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CANADIAN MANUFACTURER
 AND INDUSTRIAL WORLD
 DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

VOL. 40.

TORONTO, JANUARY 19, 1900.

No. 2.

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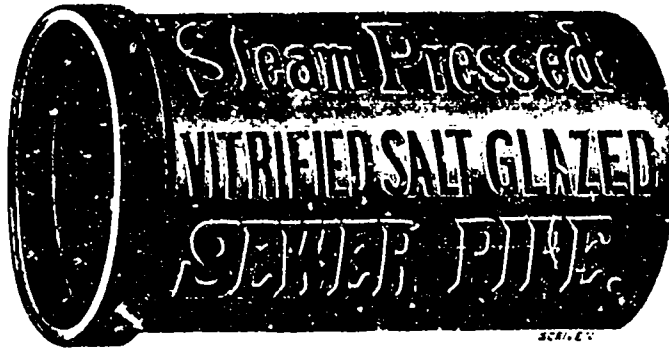
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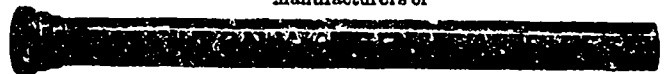
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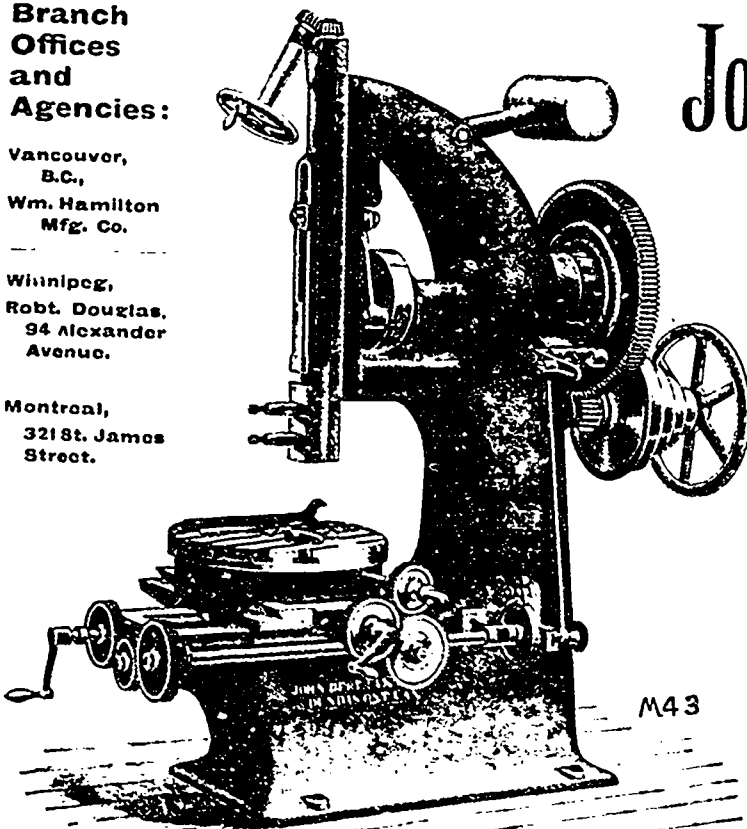
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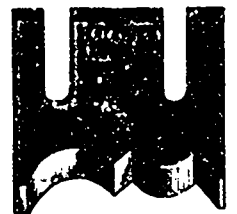
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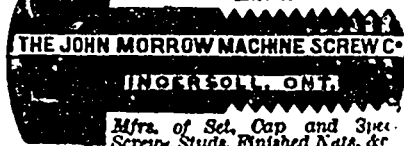
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Manufacturers of
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HOT PRESSED NUTS.

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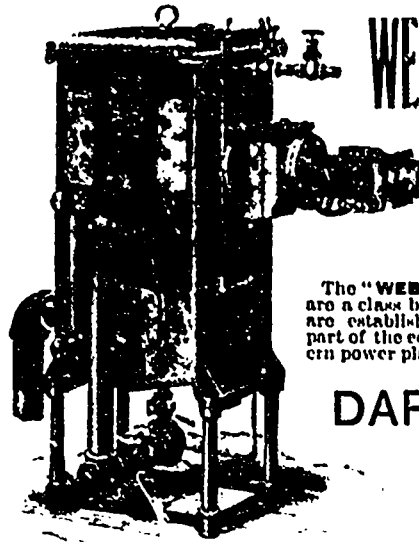
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The need for a Feed Water Heater is recognized.
It should not be taken for granted that all Feed
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The "WEBSTER" Heaters
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No other Feed Water Heater
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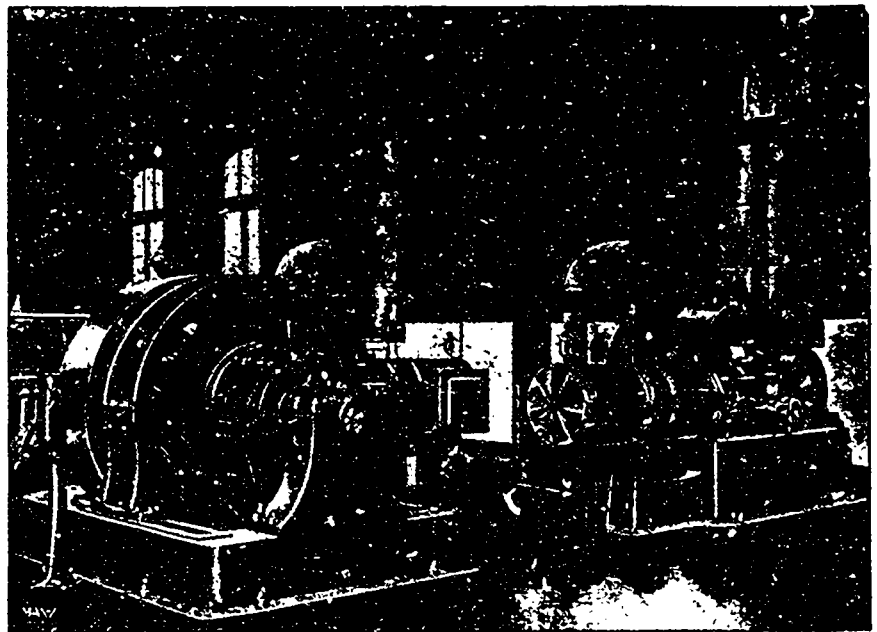
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These engines are installed in the power house of the electric
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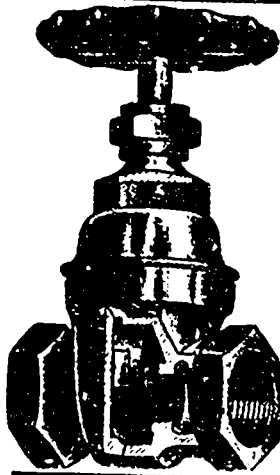
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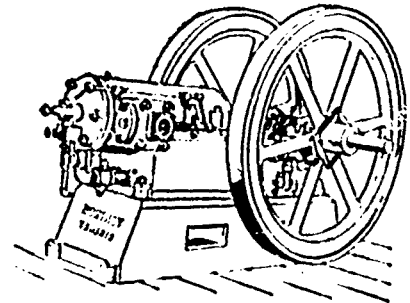
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We have equipped some of the largest manufactories in Canada with our Feed, General Service and Staff Pumps. In no case have they failed to give entire satisfaction, nor in proving that the Northey Pumps for all duties are unsurpassed for design, up-to-date features and reliability.

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The largest machinery builders in Canada and United States use our Babbitt Metal. Is this not sufficient proof of its superiority over other anti-friction metals? If the largest users are satisfied with our Babbitt Metals, why should it not suit you? We can furnish you with numbers of testimonials.

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BEATS THEM ALL

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 TYPE METALS

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SYRACUSE SMELTING WORKS,

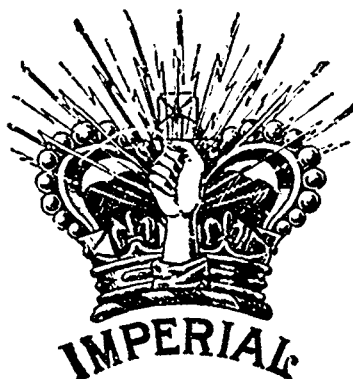
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WHEN YOU SEE

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SOCKETS
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PUBLISHED ON THE FIRST AND THIRD FRIDAYS OF EACH MONTH

SUBSCRIPTIONS :

CANADA AND UNITED STATES, - - - \$1.00 PER YEAR.
ALL OTHER COUNTRIES IN POSTAL UNION, EIGHT SHILLINGS
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The Canadian Manufacturer Publishing Co., Limited.

McKinnon Building, Cor. Melinda and Jordan Sts., Toronto.

J. J. CASSIDY, - - - Editor and Manager

THE IRON AND STEEL BOUNTIES.

An Act to provide for bounties on iron and steel made in Canada, passed by the Dominion Parliament and assented to on June 29, 1897, provides as follows :—

1. The Governor-in-Council may authorize the payment of the following bounties on steel ingots, puddled iron bars, and pig iron made in Canada, that is to say :

On steel ingots manufactured from ingredients of which not less than 50 per cent. of the weight thereof consists of pig iron made in Canada, a bounty of \$3 per ton.

On puddled iron bars manufactured from pig iron made in Canada, a bounty of \$3 per ton.

On pig iron manufactured from ore, a bounty of \$3 per ton in the proportion produced from Canadian ore, and \$2 per ton in the proportion produced from foreign ore.

2. The said bounties shall be applicable only to steel ingots, puddled iron bars, and pig iron made in Canada prior to April 23, 1902.

3. The Governor-in-Council may make regulations in relation to said bounties in order to carry out the intention of the Act.

Pursuant to the provisions of this Act the following regulations have been established for the payment of said bounties, that is to say :

1. A bounty of \$3 per ton shall be paid on all steel ingots manufactured in Canada after June 28, 1897, and prior to April 23, 1902, from ingredients of which not less than fifty per cent. of the weight thereof consists of pig iron made in Canada.

2. The manufacturer shall not be entitled to receive such bounty unless and until he has furnished to the Minister of Customs satisfactory evidence that such steel ingots were manufactured in Canada from ingredients of which not less than fifty per cent. of the weight thereof consisted of pig iron made in Canada.

The regulations for the payment of bounty on puddled iron bars provide :

1. A bounty of \$3 per ton shall be paid on all puddled iron bars manufactured in Canada after June 28, 1897, and prior to April 23, 1902, from pig iron made in Canada.

2. The manufacturer shall not be entitled to receive such bounty unless and until he has furnished to the Minister of

Customs satisfactory evidence that such puddled iron bars were manufactured in Canada from pig iron made in Canada.

The regulations for the payment of bounty on pig iron provide :

1. On pig iron manufactured in Canada from ore after June 28, 1897, and prior to April 23, 1902, there shall be paid a bounty of \$3 for each ton produced from Canadian ore, and \$2 for each ton produced from foreign ore.

2. The manufacturer shall not be entitled to receive such bounty unless and until he has furnished to the Minister of Customs satisfactory evidence that such pig iron was manufactured in Canada from ore.

The claims for bounty upon all steel ingots, puddled iron bars, and pig iron here alluded to, shall be made and substantiated to the satisfaction of the Minister of Customs within four months after the completion of the respective articles on which such bounty is claimed.

These regulations were made and approved by Order-in-Council, July 19, 1897.

As will be observed, the Act above referred to applies only to iron and steel made in Canada prior to April 23, 1902, but an Act assented to August 11, 1899, extends the bounties from April 23, 1902, for five years further, upon a gradually reducing scale. This Act provides :

1. That at the expiration of the time specified for the operation of the previous Act, the provisions of that Act shall not come to a sudden end, but shall continue with gradual reduction until 1907, when the bounty shall be one-fifth of the amount fixed by the Act of 1897, for an indefinite period, of course unless otherwise ordered by legislative authority.

2. At present the bounty is paid on puddled bars, also on steel ingots made from puddled bars, either foreign or Canadian ; but after 1902 the bounty will only be paid on steel ingots made direct from the ore.

In his speech introducing the measure, Hon. Mr. Fielding, Minister of Finance, said that the effect would be that in each year of the new period, namely, from April 23, 1902, the bounty would be as follows :—

First year	\$2 70
Second "	2 25
Third "	1 05
Fourth "	1 05
Fifth "	60

These rates being paid on steel billets, steel ingots, puddled bar iron, and on iron made from Canadian ore.

In the case of pig iron made from foreign ore, the bounty on which is now \$2 per ton, the schedule under the Act of 1899 is :

First year	\$1 80
Second "	1 50
Third "	1 10
Fourth "	70
Fifth "	40

The original resolution upon which the 1899 Act is based, proposed that the bounty should cease on June 30, 1907, but that feature does not appear in the Act.

The precise terms of the gradual reduction of these bounties, as set forth in the Act of 1897, specifies in the Act of 1899, are as follows :—

From April 23, 1902, to June 30, 1903.	90 per cent.
From July 1, 1903, " " 1904.	75 "
" " 1904, " " 1905.	55 "
" " 1905, " " 1906.	35 "
" " 1906, " " 1907.	20 "

And that no bounty shall be paid under this Act on steel ingots made from puddled iron bars manufactured in Canada.

THE PREFERENTIAL TARIFF.

An Ottawa correspondent of The London Economist has been measuring up the situation, having reference to the preferential tariff and its effect upon the trade of the country. He shows that during the fiscal year ending June 30, 1899, our export reached a total value of \$159,000,000, of which \$99,000,000 worth went to the United Kingdom, and \$36,000,000 to the United States. The total imports for the same year attained a value of \$152,000,000, of which amount \$37,000,000 emanated from the United Kingdom, and \$91,000,000 worth from the United States. A preferential tariff of 12½ per cent. in favor of British imports came into force in April, 1897, the preference being increased to 25 per cent. on July 1, 1898, where it has stood ever since. As the Belgian and German treaties were not abrogated until August, 1898, goods imported into Canada by Belgium and Germany up to that date enjoyed the same favors as Great Britain. The preference, however, does not seem to have had so much effect as it was hoped it might. The Economist's correspondent in summing up the subject, says:

It is not easy to determine exactly what has been accomplished for British trade by the preferential tariff. In some lines of goods it has undoubtedly helped the British exporter to hold his own. But the broad fact remains that whilst imports from the United Kingdom have increased from \$33,000,000 in 1896 to \$37,000,000 under the preference our (Canada's) imports from the United States, although discriminated against, have risen in the same period from \$59,000,000 to \$91,000,000.

Discussing which, The Philadelphia Manufacturer says:

Some explanations of this rather singular result are attempted, though none seem to be better than those which follow. The home industries of Canada have already got a good start, and they need raw materials, such as cotton, coal, hides and skins, and wool. These can be better procured in the United States, of course, than anywhere else. It would be absurd to go to Europe after them. "Then again" the correspondent observes, "there has been a great cheapening of American manufactured goods in the last twenty years. This is particularly noticeable in iron and steel. In the five years from 1882 to 1886, 59 per cent. of all our iron and steel imports came from the United Kingdom, and 30 per cent. from the United States, whereas for the five years, 1894-8, we got only 31 per cent. from the United Kingdom, and 66 per cent. from the United States. Just now, owing to the difficulty in getting orders filled in the States, Canadians are sending orders to England for plates, beams, angles, and the heavier kinds of goods, but when the boom subsides the Americans are sure to gain what they have lost of late in this way."

Another consideration is of great importance. The correspondent says: "In considering the remarkable decline since 1873 in Canadian imports from the United Kingdom with the corresponding growth of Canadian imports from the United States, it is well to bear in mind that the social and physical conditions in Canada so closely resemble those in the United States that the American manufacturer can just as easily make goods for the Canadian as for the American farmer, whilst in many lines, e.g., implements, wagons, and buggies, furniture, certain lines of cotton, etc., English made goods are not adapted for either." In other words, the Canadian Government is now trying to do what it is ridiculous to try to do. The place to look for trade alliance is in the United States, not in England. No amount of legislation can check the flow of trade between the United States

of America and the Canadian Dominion. The people are too close together, too much alike, and they are connected with too many shipping lines and railroads.

The amusingly ridiculous feature of our American contemporary's argument is that the place for Canada to look for a trade alliance is in the United States, while at the same time that country's Dingley tariff forbids the encouragement of anything like fairly reciprocal trade.

GOOD ROADS.

