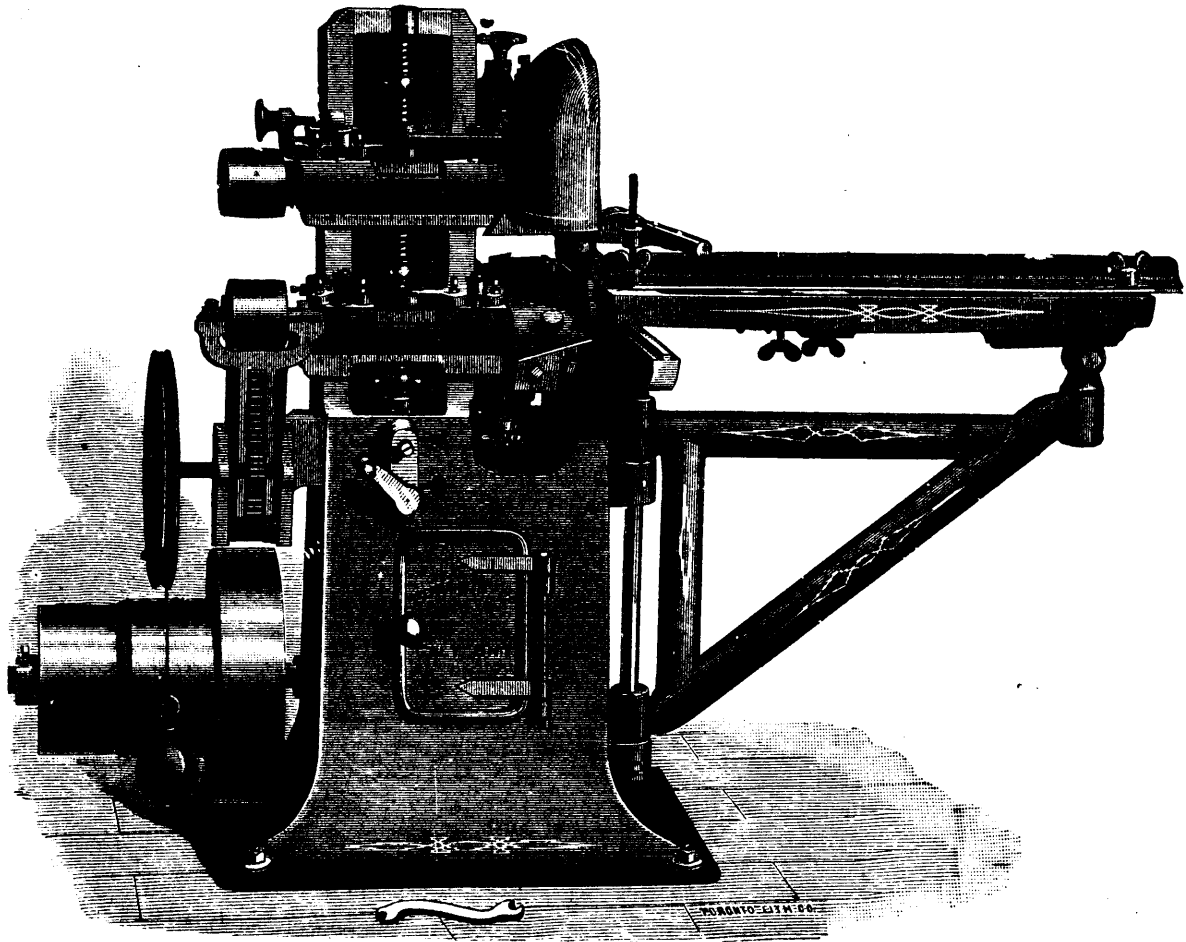
### TORONTO.