One of the most important movements going on in Ontario is that looking to the improvement of the highway roads throughout the Province. A conference or convention of those interested in the matter was recently held in Toronto, in which Mr. A. W. Campbell, Provincial Road Instructor, took part, the general sentiment being that the different counties should assume the construction and maintenance of the public highways within their respective boundaries, instead of leaving it to the township and other minor municipal organizations, and that the Provincial Government should render such aid as might appear necessary.

Hon. E. J. Davis, Commissioner of Crown Lands, in an address to the convention, stated that the question of transportation was one of the greatest of the age, and the farmer who could get the easiest and the cheapest from his barn door to the markets would come out best in the competition of to-day. This was especially the case since the development of the butter and cheese industries, which occasioned so much travelling on the highways. In the United States rural mail delivery was being experimented upon successfully, and if that is followed here, the necessity of good roads will be even greater.

As to the question of cost, Mr. Davis said the expenditure of money was a matter that required very careful consideration. He ventured to say that the masses of the people would not readily approve of any scheme which would mean largely increased taxation upon them. He believed that the present expenditures could be put to a much better advantage than they were at present. In this connection Mr. Davis commended the scheme of Mr. Campbell to improve the present roads as a good one.

The proposal to take the control of the roads from the smaller municipalities was one which might arouse some opposition from the latter in the country. Mr. Davis urged very careful consideration of any request which might be made to the Legislature, and concluded by saying that anything the Government could properly do in the interests of all the people of the province to aid them in the work, they were prepared to do.

Mr. Campbell rejoiced that the convention raised the good roads question from a purely local one to the importance of a national issue. He referred to the magnificent roads of Hastings county, which were as smooth as billiard tables, while in many other districts, such as the "Metropolitan County of York," mud was ankle deep on the highways. In Ontario we were spending annually 1,100,000 days of statute labor. Under this extravagant and inefficient system the roads were to be kept up, but in addition to this labor, every county expended from \$3,000 to \$6,000, or even \$10,000 a year, or in the whole province \$3,500,000. In the last ten years in labor and money about \$42,000,000 had been ex-

pended on the roads of Ontario. He had no hesitation in saying that such an expenditure properly used would gravel and macadamize every road in the province, including the back concessions.

Continuing, Mr. Campbell spoke of the Statute Labor Law as having done excellent work in pioneer days in clearing the forests from the highways, but in its present form it had outlived its usefulness.

THE CANADIAN MANUFACTURER suggests to Mr. Davis, and to the Ontario Government, that, under proper regulations, the labor of the convicts now in our penal institutions could be utilized to good advantage in constructing our public highways and keeping them in good repair. During the cold season they might be employed under proper shelter in preparing macadam and other materials, and, in pleasant weather, constructing the roads. It would be better to thus employ the convicts than to utilize their labor in factories and workshops in competition with free labor.

CANADIAN AGRICULTURAL PROSPERITY.

A few days ago Hon. Sydney Fisher, Minister of Agriculture, delivered an address in Montreal in which he gave a most favorable account of the agricultural prosperity of the country. To show the immense expansion in the growth of agricultural products he said that during the past four months, during which the greater part of these products were exported, the total exports were \$69,500,000, as compared with only \$48,500,000 in 1895. Of the total no less than \$38,500,000 represented agricultural products and \$30,000,000 all other exports. The farmer's position is, therefore, good, for the yield was large and the prices good. The price of grain was only fair, but the prices realized for live stock were the best in years. This was due to the improved skill in methods imparted by the Department of Agriculture. The country reaped a profit it never did before through the careful activity of that department. The exports of cattle from Montreal were not as large as in other years, owing to the scarcity of freights and the large number of Canadian cattle shipped from American ports. Through the development of the west the ranchers got better prices than they ever did before. He knew of a case where the whole output of a ranch sold for \$55 per head.

The exports of butter leaped from 32,000 packages in 1893, when there was no cold storage, to 220,000 packages in 1897, when he introduced mechanical cold storage and bonuses to creameries, and 456,000 packages in 1899, when the farmers had the full benefit of this system. The price realized in England during the past season was two cents higher than for many years past, and Canadian butter was fully established in competition with the Danish article. But while the export of butter had been so augmented, there was no detriment to the cheese export trade.

Regarding the tariff, Mr. Fisher showed that the average duty was reduced from 18.28 per cent. in 1896 to 16.68 per cent. in 1899, or, leaving out coin and bullion, from 19.19 per cent. in 1896 to 17.20 per cent. in 1899, a reduction of two per cent., which was equal to a reduction of 12½ per cent. of the duty. The total trade of the country increased from \$172,500,000 in 1878 to \$240,000,000 in 1896, an increase of \$68,000,000 in eighteen years, or about \$3,500,000 per

annum. In 1899 the total trade was \$321,000,000, an increase of \$82,000,000 in three years or \$27,000,000 per annum. Regarding the preferential tariff, he showed that our imports from Great Britain fell from \$43,400,000 in 1890 to \$29,500,000 in 1897, but rose to \$37,000,000 in 1899. The imports of dutiable goods from Great Britain increased from \$20,000,000 in 1897 to \$27,500,000 in 1899, an increase of thirty-six per cent. in two years, a fully satisfactory evidence of the preference. It was true that there was also a large increase of imports from the United States, but a large part of this was raw material for our manufacturers, which came in free. The increase of dutiable goods from Great Britain was five per cent. greater than the increase of dutiable goods from the United States, notwithstanding the proximity of that country and the greater ease of shipment.

CANADA AND THE WEST INDIES.

A Jamaica correspondent of The Canadian Gazette, of London, Eng., comments upon a recent article in The Halifax Industrial Advocate, dealing with trade questions between that port and the West Indies, in which it is shown that although that trade commenced as far back as 1774, it has not increased to any appreciable extent. He states that the weakest point in the question is prominently brought forward by The Advocate, when it states that the Halifax fish market is "particularly valuable to United States buyers, who are large distributors to various parts of the West Indies." The correspondent says that the Halifax merchant does not apparently seem to realize the importance of distributing at first hand. By employing the United States middlemen he loses his grip on the West Indian market, to say nothing of the steamship service for the carriage of freight and all the advantages accruing thereto.

From the figures given below it will be seen that Halifax, although she can boast of a splendid harbor, excellent railway facilities, and other distributing powers, caters only for her own consumption. The Halifax merchant sells and sends to New York produce for the West Indies, but apparently cannot reverse the process and bring produce from the West Indies for New York. Of articles produced in the West Indies the quantities imported into Canada from those islands are infinitesimal as compared with the total consumption in the Dominion.

Table showing the Value of Commodities imported into Canada from the British West Indies and British Guiana, and also the Value of the same Commodities that are imported from all Countries :

Commodity.	Imports from West Indies and British Guiana.	Imports from all Countries. Total.	For home Consumption.
Asphalt	\$1,248	\$55,164	\$55,164
Cocoa Beans	17,293	63,822	63,822
Cocanuts	19,042	27,991	27,976
Coffee	27,835	33,077	33,069
Flax, hemp, jute and manufactures of..	9,953	1,439,619	1,419,069
Fruits	15,289	1,246,838	1,148,626
Molasses	287,539	590,416	559,732
Salt	19,759	34,184	32,792
Spirits—rum	14,170	91,041	28,032
Sugars	261,798	3,258,213	4,868,596
Tobaccos	4,838	1,063,403	482,793

Examining some of these figures, the correspondent observes:—To take the first article, asphalt, Canada imports about £200 worth of this product from the West Indies,

while her total imports are valued at over £11,000. The Trinidad Asphalt Company paid in 1897 £42,165 to the Trinidad Government in duties alone, they having obtained exclusive rights to win pitch from the Pitch Lake for a term of forty-two years—some say eighty-four years—from the 1st of February, 1888, as soon as asphalt became a marketable product. The output for 1898 was 100,208 tons. It is of no concern here to discuss whether this was a bad or a good bargain for the Government.

Of cocoa beans, the second article on the list, Canada imports £3,500 worth from the West Indies, and a total of £12,000 worth. There were 24,340,396 lbs. grown in Trinidad alone in 1898, 103,000 being then under cultivation, with a prospect of increased acreage.

So one may continue throughout on the same lines until tobacco is reached. Here Canada imports about £1,000 worth of West Indian and a total of £200,000. One trader alone in Jamaica is reported to be earning £15,000 a year profit.

The Advocate goes on to say that the Canadian Government has been looking on hopefully while the struggle between the English Government and the West Indies has been maintained, but it is difficult to see what advantages Canada would derive were the efforts to induce the Home Government to put on countervailing duties successful. It is said Canada will not countervail beet, because her refiners would be compelled to go out of the business altogether. The reason therefor is not stated. Again The Advocate suggests that Canada might cut off the duties on raw cane sugar, but adds, "That would mean the loss of a great amount of revenue, which would simply be an act of benevolence quite as insulting to the Islands as disastrous to her own revenue." It is certain the Islands would like to be insulted in this manner, but it is claimed on the other hand that they do not get businesslike assistance. Federation with Canada would soon be brought about if it were shown that there was any material interest to be got therefrom; but, as The Advocate says, it is not for discussion at present.

EDITORIAL NOTES.

The Executive Committee of the National Association of Manufacturers has decided that the next annual convention of the Association shall be held in Boston on April 24, 25, 26, next. Arrangements for this convention are now actively in progress, and it may be taken for granted that the coming annual gathering will in no way fall behind the previous meetings, either in attendance or the importance of its discussions. This will be the first meeting of the Association in New England, and the work of the Association will undoubtedly prove to be of great interest to the large number of manufacturers who are located within the comparatively small area of the New England States. The subjects discussed at these annual gatherings are of the utmost importance to every manufacturer, and as the Association grows larger each year, and as its work broadens, the influence of these sessions reaches further and wider.—American Trade.

The announcement was recently made that Queen Victoria would present to each man serving in South Africa a box containing one half pound of chocolate. In connection with this gift the English exchanges say that the Queen's order is for 100,000 boxes of chocolate, and has been divided among

the firms of Cadbury, Fry and Rowntree. The chocolate, which will be suitable either as a beverage or a sweetmeat, will be supplied in tin boxes, each containing half a pound. A special box has been designed; the lid will have a red ground, with a large gilt medallion of the Queen in the centre, the Royal monogram in red, white and blue, and the inscription, "South Africa—1900." No civilian will be allowed to receive or purchase one of these boxes at any price, and the designs and moulds will all be destroyed. It appears that the firms mentioned, the principals of which, by the way, are all Quakers, asked leave to furnish the gift free. On this offer being courteously declined, they insisted that only the actual cost price should be paid, and this desire was acceded to.

The Montreal Custom House returns for November show a total trade at that port of \$15,293,581, an increase of \$875,000 over November, 1898. The total exports for the month, including goods not the produce of Canada, were \$9,032,236, an increase of \$8,651 over last November. The exports of wheat declined from 1,745,869 bushels in 1898 to 991,614 in November, 1899, a decrease of nearly one-half, but the increase in butter and cheese was very heavy. The total imports were \$6,261,345, an increase of \$86,896 for the month. The importation of iron and iron goods was nearly as great as in November, 1898. The imports of sugar fell from \$423,665 in 1898 to \$293,623 in November, 1899.

At a meeting of the Executive Committee of the National Association of Manufacturers of the United States held in Philadelphia on December 12, Mr. Edward H. Sanborn was unanimously elected general manager of the Association. The Committee evidently comprehend that, from the nature of things, they are not adapted to manage the affairs of their Association as they should be managed, and that, having the services of a competent man at their command, the general management should be confided to him.

The Dominion Parliament has been called to assemble at Ottawa on Thursday, February 1.

The fact is pointed out by Engineering that for every 100 tons of shipping Britain possesses, the United States have only 19½ tons; Germany, 16½ tons; Norway, 13 tons; France, 8½ tons; Italy, 6½ tons; Spain, barely 5 tons; Russia, 4½ tons; Sweden, 4½ tons; Holland, 3½ tons; Denmark, 3½ tons; and Austria-Hungary, 2½ tons. We can well afford to see these countries adding to their respective fleets, especially when, as our contemporary shows, the increase is still nearly three British tons even to one German, or two to one of the United States. The total tonnage of the ships frequenting British ports is 90,963,966 tons, and 70.6 per cent. of this is British owned.

The Electrical Review, New York City, begins the new year with a special double number, which is remarkable for its valuable contributions, handsome illustrations, and typography. A new dress of type, a change in the color of the cover, and a more up-to-date arrangement of reading pages are some of the improvements made. The contents include a review of electrical progress during 1899 in the United States, Great Britain, and the continental countries of Europe; the first instalment of an interesting series of articles on the electrical collections at the Smithsonian Institution and the National Museum in Washington, D.C.; several illustrated articles descriptive of typical central lighting plants, and the current news of the day in electrical circles. Its leading editorial is entitled "Is Trans-Atlantic Wireless Telegraphy Possible?"

out that this large order is the result of the use of correct methods of doing business.

One firm, says Mr. Larke, had been holding the chair agency, but was pushing the goods of an American firm. The Canadian manufacturers opened a warehouse in Sydney, the goods were made known and the firm got its products into the hands of an active house. If it chooses, it can get half the chair trade of Australia. This applies to many other lines. Indeed it is difficult to say what articles of Canadian manufacture proper methods cannot place on this market. Canada has no apparent condition which would specially fit it for the manufacture of neckwear or umbrellas. Yet a Toronto firm has been so successful in the trial trip of its traveler that it is at once sending him back again. Australia is readily responsive to energy, but half hearted measures generally fail of accomplishing a profitable business. Of course, it would not be prudent for every manufacturer to open a branch or send out a traveler, but conjoint action could be taken that would be economical and effective.

THE TRADE OF MONTREAL.

The Montreal Customs statistics for 1899 show a marked increase over the figures of 1898, and greatly exceed any twelve months in the history of Canada. The total revenue of the port for the year just closed is, according to the figures furnished by R. S. White, collector, \$764,207 in excess of 1898, or 9 1/2 per cent., compared with \$8,154,484 for 1898.

The increase of the receipts of 1899 over 1895 is \$2,438,823, or thirty-eight per cent. This gives a good idea of the immense increase in business in a matter of four years.

In addition to the figures given, there was collected on account of public revenue the following amounts:—Wharfage dues, \$246,750; pilotage fees, \$78,249; Trinity dues, \$4,956.

The total revenue of the port for the past year has therefore been \$9,248,000, or eighty per cent. more than the revenue collections of the second largest port in Canada, Toronto, whose revenue for 1899 was \$5,080,000.

The revenue of the port of Montreal for the past five years was as follows:—

Year.	Amount.
1895.....	\$6,479,868
1896.....	6,613,276
1897.....	6,992,355
1898.....	8,154,484
1899.....	8,918,691

OBSTACLES TO AUSTRALASIAN TRADE.

In an address recently delivered before the Manufacturers' Club in Philadelphia, Mr. H. Rotherham, of Rotherham, Wood & Co., Melbourne, spoke at length upon the methods by which trade between the United States and the Australasian Colonies could be increased. Speaking of the manner in which lack of parcels post facilities restricts trade he said:

"A few months ago I had an occasion to send a small parcel of samples to this country. I had to go through all the formula of a large shipment—take out a bill of lading, etc., at a cost of nearly \$9. I have sent a similar package to England for \$1. This is a most important matter for the manufacturers in this country who are seriously cultivating export business. America cannot afford to remain in this isolated position. It is an injury to commerce, and an insult to the progressive manufacturers who have, and are, upholding the commercial interests of this great republic on foreign markets. I ask, gentlemen, that you take this matter up with vigor; let not political movement impede your progress, but go right on, leading rather than slowly following in the wake of other nations. I am told that the cost of transmission of parcels from the seaboard would be too costly to make the undertaking a paying one—that the labor and

necessary machinery would be enormous and costly. Why, sir, do the American people admit failure before a trial? Are they overcome before making the attempt? Surely not. If necessary why not charge an additional mileage rate from the seaboard to the interior? I cannot believe that any undertaking is too difficult or too vast for this enterprising nation to grapple with and to evolve a successful issue. Surely if you were to rise in your great might and power you could in a very short space of time remedy this defect.