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**

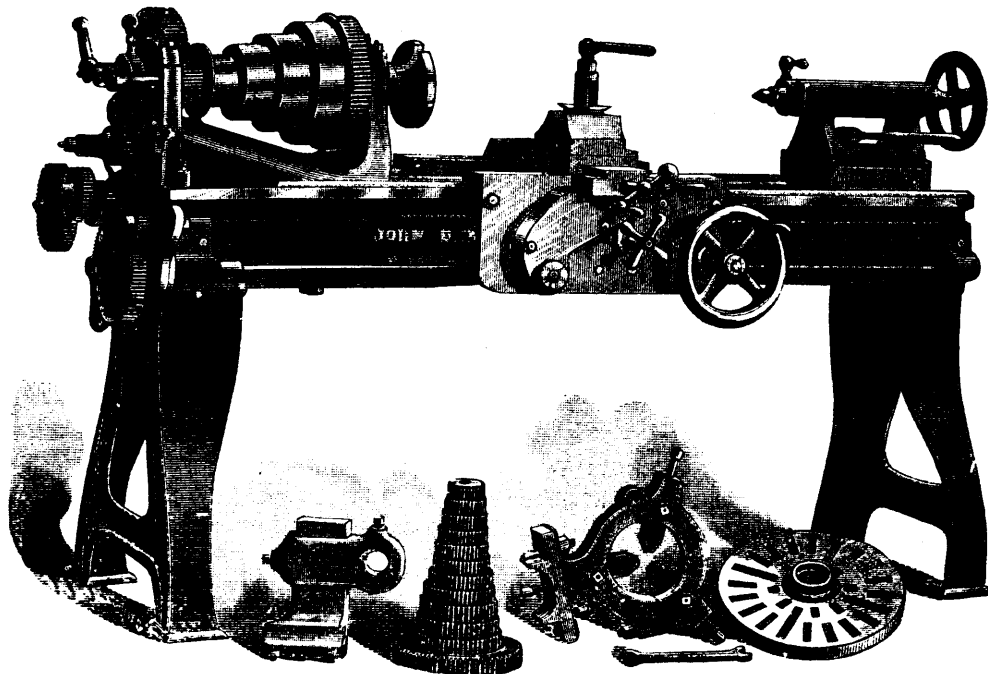
*Cortias and Slide Valve Engines, Boilers, and Wood-Working Machinery, all kinds New Patterns, Highly Finished.*



Canada Tool Works,

# John Bertram & Sons,

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16-in. LATHE.

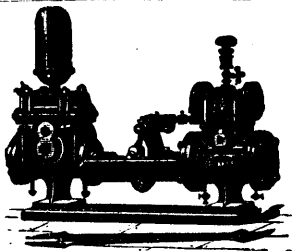
Manufacturers  
of  
**Machinists' Tools**  
and  
**Woodworking  
Machinery.**

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

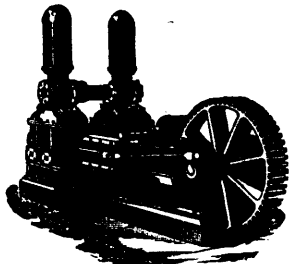
Locomotive and Car Machinery, Special Machinery, Price List and Photographs on application.

Warerooms: Permanent Exhibition, Toronto; Polson Engine Co, 38 Yonge St.; Machinery Supply Ass'n, Montreal.

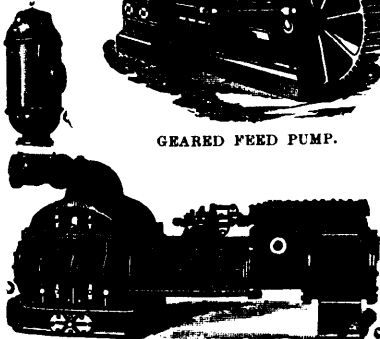
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BOILER FEED PUMP.



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DUPLEX COMPOUND ENGINE

BUILDERS OF

SINGLE AND DUPLEX

Steam and Power

### Pumping Machinery



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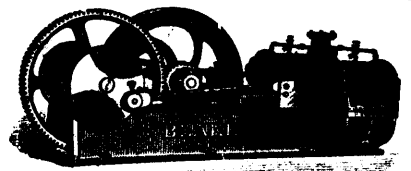
FEDERAL STREET

NEW YORK

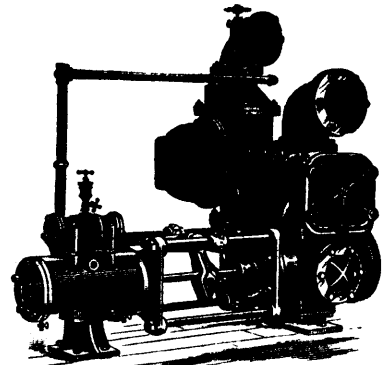
95 & 97 LIBERTY STREET.

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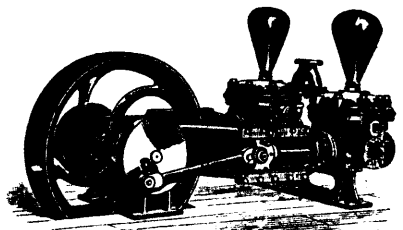
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AIR PUMP AND CONDENSOR.