"Another great need is that of cheap and direct transportation. This, I am glad to say, we at present enjoy. How long it will continue remains with you. Gentlemen, I am advised that the commission houses in New York are forming a combine to drive the opposition steamers from the direct Australasian trade. You know how freights have been lowered lately. This combine is promising to refund 7s. 6d. per ton from the present rate of 22s. 6d., making 15s. per ton net, and to give a further rebate of ten per cent. if the party signing a certain contract keeps faith with the combine for twelve months. The combine asks the Australian merchant to undertake to transport all his goods in their ships, and for such a guarantee will grant him the above concessions. This looks very nice on the surface. But go deeper than this and we find that it is only a mean subterfuge to destroy the opposition line of steamers, and as soon as such line is either driven out of the running, or compelled to join the combine, freight rates would go up by leaps and bounds. I do not think that Australian merchants would be so foolish as to make a rod for their own backs; but they will prefer to assist, as far as possible, the opposition line, and so keep freight rates as low as possible. It is to your advantage to help them in this good work, for whatever lessens the charges on your products must tend to increase your trade."

THEY MEAN BUSINESS.

The National Association of Manufacturers of the United States have a Committee on Legal Investigation whose duty it is to receive and inquire into all complaints made by its members regarding discriminations, unjust charges, etc., made by transportation companies, or by state laws interfering with interstate traffic.

At a recent meeting, of the Executive Committee of the Association, the Secretary presented a report from the Legal Investigation Committee embracing a history of the steps taken by the president of the Association, preliminary to the appointment of the committee, and a report accompanied by correspondence setting forth the work of legal investigation which had been pursued in the name of the committee which embraced the history of all enquiries received bearing upon the adverse operation of laws upon the interests of manufacturers. The report made manifest that the questions submitted by members of the Association had been satisfactorily disposed of under advices as to the decisions already rendered by Federal and State courts, declaring unconstitutional all State legislation which interferes with or obstructs the transaction of interstate commerce.

After discussion the committee unanimously resolved to submit the following recommendations to the Association:

"We recommend that this Association, or its Executive Committee, through its proper officers, should take the broad ground of protecting its members against any and all unconstitutional legislation and enactments, placing a burden upon or interfering with the business of each or any member thereof when such business is conducted as interstate commerce.

"That all communications upon legal questions touching this, or other points, should be made to the secretary of the Association, and whenever the secretary is unable to reply thereto definitely and confidently, from opinions or decrees already in his possession, that such communication be referred to a competent counselor or counselors-at-law, to be retained and employed by the Association for that purpose.

"That the Executive Committee of this Association shall retain and employ a competent legal counselor or counselors-at-law for the determination of questions so referred, and that when it is decided jointly by such counselor or counselors, and the Executive Committee of this Association, that any matter or matters should be determined by litigation, that such counselor or counselors shall be retained as general counsel upon terms to be regulated by the Executive Committee of this Association."

Whereupon the following resolutions were adopted by the Association:

"Whereas, reports submitted by the Committees on International Freight and Transportation and of Legal Investigation have made it evident that the interests of the members of the National Association of Manufacturers are frequently subject to prejudice or injury from the operations of laws which are unconstitutional, and of regulations or requirements by carriers, both domestic and international, which are at variance with common and international law.

"Resolved, that it is the sense of this Executive Committee that the Association, through its proper officers, should adopt all proper and lawful means to protect its members against unconstitutional laws which seek to impose burdens upon or interfere with the business of each or any member thereof in the conduct of interstate commerce; as well as against unlawful rules and regulations of carriers, either of domestic or international traffic, which may impose restrictions or conditions which are at variance with common or international law.

"Resolved, that all communications upon legal questions, or upon domestic or international transportations, which are considered unfavorably to affect the interests of any or all members should be made to the secretary of the Association; and whenever the secretary of the Association is unable definitely or competently to reply thereto, or otherwise satisfactorily to adjust any such difficulty, either upon the basis of opinions or decrees already in his possession or by conference with proper parties, that such communications shall be referred to competent counselor or counselors-at-law to be employed by the Association for that purpose.

"Resolved, that the Executive Committee of this Association shall retain a competent legal counselor or counselors-at-law for the determination of questions so referred; and that when it is decided jointly by such counselor or counselors and the Executive Committee of this Association, or their proper officers to whom such duty may be assigned, that any matter or matters should be determined by litigation, that such counselor or counselors shall be retained as general counsel upon terms to be regulated by the Executive Committee of this Association.

"Resolved, that the president of this Association be, and is hereby authorized, to select and employ any or all legal counsel for this Association; to fix the compensation for said

counselor or counselors and to determine which may or may not be proper questions to be submitted to said counsel, or upon which legal action at the expense of this Association shall be taken."

It would be a grand thing if the Canadian Manufacturers' Association could be brought into a condition by which the members would derive as much benefit as do those of the American Association.

PROPOSED CORPORATION LAWS FOR PROVINCE OF QUEBEC.

A Montreal banker who is interested in the matter says:—

"When the Quebec Legislature meets on January 18th there is little doubt that a bill will be passed making it possible for the province not only to get all the benefits, through taxation, etc., that now accrue to American states where Canadian companies are incorporated, but also making it attractive for new companies of the United States to take out their incorporation paper in Quebec, and thus, as foreign corporations, escape the hostile legislation threatened by many states of the Union or unfriendly laws which are already an accomplished fact.

"The people of Quebec do not hope for the Dominion Government to take up the matter of establishing a general liberal incorporation system for companies, for we think that, as Quebec is the province which bears the largest share of the general expenses of the Dominion, it alone should be privileged to have the special means of attracting large corporations which, by their incorporation fees, etc., can materially swell our revenues.

"Quebec, also, is distinctly the commercial province of the Dominion, while Montreal, the capital, is also the financial metropolis of Canada, and would be a convenient home for all important companies, either of Canada or of the United States. The Quebec law as regards incorporations is at present satisfactory in many respects, and properly safeguards against the chartering of bogus companies. What is needed, however, is a revision of the present system to conform with modern ideas and with a progressive commerce.

"A great many corporations which now do business mostly in Canada, like many mining companies, are chartered in the States, and, by making a declaration in Canada that they are foreign corporations, they can escape paying anything to Canada, except nominal taxes. By the return home of our own companies the Province of Quebec will the first year increase its revenues \$100,000 a year. From the entry into Quebec of corporations which no longer find it safe or desirable to locate in the United States, we will gain as much revenue as New Jersey, which for the past year had \$1,800,000 surplus left over after paying all state expenses, and as Delaware, which in the last three months since its new incorporation law has been in effect, has taken in \$75,000,000 from incorporation fees."

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CAPTAINS OF INDUSTRY.

The following items of information, which are classified under the title "Captains of Industry," relate to matters that are of special interest to every advertiser in these pages, and to every concern in Canada interested in any manufacturing industry whatever, this interest extending to supply houses also.

If a new manufacturing enterprise of any kind is being started, or an electric lighting plant instituted, or an electric railroad, or a telephone, or a telegraph line is being constructed; or a saw mill, a woolen, cotton, or knitting mill; or if any industrial establishment has been destroyed by fire with a probability of its being rebuilt, our friends should understand that possibly there may be something in the event for them. Do you catch on to the idea?

The starting of any such concern means a demand for some sort of machines, machinery, or supplies, such as steam engines and boilers, shafting, pulleys, belting, lubricants, machinery supplies, wood or iron working machinery, ventilating and drying apparatus; pumps, valves, packing, dynamos, motors, wire, arc and incandescent lamps, and an infinite variety of electrical supplies, chemicals, acids, alkalis, etc. It is well worth the while of every reader of the Canadian Manufacturer to closely inspect all items under the head of Captains of Industry.

The Steele Furniture Company will proceed without delay with the construction of a commodious and up-to-date furniture factory at Tottenham, Ont.

The capital stock of the Hoepfner Refining Company, Hamilton, Ont., is to be increased from \$600,000 to \$1,000,000 or \$1,500,000. The works now being erected by the company in that city are nearing completion, but it is believed that they will be too small for the business, and as soon as they are put in operation they will be enlarged to four times the present capacity. This enlargement will make the works the largest on the American continent. Four thousand horse-power of electricity will be required, which will give some idea of what the extent of the works is to be.

The Dominion Dyewood and Chemical Co., Toronto, have sent us a most convenient and neat desk calendar pad for 1900. It is made to fit into a metal frame that the company placed upon our desk several years ago, and which is replenished annually with pads similar to that here alluded to.

The electric light by-law of the city of Greenwood, B. C., having finally passed, Messrs. George C. Hinton & Co., of Victoria and Vancouver, B. C., have added the contract for the equipment of this Kootenay town to the many others they have completed, or are attending to in that part of the world, and a great number of the Kootenay towns have been provided with electric light and power by this firm. The present contract is for one 150 k.w. 2,000 volt, two phase S.K.C. inductor type generator of 3,000 light capacity, complete with

all equipments; and all material, insulators and supplies, the generator, switchboard, etc., being of the very latest and most approved pattern. The entire plant will cost in the neighborhood of \$20,000 and will be fully installed during the ensuing ninety days.

The Toronto and Hamilton Electric Co., Hamilton, Ont., manufacturers of dynamos, motors, and all kinds of electrical apparatus, inform us that they have just occupied their fine new shops, in which they have installed considerable new machinery, to enable them to meet the requirements of their rapidly increasing business. Their new premises are 100x30 feet, two stories high, and as Hamilton has earned the name Electric City, the machinery in these works is driven by electricity.

A cold storage building for bait is being constructed at Ballentine's Cove, Antigonish County, N.S. Some time ago the Dominion Government conceived the scheme of erecting buildings of this description at a number of important fishing stations in Nova Scotia, and this is the first fruits of the scheme. The work of construction is being done by fishermen, who become part owners of the building, under the superintendence of a Government official. The buildings will be of much benefit to the fishermen, who will in future have a constant supply of bait from the houses.

A party of engineers working under the direction of Henry F. Macleod, member of the Institution of Civil Engineers of England, has recently completed the soundings in Lake Duchesnes, to determine the route

of the Ottawa and Georgian Bay Canal. The party were successful in locating a channel of uniform depth, and sufficient to meet the requirements of the proposed canal. The survey is now completed from the Georgian Bay, and the engineers report a fourteen-foot channel can be secured throughout the entire distance, without encountering any great engineering difficulties in the land formation or the water course.

An incorporated joint stock company has been formed at Halifax, N.S., to be known as the William Stairs, Son & Morrow Co., to buy out and carry on the business of Messrs Wm. Stairs, Son & Morrow.

The Maritime Milling Co., at New Glasgow, N.S., has purchased the business of the New Glasgow Milling Co.

Fire in the examining warehouse of the Montreal Custom House a few days ago did damage to the extent of about \$2,000.

The Ontario Bureau of Mines will shortly issue a report prepared by Prof. de Kalb of Kingston, dealing with the nature of explosives used by miners, and the safest methods of handling such dangerous materials. In order to accumulate the necessary data, Professor de Kalb spent some time in visiting factories where explosives are produced, and his report on the subject will be thoroughly up to date. Soon after the creation of the Bureau of Mines, a circular based on the best information then available in regard to explosives, was printed and circulated among the mining camps. Since that time many new forms of explosives have been introduced, and the present is deemed a proper time to communicate any facts that can be gleaned concerning them to those engaged in mining, and the need for some such action is emphasized by the recent dynamite explosion at the Hastings County mine, and the Sultana mine in the Rat Portage district. The latter regrettable accident is now being carefully investigated by a Government inspector.

The Ontario Gazette contains a notice of the incorporation of the British American Furniture Company, Limited. The share capital is to be \$3,000,000, divided into 30,000 shares of \$100 each, of which 20,000 shares shall be preference shares. The provisional directors of the company are John R. Shaw, John L. Taugher, of Toronto; Wm. R. Hobbs, Thomas S. Hobbs, of London; Wm. McN. Shaw, of Walkerton. The corporation is organized for the purpose of dealing in all kinds of furniture and upholstered goods, wholesale and retail, and for

INGERSOLL-SERGEANT Rock Drills

FOR MINES, TUNNELS AND QUARRIES

PISTON INLET Air Compressors

STRAIGHT LINE
 DUPLEX and
 COMPOUND.

FOR ALL DUTIES.

... COMPLETE MINE EQUIPMENT ...

JAMES COOPER MANUF'G CO., Limited, - 299 St. James St., Montreal.

Other Offices - - - ROSSLAND, B.O. RAT PORTAGE, ONT. HALIFAX, N.S.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

the acquiring of other going concerns in a similar business. The head office of the company is to be in Toronto.

On a recent occasion The Toronto Globe announced that a Utica, N. Y., iron bedstead manufacturing concern contemplated starting a branch factory in Toronto to meet the Canadian trade, and in commenting on the value of such an industry, stated that it would be practically without opposition. In this The Globe was mistaken. Besides the large bedstead factory in Galt, Ont., owned by Shurley & Dietrich, there is one at Niagara Falls capable of turning out 1,000 iron bedsteads a week; another in Montreal with a larger capacity, and a fourth at Waterville, Que. Any of the three latter firms are as strong financially as the Utica company, while the Galt firm, whose factory has a capacity of five hundred bedsteads per day, is fully four times as strong financially, and, in fact, is only equalled in this respect by one similar industry on this continent. Shurley & Dietrich have just finished their new factory building in Galt, which has a floor space of 30,000 square feet, and in a few days it will be running full swing. The Canadian field is, therefore, far from uncoccupied in the matter of iron bedsteads.

Most business men nowadays accept without discussion the wonderful "selling property" of good advertising. Oftentimes, however, even though really wanting to help their business by this most modern method, they find they know nothing of rates, that they cannot judge the merits of rival newspapers, nor plan a good advertising campaign, and are, moreover, too much occupied with other branches of their business to be able to give the matter much thought. The E. Desbarats Advertising Agency, Montreal, are in business to help the would-be advertiser to plan his campaign, prepare his advertisements, and close his contracts with the newspapers. Many years' experience, during which they have handled many thousands of dollars of advertising for their customers, enable them to give advice based on the successes and failures of others.

The Alaska Feather & Down Co., Montreal, have sent us a circular having reference to their new offices, sample rooms and factories in that city.—The factory is 320 feet long by 60 feet wide, and divided by fire-proof walls into three sections. The western section contains a 60 h.p. Wheelock automatic cut-off engine, two liberizing machines,

the carding and felting machines, the cotton openers and hair pickers. The central section contains the sewing and quilting machines, the patent stutling machines for mattresses, and the entire feather plant, consisting of steamers, separators, crushers, hot blast drying fans, mixing machines and revolving extractors. The third section is taken up with shipping and receiving rooms, stock rooms, sorting rooms, etc. The basement and the second story which extends over part of the building only, are intended for storage of raw stock.

Messrs. Wm. I. Wood & Co., Arlington, Mass., have sent us their revised catalogue and price list having reference to the ice tools and ice harvesting machinery manufactured by them. To the ice harvester it is of the utmost importance that he possesses the most perfect working tools he can buy. None but the very best are economical to him. The cutting season is short, the weather is cold, the men are hurried, and any unnecessary delay on account of unmanageable or imperfect tools is both aggravating and expensive. Ice harvesters who purchase cheap tools because they are low in price usually lose many times the cost of good ones by delays, breakages and poor service. Canada not being in the banana and pineapple belt at this season of the year, it would be a profitable investment of a postage stamp to any ice harvester to write Messrs. Wood & Co., requesting a catalogue of their tools and implements, which they inform us will be sent on application.

In September last the corporation of Fort William, Ont., passed a by law to give the Ogilvie Milling Co. a site on Kaministiquia River valued at \$50,000, and to exempt the company for ten years from all taxation, with the exception of that levied for school purposes. The company, for its part, agrees to erect a combined mill and elevator, the former with flour-producing capacity of 2,500 barrels daily, which may be increased to 5,000 barrels, making it the largest flouring mill in Canada. The elevator will have storage capacity of 800,000 bushels, and there will be a two-story warehouse, 200 feet in length. The building will stand upon spiles driven to hard pan fifty feet below the surface, upon which will be laid a stone foundation. The dock extends the full length of the company's site, being 800 feet long. It will furnish ample facilities

for receiving supplies and for shipping grain and flour by vessel. The equipment will be modern throughout. When the mill is completed and in operation the Ogilvie Milling Company will have a daily capacity of between 15,000 and 20,000 barrels.

The Pratt & Letchworth Co., of Buffalo, N. Y., have recently purchased the Grand Trunk machine shops at Brantford, Ont., which are now being remodelled and enlarged, and equipped with a large quantity of new machinery, their intention being to manufacture malleable and other iron castings for both Canadian and foreign trade. It is from this Company's Buffalo works that the Brooks Locomotive Works of Dunkirk, N. Y., receive all the steel and iron castings they use, while the Schenectady, N. Y., Locomotive Works get about half of their total supply from the same company. The company's business also extends to other car and locomotive builders in the United States, England, Japan, Russia, China and Australia. It is expected that the Brantford works will be in full operation about April.