BELT PUMP.

# *Nova Scotia Steel Co., Limited,*

NEW GLASGOW, NOVA SCOTIA

(Only Steel Works in Canada),

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## Hammered *and* Rolled Steel

MADE BY THE

SIEMENS-MARTIN (OPEN HEARTH) PROCESS.

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

SPECIAL SECTION PLOW BEAMS, MILD STEEL CENTRE AND SOLID MOULD BOARDS,  
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AGRICULTURAL STEEL CUT TO PATTERN, SPRING, SLEIGH SHOE, TYRE, TOE CALK AND CROSS BAR STEEL  
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Particular attention given to the manufacture of Rake, Cultivator and Harrow Teeth, and other  
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WHERE MANY SIZES MAY BE SEEN IN STOCK.

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 CLOSE PRICES. LIBERAL TERMS.

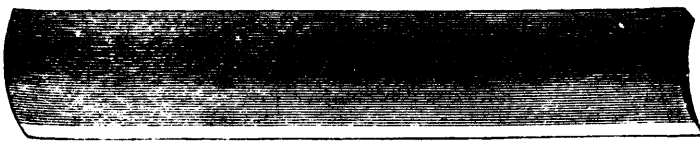
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**GALT MACHINE KNIFE WORKS.**

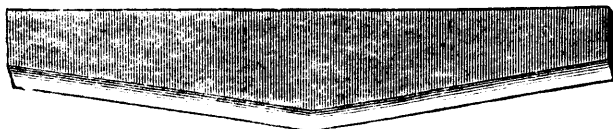
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 KNIVES.



STAVE CUTTER KNIVES.



STAVE JOINTER KNIVES.

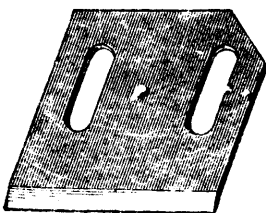


MOULDING, TENONING

MITREING,

SHINGLE JOINTER,

And other irregular shapes.

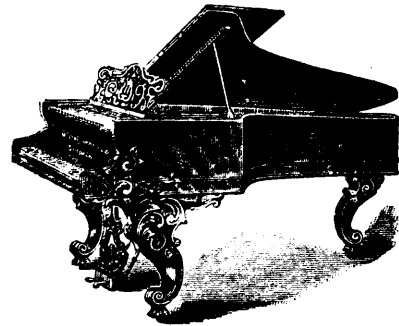


Cheese-box and Veneer, Paper Cutting. Leather Splitting and any special knife made  
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- Star Brand—BEAM WARP.
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**ELECTRIC - LIGHT - PLANT**

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Two 25 Light Ball Dynamos. Mica  
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## MALLEABLE IRON

CASTINGS TO ORDER

FOR ALL KINDS OF

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AND

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Oshawa, Canada.



## HICKORY PULLEYS.

We make only hardwood bent  
rim spoke arm split pulley; only  
small split pulley; only split loose  
pulley with oilless bearings; only  
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Send for discounts and circulars.

**Menasha Wood Split Pulley Co.**

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## SMITH'S FALLS MALLEABLE IRON WORKS WM. H. FROST

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### Malleable Iron Castings

FOR

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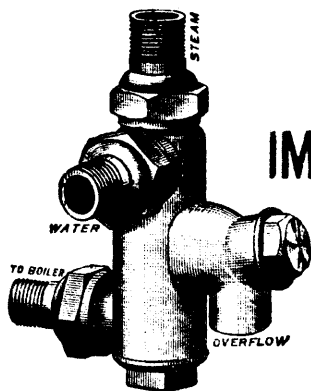
Also CARRIAGE HARDWARE.

**SMITH'S FALLS,**

Ontario, Canada.



This Space for Sale.



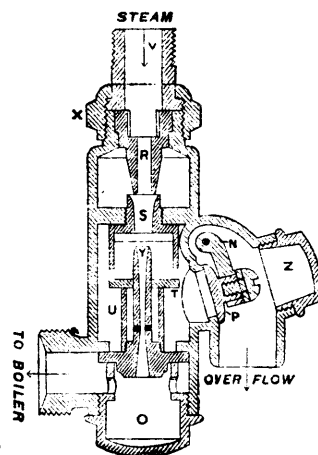
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