The results from the use of Cling-Surface when applied to belts are so different from all previous teaching that many engineers are slow to realize that the necessity for tight belts is past, and the day of slack or easy belts, free from initial tension, yet carrying full load without slipping, is at hand. Every day sees new users of Cling-Surface in Canada. In British Columbia the Canadian Smelting Works at Trail, say "Our Master Mechanic reports Cling-Surface very satisfactory." The corporation of the City of Nelson reports: "Cling-Surface allows our belts to run slack yet keeps them clean. It is highly satisfactory in every way."

John Dilworth's elevator at High Bluff, Man., containing 30,000 bushels of wheat, was destroyed by fire recently. The elevator was of 50,000-bushel capacity.

Carr Bros., of Wingham, Ont., have sold their mill at that place to Howson, Harvey & Brocklebank.

A. Colin & Sons' grain warehouse at St. Boniface, Man., was recently destroyed by fire.

A new county mill will be built near Sidney Crossing, Ont., near Belleville. Power will be supplied by electric wire from Trenton, Ont.

GENESER HOUSE, BUFFALO, N.Y., November 2, 1896.

We first used Cling-Surface on this belt in May, 1896. After a month it began to carry its full load without slipping and has done so ever since. The belt has been made pliable, elastic and is in perfect condition, not having given us a minute's trouble since we began using Cling-Surface.

P. H. WINTERMUTH, CHIEF ENG.

Full of Cling-Surface for 3 Years.

THIS BELT IS EVIDENCE OF THE PRESERVATIVE QUALITIES OF CLING-SURFACE. IT WAS NEVER IN SUCH PERFECT CONDITION, AND THE SLACKER IT GETS THE MORE POWER IT WILL TRANSMIT. CLING-SURFACE IS DOING THIS EVERYWHERE.

CLING-SURFACE MFG. CO.

N. Eng. and E. Can. Branch: 120-126 Virginia Street,
170 Summer St., Boston. BUFFALO, N.Y.
New York Branch: 253 Broadway. Chicago Branch: 225 Dearborn St.



When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

Raymond F. Profontaine, and associates will apply for an act incorporating the Labrador Electric Light and Power Co., to acquire and develop water power on the Murray Bay River, in the County of Charlevoix, Chicoutimi and Saguenay, Que., and to manufacture pulp and paper.

Application is being made for the incorporation of the Scotstown Mills Co., a lumbering concern with head office at Sherbrooke, Que., capital stock, \$100,000. The applicants are W. A. Tait, Arlington, Mass.; H. K. Blanchard, Allston, Mass.; H. R. Fraser, Sherbrooke; George R. Dowar, Ottawa; and R. H. Hope, M.P., Cookshire, Que.

It is pleasing to hear that Canada is not being forgotten by the War Office in the purchase of supplies for the troops in South Africa. Mr. Harrison Watson tells us of an order secured by Mr. R. J. Graham, of Belleville, Ont., for 25,000 pounds of dried vegetables; and through the instrumentality of the High Commissioner other valuable orders have been secured for Canadian hay and dried produce. We hope the day will soon come when Canada will be able to compete for and secure such a contract as we find noted thus in London journals:—"The War Office has ordered 950,000 pounds of corned beef from Chicago, the meat to be supplied within ten days."—Canadian Gazer, London, Eng.

The application of the Demorara Electric company for license to construct and operate electric tramways and lighting plants in Georgetown, has been granted on terms satisfactory to the company. The capital stock of the company is \$850,000. The directors are Sir William Van Horne, Senator Drummond, Abner Kingman, James Hutchison, W. B. Chipman, Montreal, and

Senator McKean and B. F. Pearson, Halifax, N.S.

The Great Northern Railway Company have awarded a contract to Chapman & Co. of Buffalo, N.Y., to erect an elevator at Quebec in connection with the terminals of the above mentioned road. The cost of the new elevator will be about \$250,000, and it will have a capacity of a million bushels. The Great Northern will own the elevator, and it will be located quite near the Quebec Custom House, the site being given by the Harbor Commissioners. Work will be pushed forward at once, and the structure will be ready for next summer's business, or at least in time for the completion of the Great Northern's connection with Parry Sound.

The premises of the Carrito & Patterson Mfg. Co., Halifax, N.S., manufacturers of tar paper, etc., were destroyed by fire December 20th. Loss about \$5,000.

The Cling-Surface Mfg. Co., of Buffalo, N.Y., report that they have opened a New York office at 253 Broadway, Postal-Telegraph Building, to facilitate the handling of Cling-Surface for their many customers about New York. Business is growing steadily.

The additions being made to the mills of the Merchants' Cotton Company at Montreal are nearing completion. A further extension will probably be made at an early day, which, when completed, will enable the company to give employment to about 2,000 hands.

The Grand Trunk Railway shops at Brantford, Ont., will be taken over by the Buffalo, N.Y., Malleable Iron Works, as a branch establishment. Important improvements are to be made, and the works will be in active operation about April 1st next.

Messrs. A. Brown & Co., Toronto, are negotiating for the purchase of the farmers' mill and elevator at Portage la Prairie, Man.

The Goldie-McCulloch Co., Galt, Ont., have sold one of their model gas engines to the First Baptist church, Brantford, Ont., where it is to be used to furnish power for the pipe organ.

The Chicoutimi Pulp Co., Chicoutimi, Que., has been incorporated with a capital stock of \$1,000,000, to manufacture pulp and paper.

Messrs. Shurley & Dietrich, Galt, Ont., will erect a new business office, the interior of which will be fitted up in bank style, with private rooms for the management, and all the latest facilities and conveniences.

The Canadian Pacific Railway Co. will construct a railway from Morden to Carman, B.C., and another from Hartney to Boissevain, B.C.

A new building will be erected at Ottawa by the Canadian Institute at a cost of about \$25,000.

A by-law to raise \$12,000 by debentures for bridges has been passed by the town council of Chatham, Ont.

An elevator will be erected at Wolsley, N.W.T., by the Lake of the Woods Milling Company.

A wood working factory will be erected at Parry Sound, Ont., to cost \$30,000.

The Orillia Lumber Co., Orillia, Ont., will establish a factory of wooden specialties.

Five new buildings are being erected at Granby, Que., in connection with the Granby Enamelware Works.

Peter Campbell's elevator at Glenboro, Man., was recently destroyed by fire.

W. A. FLEMING & CO.

MILL SUPPLIES

CAMEL BRAND BELTING

HOSE of all kinds

DRIVING ROPE

BELTING of all kinds



57 St. Francois-Xavier St., Montreal.

The Stratford Mill Building Co.,

STRATFORD, - - - - - ONTARIO.

STEEL BOILERS—all Sizes,

THE BROWN AUTOMATIC ENGINE,

FLOUR MILL MACHINERY, CORN MILL MACHINERY

GRAIN CHOPPERS OF ALL KINDS.

Manufacturers
of . . .

We keep a Full Stock of Chain, Leather and Cotton Belting, Sprockets,
Pulleys and Iron Work of all kinds.

We have one of the Most Complete Boiler Plants in Canada.

**Write for
Prices.**

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

A large saw mill will be erected on the west boundary shore of Vancouver, B.C., by the Pacific Coast Lumber Co., of New Westminster, B.C.

The Mattawa Iron Mining Co. has submitted a proposition to the council of Fort William, Ont., to erect a copper refinery and blast furnace in that town. \$150,000 is the estimated cost of the furnace.

The present output of the Nova Scotia Steel Co., New Glasgow, N.S., is about 100 tons of steel per day. Seven hundred men are employed at the company's works at Trenton and Ferrona.

The Imperial Woolen Mills Co., Streetsville, Ont., has been incorporated with a capital stock of \$200,000, to manufacture woolen goods, carpets, etc.

The Commercial Dock Co., Rat Portage, Ont., has been incorporated with a capital stock of \$10,000.

The Ontario Milling & Mfg. Co., Deloraine, Man., has been incorporated with a capital stock of \$40,000 to carry on a general milling and manufacturing business.

The Keowatin Lumber & Mfg. Co., Keowatin, Ont., are rebuilding their mill dam and putting in a new and larger water wheel. They will also replace one of their circular saws with a hand saw.

The Dominion Carbide Co., Ottawa, has been incorporated with a capital stock of \$250,000, to manufacture calcium carbide and its components.

The Ste. Therese Furniture & Bedding Mfg. Co., Ste. Therese, Que., has been incorporated with a capital stock of \$75,000, to manufacture furniture, mattresses, etc.

The Morgan Lumber Co., Toronto, has been incorporated with a capital stock of \$400,000, to manufacture lumber, woodenware, etc.

The Atlantic Washing Machine Co., Aylmer, Ont., has been incorporated with a capital stock of \$3,000 to manufacture washing machines.

The name of the Grant-Lottridge Brewing Co., Hamilton, Ont., has, by supplementary letters patent, been changed to the Grant's Spring Brewery Co.

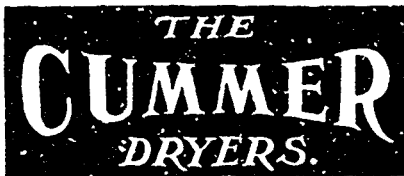
The Canada Wood Specialty Co., Orillia, Ont., has been incorporated with a capital stock of \$50,000, to manufacture woodenware, etc.

The T. Milburn Co., Toronto, has been incorporated with a capital stock of \$100,000, to manufacture medicines and druggists' sundries, and to acquire the business now carried on under the name of T. Milburn & Co.

The Kelly Handle-Bar Co., Toronto, has been incorporated with a capital stock of \$10,000, to manufacture handle-bars, etc. The incorporators are David Dangler, C. I. Dangler, D. E. Dangler and A. E. Gilbert, all of Cleveland, Ohio, and H. P. Davies of Toronto.

The ratepayers of Bridgbury, Ont., will vote on a by-law authorizing the town to issue debentures for \$26,000 for a waterworks system.

The Brantford Starch Works, Brantford, Ont., has been incorporated with a capital stock of \$150,000, to manufacture starch, glucose, syrup, etc.



FOR
Mechanically Drying Everything

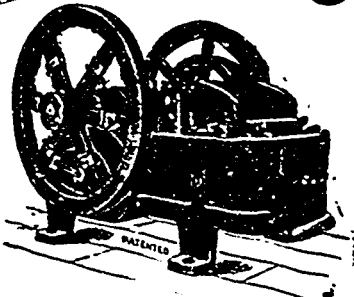
THE F. D. CUMMER & SON CO.,
HUNDREDS IN OPERATION. CLEVELAND, OHIO.

THE ONLY

FINE CRUSHER

DOES THE WORK OF

CRUSHER AND
ROLLS
COMBINED.



FOR

QUARTZ AND
ORES.

ROLL JAW CRUSHER.

Send for Circular. STURTEVANT MILL COMPANY, Boston, Mass.

Shafting—Hangers—Pulleys

FRICITION CLUTCH PULLEYS AND COUPLINGS

Rope Transmission of Power.

HANDSOME ILLUSTRATED CATALOGUE ON APPLICATION.

DODGE MANUFACTURING CO. OF TORONTO, Limited, - - TORONTO.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The Booth Copper Company, Toronto, have sent us a handsome circular having reference to the copper vacuum pans manufactured by them, and regarding which they say they are prepared to supply them of any required size to confectioners, brewers, chemical laboratories, and all establishments requiring such apparatus. They are all finished in a handsome and workmanlike manner.

H. C. Rees' stave mill, at Woodslee, Ont., was destroyed by fire January 3, loss about \$3,000.

Messrs. John Taylor & Co., Toronto, are enlarging their factory on Front street east at a cost of about \$3,500.

New York advices state that a new paper company has been formed whose factories will be located in Canada, and who will actively compete with the International Paper Company, which now controls the majority of the news paper mills of the United States. English capitalists are said to be at the back of the scheme, one of the supporting interests named being the

Edward Lloyd Company, Limited, publishers of the London Daily Chronicle and Lloyd's Weekly. Three thousand square miles of excellent timber land has been obtained in Canada, and contracts have been entered into giving the company the right to the use, if necessary, of water rights representing 200,000 horse power. In the early spring the work of erecting what, it is stated, will be the largest paper mill in the world, at a cost of between \$5,000,000 and \$6,000,000, will be begun, and it is hoped to have it in operation by next autumn. This mill will be located in the Ottawa Valley, near the Canadian capital, and when in full running order will give employment to between 1,800 and 2,000 men. It will have a capacity of 600 tons a day, and the product will include news paper, manila and book paper, and bleached sulphite pulp for ruling and fine paper. The machinery for the mill, some of which has already been ordered, will be almost entirely of United States make. Other mills will be erected as the business of the company warrants. Mr. J. C. Morgan,

formerly manager of the Niagara Falls Paper Company, will probably be the general manager. -The Canadian Gazette, London, Eng.

Messrs. John Lysaght, Limited, of Bristol, Eng., are well known in this country through their "Queen's Head" brand of galvanized iron, but not everyone knows of them as large manufacturers of iron buildings and bridges. Recently they had a "rush" order from the British Army department for a portable iron bridge for use in South Africa, the work to be completed in four weeks. Not only were these conditions fulfilled, but Messrs. Lysaght delivered the bridge within two weeks, thus making a valuable contribution to the campaign. And yet some people imagine that prompt deliveries are unknown in Great Britain.

A pork packing factory will be established at Kincardine, Ont., by Mr. Coldman, the town offering a bonus.

Messrs. Peters & Sons, St. John, N.B., whose tannery was recently destroyed by fire, will rebuild at Fredericton, N.B.

BELTING MILLING ENGINE OAK

Leather Belting,
Lancashire Hair,
English
Card Clothing,

D. K. McLAREN

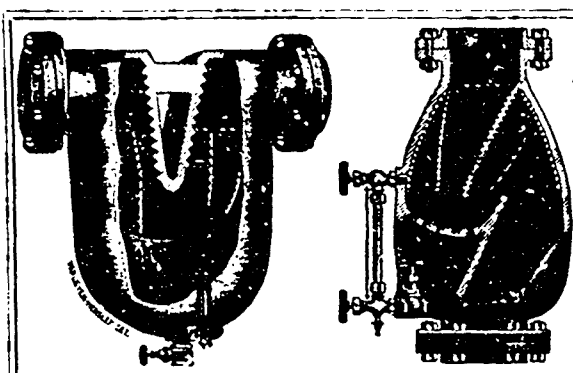
Head Office and Factory—
MONTREAL

WESTERN TRADE—TORONTO STOCK DEPOT,
'Phone 374 88 BAY STREET.

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HORIZONTAL **VERTICAL**

A small per cent. saving in the cost of manufacturing is a strong advantage where competition is close.

If your competitor runs his plant at less cost than yourself, you are giving him an advantage that means either the loss of business or proportionately less profit.

If you haven't

AN AUSTIN SEPARATOR

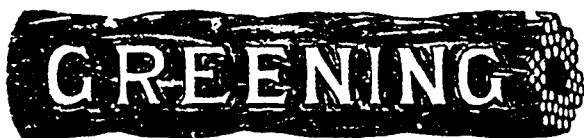
on your engine, you are not getting the best results from your steam power.

We have good evidence of this in the shape of thousands of testimonials from the largest plants in the country.

An Oil Separator will save another item. If you use your Exhaust it is indispensable. If you are not using your Exhaust, you are blowing good money into the air.

AUSTIN SEPARATOR CO.
38-40 Woodbridge St. DETROIT, MICH., U.S.A.

The B. GREENING WIRE CO., Limited



MANUFACTURERS
OF



Lang's Patent Wire Ropes
for Coillery
and Mining Use.

WIRE ROPE

of every description and for
all purposes
HAMILTON, ONT.
and **MONTREAL, QUE.**

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The Altona Machinery Co., Altona, Man., will apply for incorporation with a capital stock of \$20,000.

The Goldie-McCulloch Co., Galt, Ont., are putting in two flour mills at Edmonton, N.W.T., one of a capacity of 175 barrels per day, and the other of 100 barrels per day.

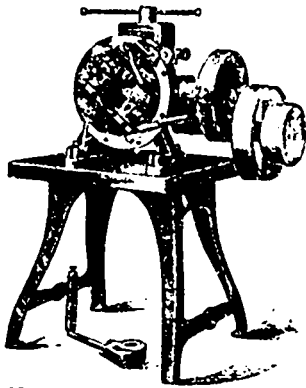
The matter of a municipal electric light system will be placed before the ratepayers of Woodstock, Ont.

The People's Knitting Syndicate, Toronto, has been incorporated with a capital stock of \$180,000, to manufacture knitting machines, woolen goods, etc.

The William A. Marsh Co., City of Quebec, is applying for incorporation, with a capital stock of \$200,000, to manufacture boots and shoes.

Gananoque, Ont., will establish a water-works system at an estimated cost of \$120,000.

THE BEST PIPE THREADING and CUTTING-OFF MACHINES



No. 00 Machine, Power Attachment.

ARE MADE BY THE **ARMSTRONG MFG. CO.**
BRIDGEPORT, CONN.

Also Manufacturers of a FULL LINE of **ADJUSTABLE STOCKS and DIES**
And **WATER, GAS and STEAM FITTERS' TOOLS.**

SEND FOR CATALOGUE 27.

Factory: BRIDGEPORT, CONN.

New York Office: 139 CENTRE STREET.

Charters for Corporations Under the Best Corporation Law, at the Least Cost. Secured

—A Copy of the Law—Blank Incorporation Papers, with Proper Directions, and Full Information upon request.

THE DELAWARE OFFICE, REALTY and TRUST CO., 838 Market Street, WILMINGTON, DEL., U.S.A.

The Advantages offered by the Delaware Law are the **GREATEST.** The Expenses are the **LEAST.**

This Company secures the Charters, maintains the Delaware offices, and transacts all of the business in this State for non-residents organizing under the Delaware Law. Write us.

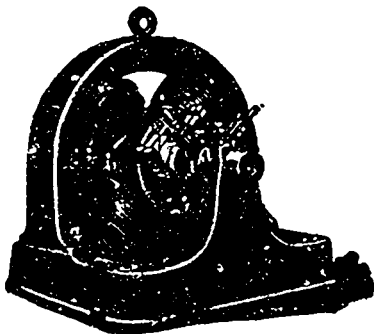
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Louis Pfromm, Vice-Pres.
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E. C. Hardesty, Treas.
Artemas Smith, General
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Toronto and Hamilton ELECTRIC CO.



Motors and Dynamos

COMMUTATORS REFILLED.

99-103 McNab St. N., Hamilton

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RICE LEWIS & SON, LIMITED

HARDWARE and METAL

Bar Iron, Steel,
Boiler Plate Tubes.

MACHINIST TOOLS, PIPE FITTINGS.

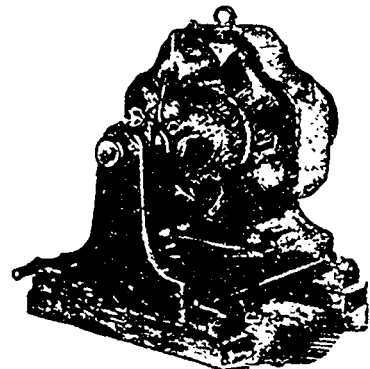
A COMPLETE STOCK OF
STOCKS and DIES. PIPE VICES.

STILLSON & TRIMO
WRENCHES.

STEAM PIPE.

Cor. King and Victoria, TORONTO

THE Electrical Construction Co. of London, Limited.



MULTIPOLAR MOTORS & DYNAMOS

And Direct Connected Plants
for Isolated Lighting.
Repair Work a Specialty.

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No. 90 YORK STREET, London, Canada.

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When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The Compensating Pipe Organ Company is the name of a new concern now locating in Toronto. As soon as the season permits they will erect a large factory at the junction of Dufferin and King streets. At present they occupy a large building on Niagara street. Surely Canada's tariff protection policy is rapidly adding to our manufacturing industries.

SAULT STE. MARIE, ONT.

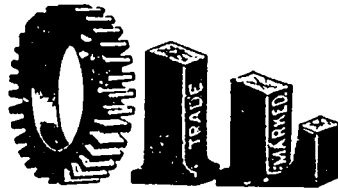
Mr. F. H. Clergue, president of the Sault Ste. Marie Pulp and Paper Co., was in Toronto a few days ago, on which occasion he outlined to a reporter the variety and extent of the actual and prospective enterprises in which he is interested in that town and vicinity.

"The Ontario and Lake Superior Company," said Mr. Clergue, "is the title of the company which is launching these enterprises. It has a capital of \$20,000,000, of which \$6,000,000 have been paid in. The capitalists composing the company belong to New York and Philadelphia. All the capital which is being invested is foreign money. It is wholly share capital, none of the money

"Capitol" Cylinder

"RENOWN" ENGINE

"ATLANTIC" RED



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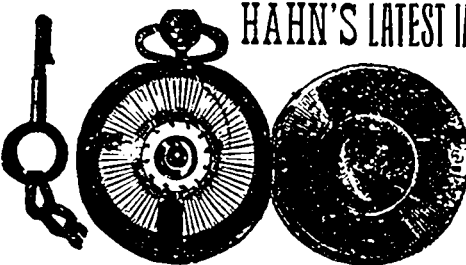
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This Clock is adapted for six or twelve stations, and the keys are all different, ranging from 1 to 6, and 1 to 12 instead of as in the old style Time Detectors, which mark either by holes or an impression on the dial, being the same for all stations.

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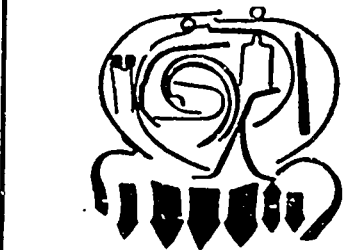
This Clock received the First Prize at World's Fair.



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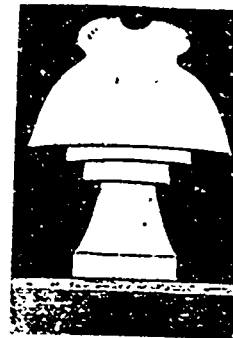
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CANADIAN PATENT FOR SALE

MORGANFIELD'S DETACHABLE HANDLE



A DESIRABLE COMPANION IN ANY WELL-REGULATED FAMILY.

Can be used as Lifter or Handle for Pots, Pans, Stove Lids, Tack Hammer, Screw Driver, Nut Cracker, Wrench, Pipe Tongs, Carpet Stretcher, etc.

CANADIAN PATENT FOR SALE

Apply to **A. MORGANFIELD,**
Commercial Hotel, Brantford, Ont.

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being raised by bonds or mortgages. We are building reduction and refining works at Sault Ste. Marie that will cost \$1,500,000, will give employment to 1,000 men, and will have a capacity of 1,000 tons a day. The works are now under construction, and will be ready for operation on June 1 next. We shall treat nickel, copper, and other ores from all over Ontario. These works will give an added value to the mineral properties in this province, and will provide a market for mineral products. We shall

draw ore from the district extending from Sault Ste. Marie to Sudbury. Any one who has a carload of ore to sell can dispose of it to us, and he will be in as good a position as the farmer when he goes to market his grain.

"We are also erecting large chemical works in connection with the reduction works, for utilizing sulphur, and producing sulphurous anhydride for use in sulphide pulp mills. Alkali plants are also being built for the production of caustic acid

and bleaching powder. The chemical works will cost \$500,000, while the alkali plants involve an outlay of \$1,500,000. A sulphide pulp mill costing \$250,000 is being erected in connection with our existing plant. I should not forget to mention that we are about to establish a steel rail mill that will cost about \$2,500,000. This will have a capacity of a thousand tons of steel rails daily." "What about railway communication with the Helen iron mine in the Michipicoten district, of which you are the owners?"

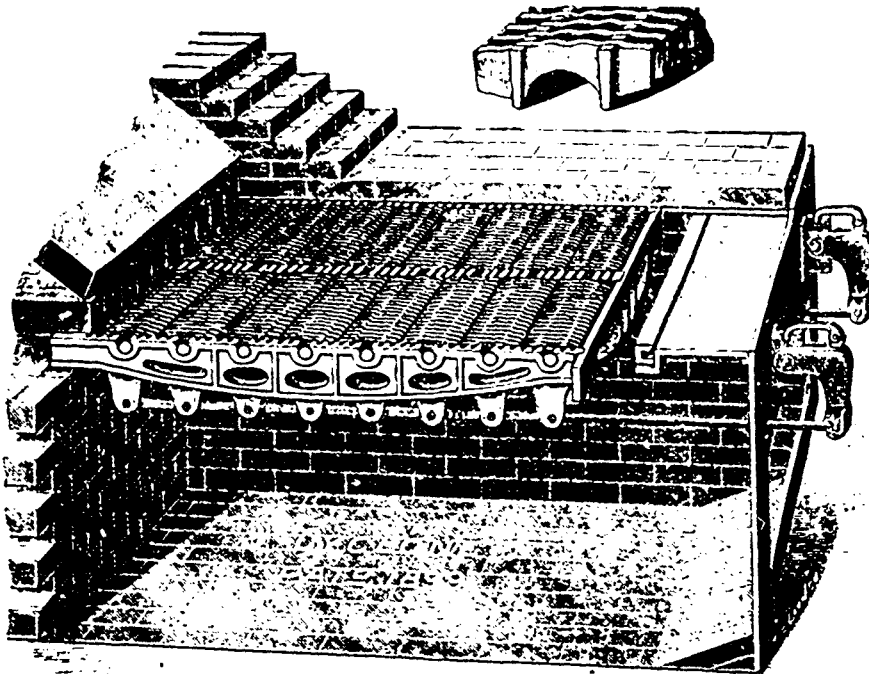
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Henry Truesdell, Bus. Man.

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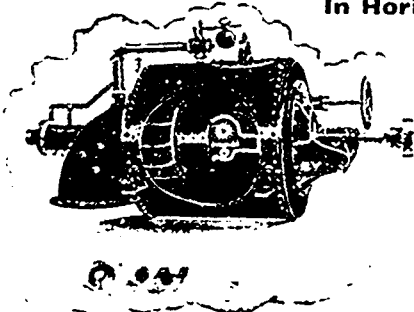
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THE Crocker Patent Turbine

In Horizontal Setting, with Quarter Turn Elbow.



Where the nature of the location will permit its use this type has many advantages. It is very suitable for direct connection to dynamos, and many are in operation in this class of service.

Notice how complete and compact this arrangement is, and how easily it may be installed. Can you use anything of this kind? Your inquiries will receive prompt attention.

WATER POWERS examined and Reports made. Estimates submitted for Complete Equipments.

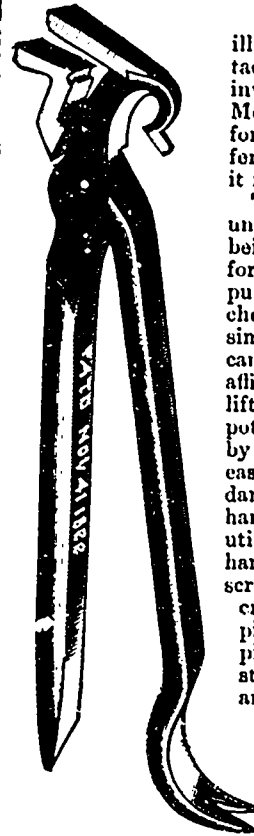
The JENCKES MACHINE CO.,
42 Lansdowne St., Sherbrooke, Que.

"Well, a railway from the point of navigation to the Helen iron mine has been completed, and by the time navigation opens, our ore dock, the biggest on Lake Superior, will be finished. Already we have sold 500,000 tons of ore for shipment to the United States and various points in Ontario next season."

The Brackman & Ker Milling Co., Vancouver, B.C., are building additions to their warehouse at Nelson, B.C.

The Ontario Milling and Manufacturing Company has been organized at Deloraine, Man., with a capital stock of \$40,000, to establish a general milling business.

MORGANFIELD'S DETACHABLE PAN HANDLE.



The accompanying illustration is of a detachable pan handle, invented by Mr. A. Morganfield, Brantford, Ont., who is offering the patent for it for sale.

The article is of a universal character, being adapted for use for a dozen or more purposes. It is a cheap, strong and simple device which can be instantaneously affixed as a handle, or lifter, to pans, kettles, pots, stove lids, etc., by which they can be easily handled without danger of burning the hands. It can be also utilized as a tack hammer, tack puller, screw driver, nut cracker, wrench, pincer, plier, light pipe tongs, carpet stretcher, etc. The article can be made of malleable iron, and is quite inexpensive, and would be a desirable companion in any well regulated family.

Detachable Pan Handle.

They come in and out of the Wet

EVERY TIME IT RAINS THE SPRAGUE UMBRELLAS COVER AND PROTECT OVER A MILLION PEOPLE. IF ITS A SPRAGUE-IT WONT BREAK.

THE FINEST

Wagon Umbrellas
Beach, Hearse and Implement Umbrellas
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I would like to secure the right to represent several good Canadian houses; have the best of connections with the different trades, and would be responsible for bad debts; I will guarantee to increase the sale of any article now on the market here, and will make a specialty of introducing new goods; manufacturers wanting to place an agency with me will please send samples, with full particulars and commission allowed, to

CHARLES W. RENT,

Keith Building, HALIFAX, N.S.

REFERENCES, R. G. Dun & Co. and Bradstreet's.

Nicholson PATENT **Flanged Face Compression**

Is easily and quickly attached to or detached from shafting.
Will adjust to a somewhat larger or smaller than standard size shaft
Has **DOUBLE** the grip of other **COMPRESSION COUPLINGS** and is the most perfect fitting coupling made.



Shaft Coupling

Saves cost of key-seating shafts, fitting keys, and refacing couplings after being keyed on shaft
Holds the shafts in accurate alignment with each other, the jaws being full length of coupling and extending over both shafts.
Has a very powerful grip equally exerted from four sides (not on two sides as with the majority of couplings).

PRICE LIST AND DISCOUNT ON APPLICATION.

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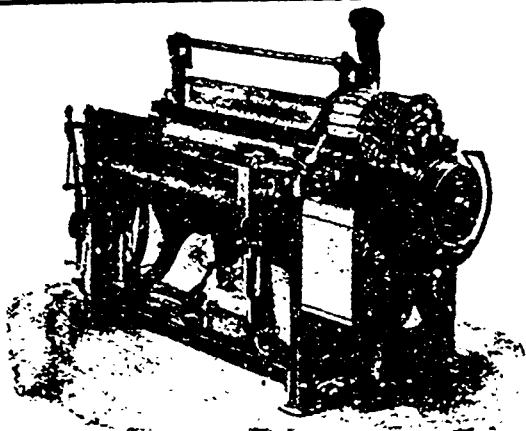
NICKEL STEEL WORKS AT SAULT STE. MARIE.

Further particulars have been obtained in regard to the plans of the Ontario and Lake Superior Company for establishing steel rail works to cost \$2,500,000 at Sault Ste. Marie, Ont. It is learned that the company propose to manufacture nickel steel rails, and with the abundance of nickel ore which they have at command, and the facilities for manufacturing which they will soon possess, they will be able to produce a better quality of rail at a cheaper price than is obtainable anywhere else. It is impossible to overestimate the importance to Canada of an industry of this kind, especially in view of the rapid development of railway communication which will take place in the west and north in the next few years. Several lines

for opening up to settlement the fertile districts of New Ontario are already projected, and the speedy completion of these railways will be greatly facilitated if steel rails can be obtained at Sault Ste. Marie instead of having to be imported at great cost, with heavy transportation rates added.

For some time the Ontario and Lake Superior Company have been exploring large deposits near Notten Station on the Sault branch of the Canadian Pacific Railway, with the view of proving the quantities of nickel ore there. Two diamond drills have been at work on the property, and it is understood that the deposit is a large and valuable one. The company have also been experimenting for more than a year with a new process for the production of ferro-nickel from the ores, and it is claimed that excellent results have been obtained. By

this process the iron is saved as well as the nickel, and when the plant is at work on a large scale the alloy can be produced at a cost of probably less than one-tenth of the price now paid by the United States Government for the nickel steel. The ferro-nickel will be in the proportion of about 10 per cent. of nickel to 90 per cent. of iron, which is much too high for ordinary use. The percentage of nickel, however, may be readily reduced by the addition of iron. It is understood that Krupp of Germany has already entered into a contract with the company to take large quantities of their product, and there is no doubt that owing to the cheapness of production the demand will rapidly increase. In manufacturing steel rails from nickel steel, the company will use an alloy of 2½ or 3 per cent. of nickel. This will give a material for rails



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They are no Experiment.

Thousands have been running in the United States, and a large number are now in Canada. Sales steadily on the increase.

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We also Manufacture the Best Warper at present
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Manufacturer of... **High Grade Electrical Measuring Instruments**

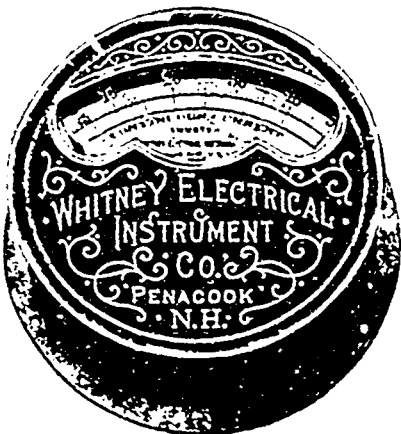
LICENSEE OF THE WHITNEY ELECTRICAL INSTRUMENT CO.'S PATENTS IN CANADA. Old Instruments Repaired on Short Notice.



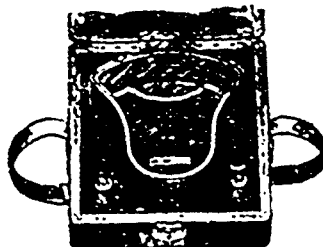
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Old Instruments of all makes bought, sold or exchanged for new or second-hand. If you have old Instruments of any make lying about your station, pick them up and drop me a card: they will buy new ones of the highest grade. Second-hand instruments in the best of calibration at your own price.

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Every Instrument, whether new or second-hand, never leaves our laboratory until it has been thoroughly standardized. . . .



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as much superior to Bessemer's steel as that product was to iron, and will in fact open up a new era for railways on this continent. The statement is also made that development work on the company's iron mine in Michipicoten has shown up an ore body estimated at 3,000,000 tons, and it might be much larger. The ore of this mine is of the best quality of brown hematite, and will be found admirably adapted for the mixture with ferro-nickel in the production of nickel steel. The company have commenced the building of a railway from Michipicoten Harbor to Dalton on the main line of the C.P.R. Their main line, however, will be built from their pulp works at the Sault northward through a virgin forest of spruce and other woods to Dalton, with an ultimate extension to James Bay. North of the C.P.R. it will pass through what is believed to be the most extensive spruce forest in America, and perhaps in

the world. It is proposed to lay this line with nickel steel rails of the company's own manufacture, and from the situation of the works they will be able to compete successfully for the supply of rails to railway lines in Western Canada and the Western States. The nickel ore contains, besides nickel and copper, a good percentage of nickel and of iron, and the company's scheme embraces a saving of both these latter products, which hitherto have been lost in the process of treatment. The first experiments of the company were made with a view of producing a cheap supply of sulphuric acid for use in their pulp works, but they resulted in discoveries of far greater magnitude.

Heaps & Co., Vancouver, B.C., will erect a saw mill, which will be equipped with the most modern machinery.

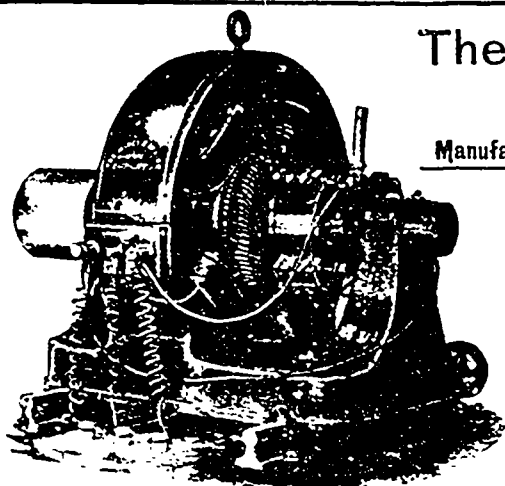
The Waterloo County Council has under consideration the advisability of issuing debentures to cover the cost of certain bridges erected and to be erected by them. This year Rau's bridge at New Hamburg, and the Wallenstein bridge cost the county over \$5,000, which, if paid out of this year's taxes, will leave a deficit. It is said that New Hamburg bridges want extensive attentions next year and it is proposed by several members to issue debentures for five or ten years for an amount sufficient to pay this year's work of this nature. The contention is that it is manifestly unfair to tax the ratepayers heavily one year to pay for what people ten and fifteen years hence will benefit by.—Berlin News-Record.

ADDRESSES furnished ENVELOPES and CIRCULARS

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ELECTRIC LIGHT and
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A Few Second-Hand A 1 Machines
For Sale Cheap

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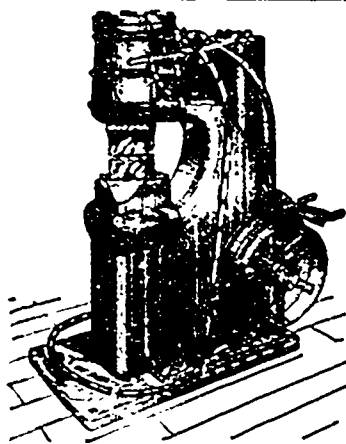
The Yeakley Vacuum Hammer.

Canadian Patent November 9, 1897.

Is now Manufactured and for Sale by
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"IDEAL" ACETYLENE GAS BURNERS

\$2.40 per dozen, \$20.00 per gross.

FOUR LIGHT CLUSTER—\$2.00 each. Larger sizes on application.

"IDEAL" Carbide Sub-Merging Acetylene Gas Machines,

15 to 2,000 Lights. WRITE FOR PRICES.

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GET THE "IDEAL," HAMILTON, ONT.

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All Sizes
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Description

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Office and Works
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MONTREAL, Que.

The Toronto City Commissioner has handed out the statistics of his department for the year 1899. Building permits to the value of \$2,011,000 were issued as compared with \$1,701,630, in 1898, \$951,130 in 1897, and \$657,168 in 1896. The free ferry to the Island cost \$1,084.29, and 28,492 children, 11,745 adults, and 863 bicycles were carried. There was a falling off in the num-

ber of people applying at the Labor Bureau for employment, only 1,339 applications being recorded, and 6,886 tickets were issued. Work was furnished to holders of tickets aggregating 20,658 days. This was on corporation work. Applications were received from private citizens, and employment was provided for 1,907 men in this manner. The appropriations of the depart-

ment show a net balance of \$1,141.63. The deficits were: Public buildings, \$2,777; College street fire hall improvements, \$306; cattle markets, \$1,084; crematories, \$727; free ferry, \$184. The credit balances were: New City Hall maintenance, \$2,708; Esplanade, Island, \$1,216; general markets, \$1,318; fuel public buildings, \$726; Island shelter, \$252.

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THE RUGGLES FLUE CLEANER.

MOST PERFECT CLEANER
OF BOILER FLUES KNOWN.
Manufactured and sold with
Great Success
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For Particulars Write to
FRANKLIN A. BECHER
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ROLLED THREAD MACHINES SCREWS

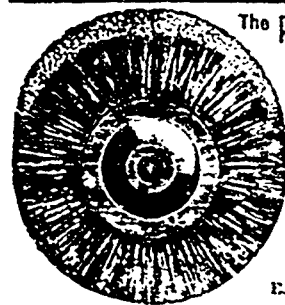
Equal to CUT THREAD.
COST LESS.
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If you are not yet using it, send for sample.

The Dominion Leather Board Co., MONTREAL, QUE.

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The PRESTON BRUSH FACTORY

Manufacturers of ALL KINDS OF BRUSHES.

ORDERED MACHINE BRUSHES. Mail Orders Promptly Filled.

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THOMAS C. IRVING, - - General Manager Western Canada, - - TORONTO.

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Steam and Gas Engines,
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- Hammond Reef Mine.

A Few Mines



WHO USE

BRITISH COLUMBIA :

- Le Roi Mine.
- War Eagle Mine.
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- Centre Star Mine.
- Crown Point Mine.
- Knob Hill Mine.

CANADIAN RAND DRILL COMPANY, Montreal

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CENTRIFUGAL ROLLS.

Our readers will probably agree that in describing Centrifugal Rolls we are introducing them to machines of unusual interest.

Centrifugal rolls are so named because they crush by utilizing the immense centrifugal force generated by their rotation. No springs are needed to force the roll faces together, and although the space between the tire faces opens and closes, as in common rolls, yet in centrifugal rolls neither shaft or bearing has any backward or forward movement. For these reasons no crushing push can be transmitted to the roll shafts. They entirely escape the direct shocks and the pounding caused by the backward and forward movements of the heavy common roll and its bearings.

Centrifugal rolls have also the singular property of automatically balancing themselves. They, therefore, run with nearly

flanges by the pin (P) passing through the weight slot (S). Each weight rotating with the shaft, is set out by centrifugal force, and together the weights form, as before stated, a strong roll. The segment weights are prevented from giving expanding pressures to the tire by strong steel hub flanges.

The slots (S) permit each weight to move back on its pin toward the shaft, but its backward movement can transmit no push to the shaft.

It is plain that the weights (W) in running hold the tire in position by the immense power of centrifugal force.

The tires in a pair of rolls can only be pushed back towards their shafts by a superior force, and as no rock is strong enough to

but while common rolls cannot run fast, centrifugal rolls can, and thus they have marvellous effectiveness without large diameters.

Small centrifugal rolls do extraordinary work. Centrifugal rolls of even moderate size do more and better work than the largest common rolls that can be constructed.

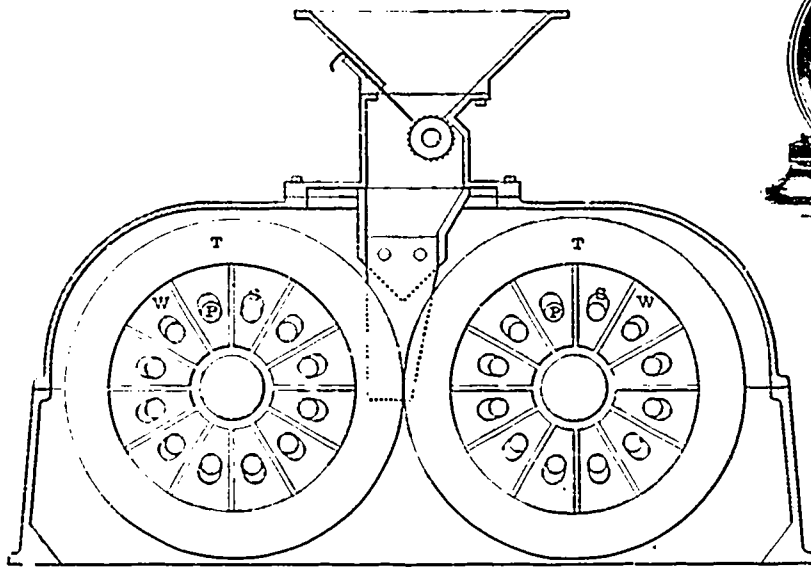


Fig. 2.

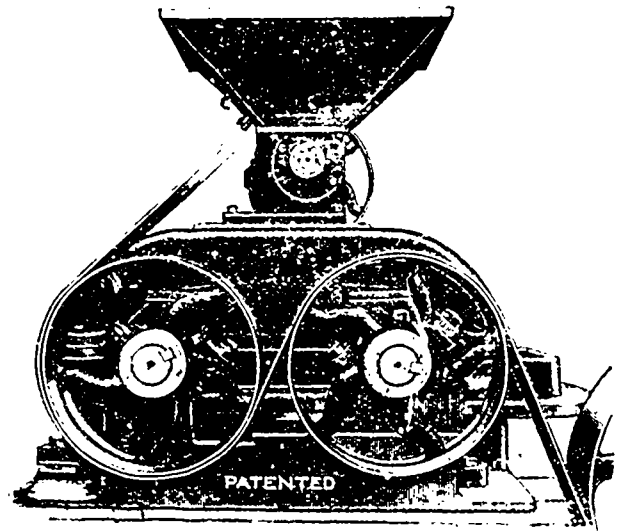


Fig. 1.

They run easily, as shown in the cut, with small driving pulleys, and they require so much less power than slow running common rolls that no balance wheels are needed.

It should be remembered that Centrifugal rolls of very moderate dimensions do work enough.

That centrifugal rolls, being smaller, cost less to buy; cost less to transport; cost less to set up; cost less to run and cost less for repair parts, which are all comparatively small.

For further information regarding this mechanism, address the manufacturers, The Sturtevant Mill Company, Boston, Mass.

Mr. A. J. Moxham, the new manager of the Dominion Steel and Iron Company, late of the Lorain (Penn.) Steel Company, says

the steadiness of dynamos. Since the output of common rolls is directly as their peripheral velocities, centrifugal rolls, which easily run three times as fast as other rolls of equal size, should have three times their capacity, and as a matter of fact their output exceeds such estimates.

The following description and cuts will enable our readers to understand their constructions and operation.

exert such force it is easily crushed. If a bit of uncrushable steel gets between the rolls, and forces back the tires and weights, no harm is done; for no crushing shocks are transmitted directly to either shaft. The roll shafts are not pressed back at all.

This action may be illustrated by a weight rotated from a shaft by a cord. The weight may easily be pushed back, but no

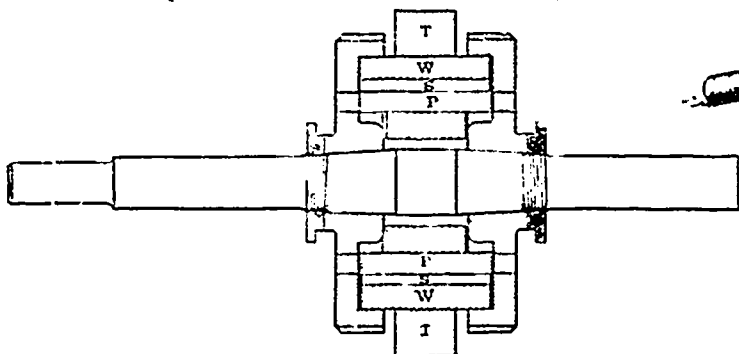


Fig. 1.

The centrifugal roll consists of but three important parts, viz. The shaft, the segment weights (W) and the tire.

The segment weights together, in operation, form a roll, over which is placed the tire. Each weight is held to the shaft

as wanted no springs are needed to keep them in position. Centrifugal rolls, balancing themselves, run easily at all speeds. In the large sizes very moderate speeds give to centrifugal rolls ample crushing power.

All rolls benefit by high peripheral speeds;

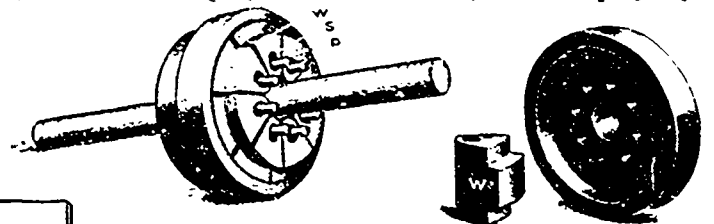


Fig. 3.

push can be transmitted to the shaft. It is thus seen that if centrifugal roll faces are set as closely together as wanted no

the conditions and prospects at Capo Breton, N.S. "My impression is that it would be difficult to find a place on the continent, or anywhere, with all the conditions so favorable for the establishment of such an industry as Sydney. I went to Sydney for the express purpose of going thoroughly over the ground where the big works are to be established, and did so with the experts who came from New York, and was fully convinced of this. I do not often grow enthusiastic, but cannot help it when I talk of the possibilities for the future of the steel works at Sydney."

WORTH THEIR WEIGHT IN GOLD.

The Dominion Radiator Co., Toronto, of which Mr. John M. Taylor is manager, sends us with the compliments of the season and wishing us a Happy New Year, a very beautiful souvenir card upon which is represented the ever faithful British bull dog holding down the Union Jack, beneath which is the familiar motto—"What We Have, We'll Hold." All of his friends may not be aware of the fact, but Manager Taylor is a born poet, and this is the way he sings about something that is ever uppermost in his mind:—

Where "Saffords" once are sold,
They've all the trade controll'd;
Our Patrons know 'Tis over so—
They're worth their weight in gold;
To rivals false and bold
One truth is e'er extoll'd:
We've won the fame
And got the name
And "what we have, we'll hold."

AS TO NEW DYESTUFFS.

"We omitted to mention in our last issue, in an article on New Dyestuffs, that samples, instruction circulars, and shades of the latest color products would be mailed gratis to interested buyers from the Dominion Dye-wood and Chemical Co., sole agents in Canada for the Farbenfabriken vorm. Friedr. Bayer & Co., Elberfeld, Germany."

The Acetylene Manufacturing Company, London, Ont., manufacturers of all kinds of acetylene gas apparatus, inform us that during the month of December they sent out from their factory acetylene gas manufacturing machines as follows.—Parry Harbor, three machines; Rose Point, three machines; Trout Creek, two machines; St. Thomas, one machine; Sudbury, one machine; Plattsville, one machine; Arkona, one machine; Gatineau Point, Que., three machines; Beachburg, one machine; Harriston, one machine; Granton, N.S., one machine; Dunham, Que., one machine; Walkerton, Ont., four machines; Vanessa, Ont., one machine; Mattawa, Ont., one machine;

**THE CANADIAN
COLORED COTTON
MILLS COMPANY.**

Cottonades, Tickings, Denims,
Awnings, Shirtings,
Flannelettes, Gingham,
Zephyrs, Skirtings,
Dress Goods, Lawns,
Cotton Blankets,
Angolas, Yarns, etc.

Only Wholesale Trade Supplied.

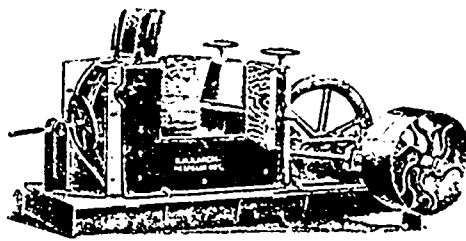
D. MORRICE, SONS & CO.

AGENTS

MONTREAL and TORONTO.

Honsall, Ont., one machine; Bradford, Ont., one machine; London, Ont., four machines; Milverton, Ont., two machines; Stratford, Ont., one machine; Port Arthur, Ont., one machine; Cobden, Ont., one machine; Spen-

cerville, Ont., one machine; Toronto, Ont., one machine; Ville Marie, Que., one machine. They also inform us that the volume of January business is equal to that of the previous month.



H. W. KARCH

HESPELER, ONT.

IRON FOUNDER and MACHINIST

Manufacturer of

WOOLEN MACHINERY,

Rotary Fulling Mills, Kicker Fulling Mills, Soaping Machines, Cloth Washers, Wool and Waste Dusters, Rag Dusters, Drum Spool Winders, Reels, Spooling and Doubling Machines, Ring Twisters, Card Creels, Dead Spindle Spooler for Warp or Dresser Spools, Patent Double-Acting Gig Dyeing Machines.

DAYLIGHT DISCOUNTED.

ACETYLENE GAS

Does it when made by the

"SAFETY"

220 MACHINES IN OPERATION AND NO ACCIDENTS
SPEAKS VOLUMES.

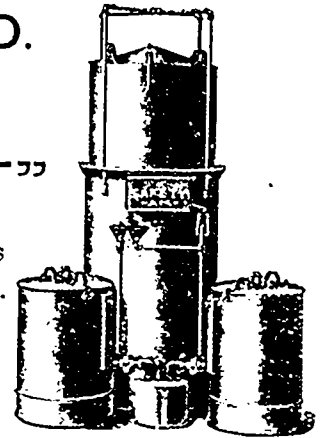
SIMPLICITY—SAFETY—ECONOMY the Leading Features.

Manufactured by

THE SAFETY LIGHT AND HEAT CO.,

Send for Booklet.

DUNDAS, ONT.



The London Machine Tool Co., LONDON, ONT.

Toronto Office, 42 York Street. { PHONE } 293 MANUFACTURERS OF

GENERAL MACHINERY...

Having recently sold our patterns and plant to the A. R. Williams Co., of Toronto, retaining only such machines as are useful in our business, we beg to say that we are rapidly putting in New Machinery, from new and improved designs, and are now in a position to receive orders for all Standard Tools for Metal Working in all branches. It will be our aim, by personal supervision of the product of works, with expert men of large experience at the head of each department, to turn out nothing but first-class work at moderate prices. And as we intend to deal directly with the manufacturers, they will be enabled to get their machinery at first cost.

As we shall not be able to personally visit each manufacturer, it is for this purpose that we publish this advertisement. This is our agent who is going about to solicit a share of your patronage. We are thankful for the patronage extended to us in the past, and hope that we may secure an extension of the favors for the future.

All correspondence relating to the following Tools will be promptly answered, viz:

- LATHES—Engine, Gap, Break, Turrot, Fox, Spinning, Etc.
- PLANERS—Standard, Crank, Plato, Etc.
- DRILLS—Standard, Sensitive, Multiple, Radial, Etc.
- MILLING MACHINES—Lincoln, Plain, Universal, Etc.
- SHAPING MACHINES—Whitworth, G. & E. Rack-Driven, Etc.
- HAMMERS—Steam, Sandago Drop, Stiles Drop.
- BULL-DOZERS for all purposes.
- PUNCHES AND SHEARS for Plato, Angles, Channels, Gauges, Etc.

And we would call special attention to our PRESSES for Cutting, Stamping, Drawing, Wiring, Riveting, Etc. We shall also esteem it a pleasure to give quotations on Special and General Machinery in our line.

ALEX. GARTSHORE, President. J. G. ALLAN, Sec.-Treas. JAS. THOMSON, Vice-Pres. and Gen. Mngr.

THE GARTSHORE-THOMSON PIPE & FOUNDRY CO.

Limited



3 in. to 60 in. diameter.

For Water, Gas, Culverts and Sewers

Special Castings and all kinds of

FLEXIBLE AND FLANGE PIPE.

WATER WORKS SUPPLIES

HAMILTON, ONT.

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Reduce Your Fuel Bills
Increase Your Output...

BY USING
The IMPROVED JONES UNDERFEED STOKER

NO ASHES. NO SMOKE. NO TROUBLE. NO MONEY REQUIRED IF GUARANTEES ARE NOT FULFILLED
The first and Only Successful Underfeed Stoker.

No Underfeed Stoker is successful without infringing our Patents, and the public are warned against importing or using infringing devices.

N.B. Have you seen our Underfeed as applied to House-
hold Stoves, etc. (Send for Circular).



Guaranteed Increased Economy, from 15 to 50% | Guaranteed Increased Boiler Capacity from 10 to 100%.

For Estimates and other Information write

The General Engineering Co. Limited

SOLE MANUFACTURERS FOR CANADA,

Head Office - **80 CANADA LIFE BUILDING, - TORONTO.**

Montreal—A. TREVETHICK, - Box 1123.

JOHN J. KELLER & CO.

104 and 106 MURRAY ST.
NEW YORK

220 Church St., Philadelphia.
135 Pearl St., Boston.
18 Pryor St., Atlanta, Ga.

**Aniline Colors,
Dyewood Extracts,
Sumac and
Nutmeg Extracts.**

FAST COLORS for Wool Dyeing.
One Dip Cotton Colors, Novelties
and Specialties for Calico
Printing.

MANUFACTURED BY

JOHN R. GEIGY & CO.
BASEL, SWITZERLAND

**LIGHT YOUR
FACTORY WITH**

LUXFER PRISMS



The latest device for

LIGHTING

dark rooms and
offices

By Daylight

For catalogue
and estimates
write to

**Luxfer Prism
Co'y, Limited.**

58 Yonge Street, - **TORONTO.**

**You
Are
Thinking**

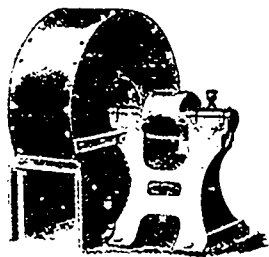
of putting in New Shafting,
Pulleys, Hangers, Tube Cut-
ters, Pipe Cutting Machines,
Swing Saws, Wood Lathes,
Dough Mixers, or Paper Box
Machinery.

We

Make all these lines and can
quote you as good, if not bet-
ter prices than other people.

G. T. PENDRITH & CO.,

73 to 81 Adelaide St. West,
TORONTO.



Fan.

PLANING MILL STEEL PLATE
EXHAUST FANS

For removal of refuse from Wood-Working
Machinery.

**CYCLONE DUST
SEPARATORS**

Made of Galvanized Steel All Sizes for Fans
from 30 inches and up.

Estimates cheerfully given for Complete Installations of Fans,
Piping, Gates, Hoods and Separators, with or without
Shavings. Full Attachment to Boiler Flues.

McEACHREN HEATING AND VENTILATING CO.,

GALT, - ONT.

WE MAKE

Forc. Capola and Disc Fans, Electric Fans, Heaters and Fans for
Lumber and Wool Drying, etc. and for Heating of Factories.

STEAM TRAPS, OIL SEPARATORS, ETC.

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F. E. ATTEAUX & CO.

53 Colborne Street,
Toronto.

15 Lemoine Street, Montreal.

Boston, New York,
Philadelphia, Chicago, and
Gloversville, N.Y.

**Dyewood Extracts,
One Dip Alizarines,
Aniline Colors,
Dyestuffs and
Chemicals.**

THE UNITED ELECTRIC COMPANY.

Following are some of the recent contracts taken by the United Electric Co. for electric lighting and power plants:—

The Tate Optical Co., Peterborough, Ont., one motor; Ritchie & Ramsay, New Toronto, Ont., one dynamo for lighting works; Dodge Mfg. Co., Toronto, complete lighting plant for works at Toronto Junction; Hamilton Steamboat Co., dynamo for steamer Macassa, E. S. Stephenson Co., St. John, N.B., two 8 h.p. motors, two 6 h.p. motors, and one 2 h.p. motor; Nonsuch Mfg. Co., Toronto, one 15 h.p. motor; James Fenwick, Preston, Ont., one 75 light arc dynamo with outfit of lamps for lighting streets of that town; John Forman, Montreal, a number of their standard type motors, including one 6 h.p. motor and one 8 h.p. motor, besides a number of others of smaller capacities; H. Phillips, Toronto, one 6 h.p. motor; Northumberland Paper and Electric Co., Campbellford, Ont., a complete installation for lighting their factory and premises; W. E. H. Massey, Toronto, a motor for operating fans at his model farm near this city; Darling Bros., Montreal, all necessary motors for direct connection with elevators at Longue Pointe Asylum, near that city; Davis & Henderson, Toronto, motor for operating printing presses; Lever Bros., Port Sunlight, England, contract for complete electrical equipment of their entire new Sunlight Soap Works now being erected in Toronto. This plant will include generators directly connected with high speed automatic steam engines, fifteen multipolar motors, etc. The securing of this contract

speaks well for the United Electric Co., who obtained it in strong competition with other Canadians, and with American and British concerns, the award having been made after thorough investigation by the experts of Messrs. Lever Bros. of the different types of apparatus offered.

A steam saw mill will be erected at Parraboro, N.S., by D. Huntley.

We learn with much regret of the death of Mr. James D. Smith, of Toronto, which occurred on Jan. 9th. Mr. Smith was the father of Mr. J. Norman Smith, electrical engineer of the United Electric Company.

The Renfrew Electric Co., Renfrew, Ont., has been incorporated with a capital stock of \$75,000, to construct works for the production of electricity for the purposes of heat, light and power.

McLaughlan Electric & Gasoline Motor Co., LIMITED.
 94 ADELAIDE T. WEST. TORONTO

MAKE Gas or Gasoline Engines from 1 h.p. to 6 h.p.
 Stationary or Marine and Electric Motors from 1/2 h.p. up.
 Motor Carriages for Pleasure or Business. One cent spent for a postal will bring you any information you wish.

The Packard Electric Co., Limited.
 MAKERS OF
Lamps and Transformers

Sole Agents for SCHEEFFER RECORDING WATT METERS
 ST. CATHARINES, ONT.

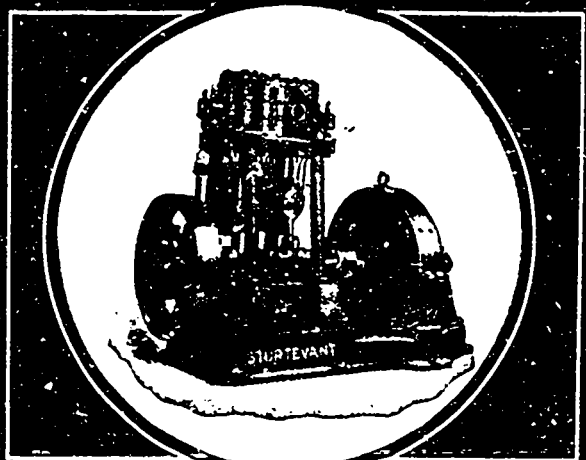
STURTEVANT ELECTRIC FANS



*In 100 types and sizes.
 Special designs for requirements.
 We build both fan and motor.
 Send for Bulletin H.*

B. F. STURTEVANT CO. BOSTON.
 NEW YORK · PHILADELPHIA · CHICAGO · LONDON ·

STURTEVANT GENERATING SETS



*In 100 types and sizes.
 High speed, and high grade.
 We build both engine & generator.
 Send for Bulletin G.*

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PAN-AMERICAN EXPOSITION.

The Board of Architects of the Pan-American Exposition, which will be held in Buffalo, N.Y., during the summer months of 1901, is composed of eight members; three residents of New York, two of Boston, and three of Buffalo.

The architects of the three buildings herewith shown, are:

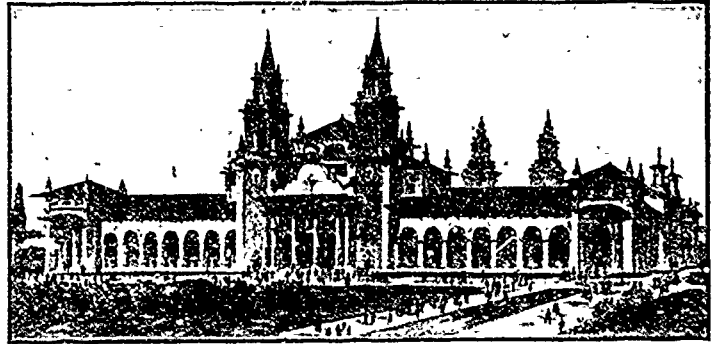
Mr. Walter Cook, of New York, designs the Stadium, the Screen in front of the railway station, and the Entrance of the Midway: all of these forming The Plaza. Mr. Cook studied under Vaudremer.

Mr. R S Peabody has designed the Horticulture, Graphic Arts and Forestry Buildings.

Messrs. Green & Wicks of Buffalo are the designers of the Machinery and Transportation and Electricity Buildings.

The Machinery and Transportation Building, which is 500x350 feet, faces on the Mall. It is designed in a type of Spanish Renaissance, with initial inspiration in the Mission buildings found in Mexico and California, supplemented by later examinations of Renaissance work in Spain, modified to suit the conditions of the Exposition with its gay and festive surroundings. It forms a hollow square, with arcades on all sides. In the interior is a court 200x100 feet, adorned by a long pool of water, with a fountain surrounded with shrubs and flowers. The loggias, balconies, pavilions and other places are to be ornamented with shrubs, vines and flowers, blending with the coloring of the building. The openings are grilled with wrought iron "Rejas" or grill screens. The building has numerous entrances, the principal ones being in the centres of the four facades. All the towers, pavilions, and other proper spaces are to be brilliantly illuminated, and made gay with banners and flags.

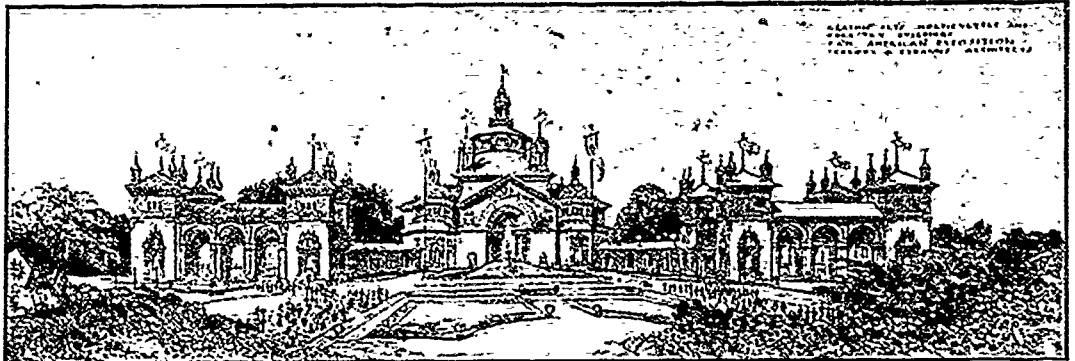
The three buildings for Horticulture, Graphic Arts and Forestry, of which Messrs. Peabody & Stearns are the architects, form a picturesque group at the end of the West Garden. The largest of these, the Horticultural Building, stands between the other two on an axis with the Garden. The Forestry Building is on the north side, the Graphic Arts on the south, adjoining the lake. Arcades connect the three buildings, forming in front a semi-circular court. Between the arcades the ground rises slightly to the level of the Fountain of the Seasons. The area of the Horticultural Building is 45,000 square feet. The Graphic Arts and Forestry buildings each cover 30,000 square feet, and are similar in design. In plan, the Horticultural Building is square, with central lantern, rising to a height of 240 feet at the intersection



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Machinery and Transportation.

of the four arms of a Greek cross, which includes in its angles four small domes. On the centre of each facade is a deeply recessed arched entrance.

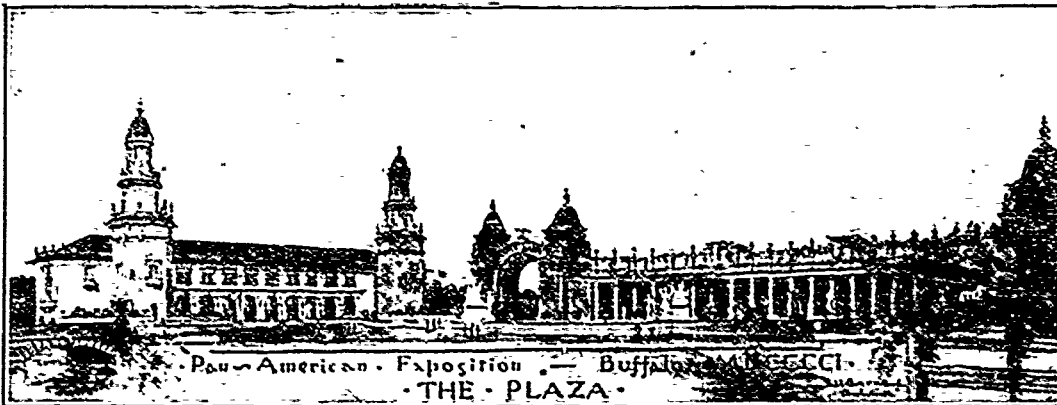
The Graphic Arts and Forestry Buildings have four corner towers, and on the east facade a vaulted loggia of three arches forms the main entrance. Above the red roofs of Spanish tile, numerous lanterns, pinnacles, and Venetian flagpoles, from which float gaily colored banners, add a festive picturesqueness to the sky-line. The broad white wall surfaces are ornamented with colored bas-reliefs. Arabesques of twining vines of fruit and



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Horticultural Group.

flowers, among the branches of which are children and birds, decorate the numerous pilasters of the facades and arcades. Above the east entrance of the Horticultural Building are two colored compositions representing Ceres, the Goddess of the Harvest, bearing in her arms a sheaf of golden wheat. Her Chariot is drawn by three lions led by Flora and Primavera. The decoration of the buildings is chiefly confined to the vaulted ceilings of their loggias.

The northern part of the exhibition ground is occupied by a square about 500 feet from east to west, and 350 feet from north to south. The buildings bounding three sides of this square and the arrangement of the square itself have suggested the name of the Plaza, which has been given it. The central portion of this square is occupied by a terrace only very slightly raised above the surface of the square, and surrounding a sunken garden, i.e. the middle of which is a band stand. The terrace as well as the garden itself will afford a large space for listeners



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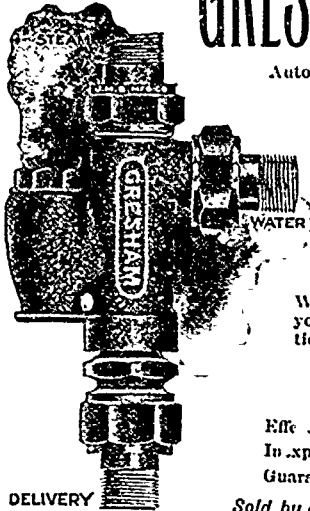
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We are prepared to attend to all orders **Promptly** and **Economically.**

WINDMILLS, PUMPS, TANKS, Etc.
ONTARIO WIND ENGINE and PUMP CO.
 LIMITED,
 95 ATLANTIC AVE., TORONTO.

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GRESHAM



Automatic Re-starting

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Would give you satisfaction

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Efficient, Inexpensive and Guaranteed.

Sold by all Dealers.

We manufacture and handle everything for

ENGINEERS and PLUMBERS

THE JAMES MORRISON BRASS MANUFACTURING CO., Limited,

89 to 97 Adelaide St. West, Toronto.

Advertise in the Canadian Manufacturer.

who attend the concerts which it is proposed to give.

Outside, and at the north of the Plaza, is the railway and trolley station, from which it is supposed the greater number of visitors will enter the exhibition grounds. The railway station itself is masked by a colonnade flanked at either end by two colossal arches, one for those entering the Exposition, and the other for those leaving it. The colonnade bounds the Plaza on the north.

The west side of the Plaza is bounded by a building which is to serve as a large restaurant. The public pass through the lower arches of it, which are open, in order to reach that portion of the exhibition which is to be called Vanity Fair, and which corresponds with the Midway Plaisance at Chicago. The restaurant building itself is two stories high and is about 350 feet long.

On the east side of the Plaza is a building closely resembling the restaurant, which serves principally as the entrance to the Stadium or Athletic Field, although portions are also used for exhibition purposes. This also has two stories, the upper being a large open gallery, from which views of the Plaza on the one side, and the Stadium on the other are afforded.

The south side of the Plaza is bounded by the Electrical Tower.

The Stadium or Athletic Field has been in all its details a subject of careful study. It resembles in a general way that erected at Athens a few years ago, although this one can be, of course, only a temporary structure.

If you would like to advertise but don't know exactly how write us for plans and prices. It's our business to take all the details of an advertising system on our shoulders. The E. Desbarats Adv. Agency, Montreal.

THE Toronto Paper Manufacturing Co., Cornwall, Ont.

Manufacturers of Engine Sized Superfine Papers, White and Tinted Book Papers, Blue and Cream Laid and Wove Foolscaps, Account, Envelope and Lithographic Papers, etc.

For Manufacturers of Oil Cans, Filters, etc.



OIL CAN FAUCET—NICKELLED.

PRICE, per Gross of 3/8 inch, \$6 00. Size 1/8 or 1/2 inch.

Also for Filters, with Shank plain or threaded. Send for Free Sample.

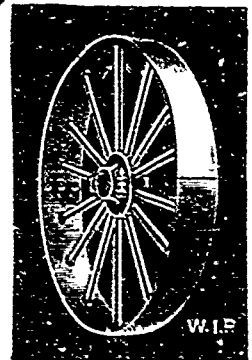
CHEAPEST IN THE WORLD.

J. M. LITCHFIELD, 105 BEEKMAN ST., NEW YORK, U.S.A.



THE UNBREAKABLE PULLEY and MILL SEARING CO., Limited.
 HUNTERS LANE, WEST CORTON, MANCHESTER, ENGLAND.

Agents Wanted.



PULLEYS . .
BEARINGS . .
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Gas Engines.

Advertise in The Canadian Manufacturer

DO YOU USE Corrugated Shuttles

WE MAKE THEM.

FOR WEAVING FROM COP?

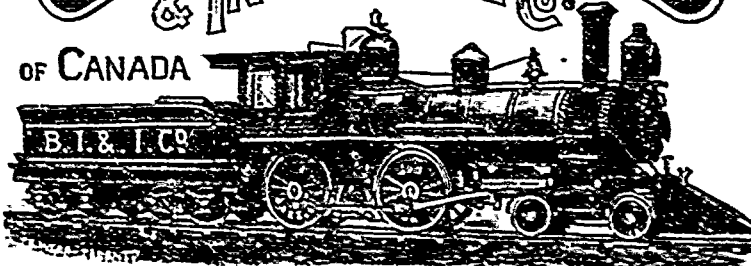
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JOHN HOPE & CO., LACHUTE SHUTTLE and LACHUTE, QUE. BOBBIN WORKS,

When were Your **BOILERS** Last Inspected?

Consulting Engineers—**G. O. ROBB, Chief Engineer, A. FRASER, Soc. Treasurer**

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Head Office, TORONTO.

Are You sure they are **SAFE** and in **Good Condition?**

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We are Importers of Canadian Goods and Manufacturers' Agents.
The YEREX & JONES CO.,
 WELLINGTON, - NEW ZEALAND.
 REFERENCES—The Union Bank of Australia, Limited, Wellington.

FOR SALE. ABOUT 100 TONS
 OF

56 lb. T Rails,

INCLUDING FISH PLATES AND SPIKES.

Would be good for Sidings and for Contractors' use.

APPLY TO
Syracuse Smelting Works,
 MONTREAL.

FIRSTBROOK BROS.

Dovetail and Packing Boxes
 Top-Pins, Side Blocks and Cross Arms. Wood Printers, Etc.
 Cigar Boxes. Shipping Cases.
TORONTO, ONTARIO
 Write for Prices.

CARBONIZER

A neutral substance, harmless to animal fibre tissue, while it destroys burrs, etc., as efficiently as acid. It leaves the wool in fine condition. Manufactured by the Merrimac Chemical Co., 13 PEARL ST. BOSTON.

J. ALEX. CULVERWELL,

Electrical and Hydraulic Broker
 COMMERCIAL ENGINEER.
 (Formerly of Edison Gen. Elec. Co.)
 (Late Dist. Mgr. Royal Victoria Life)
 6 King Street West. - - TORONTO.

WELLAND VALE MANUFACTURING CO.

Limited, ST. CATHARINES, ONT.
 Manufacturers of ...
Axes, Edge Tools, Saws,
Farming Implements
and Bicycles.

CANADIAN OFFICE & SCHOOL FURNITURE CO. LIMITED
 PRESTON ONT.
 FINE BANK OFFICE, OFFICE SCHOOL, CHURCH, HOUSE & RESTORATION FITTINGS. SEND FOR CATALOGUE.

KIRVAN & BARNARD,

ELECTRICAL ENGINEERS and CONTRACTORS, Purchasing Agents.
 Complete Electric Light Plants, Wiring, Dynamo and Motor Repairing, Residential and Factory Work, Telephones, Bells and all Electric Fixings. Specifications, Plans, Tests and Consultations. Estimates furnished free, and all work promptly executed
 112 Church St., Toronto. Phone 8863.

It will easily accommodate 25,000 spectators. It has a quarter mile running track and a sufficiently large space in the inside of this for athletic games. There are seven large exits which are of sufficient breadth and height to admit in case of need, the largest vehicles or floats.

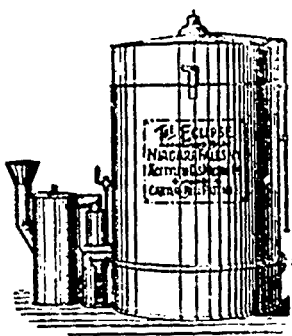
The total length of the Stadium, including the building which forms the entrance, is about 870 feet and the breadth about 500 feet.

The Shallow Lake Portland Cement Co., Owen Sound, Ont., has been incorporated with a capital stock of \$199,000 to manufacture Portland cement, etc.

The Ontario Milling & Mfg. Co., Dorlaine, Man., is applying for incorporation with a capital stock of \$40,000.

The ECLIPSE

ACETYLENE GENERATOR



BUILT ESPECIALLY
 For Private Residences,
 Offices or Small Stores.

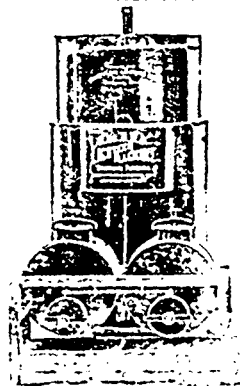
PRICE COMPLETE, - \$25.00

Write for particulars.

NIAGARA FALLS ACETYLENE
GAS MACHINE CO., Limited,
 Niagara Falls, Ont. or N.Y.

Sun Lighting Machine.

ACETYLENE GAS.



The Acme of Perfection in Lighting.

At the Minimum of Cost.

Suitable for any place where Artificial Light is required. Dwellings, Stores, Churches, Factories, Hotels, Street Lighting, etc.

Write for Catalogue.

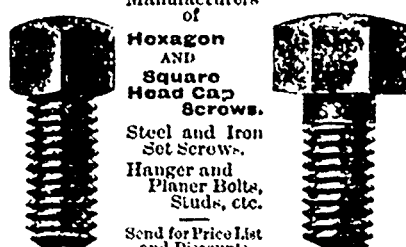
THE
Acetylene Lighting Co.
 (LIMITED).
 LONDON, ONTARIO.

Paris Electro Plating Co.
 PARIS STATION, ONT.

Manufacturers of
Stove and Piano Trimmings and Novelties
 Fine Grey Iron Castings a Specialty.
 Nickel, Copper and Brass Electro Plating.
 WRITE FOR PRICES.

TORONTO MACHINE SCREW CO.

Manufacturers of



Hexagon AND Square Head Caps Screws.
 Steel and Iron Set Screws.
 Hanger and Planer Bolts, Studs, etc.
 Send for Price List and Discounts
 109 1/2 Adelaide St. W. - TORONTO.

JOHN J. GARTSHORE,

83 Front St. West, Toronto.
 RAILWAY, TRAMWAY, and
Contractors' Supplies
 METALS and SCRAP IRON
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TRADE MARKS, Etc.
HANBURY A. BUDDEN
 NEW YORK LIFE BUILDING,
 MONTREAL.

F. R. F. BROWN, M.J.M.E.
Consulting Engineer,

Telephone Main 3351.
 Machinery, Rolling Stock, Engines and Boilers of every description supplied. Inquires a specialty
 ARBITRATIONS. VALUATIONS.
 22 Street Railway Chambers, Montreal.

CHARLES H. MITCHELL, B.A. Sc.

C.E. (Tor. Univ.), A.M. Can. Soc. C.E.
Civil and Hydraulic Engineer,
 NIAGARA FALLS, CAN.
 Special attention given to Water Power Development and Improvement

F. W. Hore's Sons, HAMILTON, ONT.
 Manufacturers of
Wheels, Wheel Materials, Shafts, etc.

WOOD ENGRAVING
PHOTO ENGRAVING
HALF TONES
 OR ANY CLASS OF ENGRAVING FOR ADVERTISING PURPOSES, CATALOGUES, MAGAZINES, &c.
J.L. JONES ENG. CO.
 6-8-10
 Adelaide St. W. TORONTO.

Smith Wool-Stock Co.
219 FRONT ST. E., TORONTO.
Makers of
**WOOL STOCK,
SHODDIES, Etc.**

LEITCH & TURNBULL, Canada Elevator Works,
Queen and Peter Sts.,
HAMILTON, ONT. Patent Safety Hydraulic,
Hand and Power **ELEVATORS.**
Telephone Connection.

GEO. PATTINSON & CO.
PRESTON, - ONTARIO.
Manufacturers of

FINE AND MEDIUM **TWEEDS**

PENMAN MANUFACTURING CO.
PARIS, ONT. LIMITED,
Manufacturers of

Hosiery, Shirts, Drawers,
Glove Linings and Yarns.

Selling Agents—D. Morrice, Sons & Co.,
Montreal and Toronto.

**ROSAMOND
WOOLEN CO.**
ALMONTE, ONT.,

Fine Tweeds, Cassimeres,
and Fancy Worsted
Suitings and Trouserings.

JOHN HALLAM
TORONTO.

WHOLESALE DEALER IN
DOMESTIC and FOREIGN **WOOLS**
Sumac, Japonica, etc.

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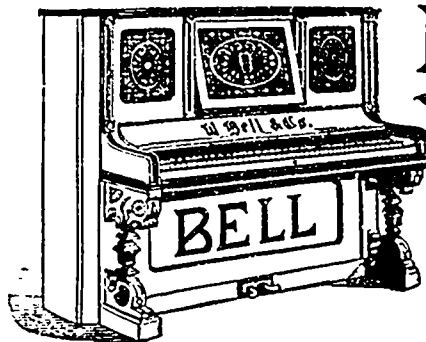
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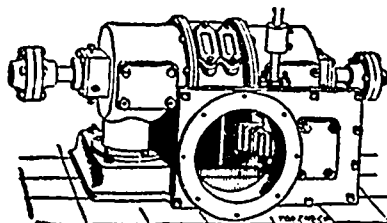
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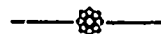
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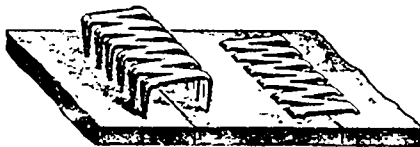
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