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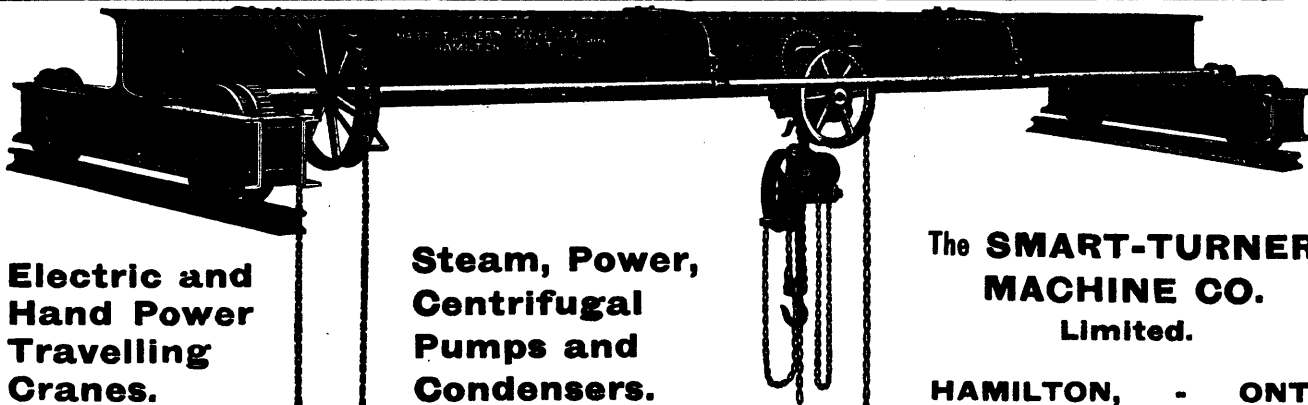
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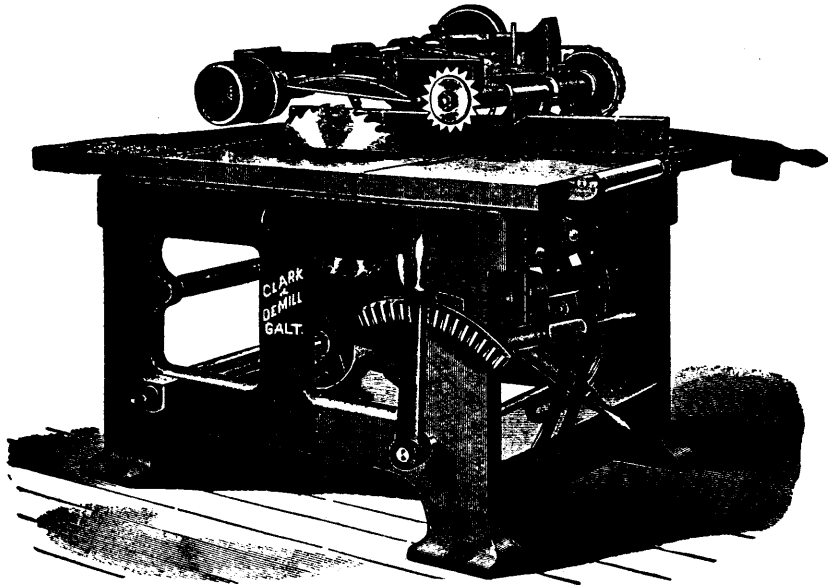
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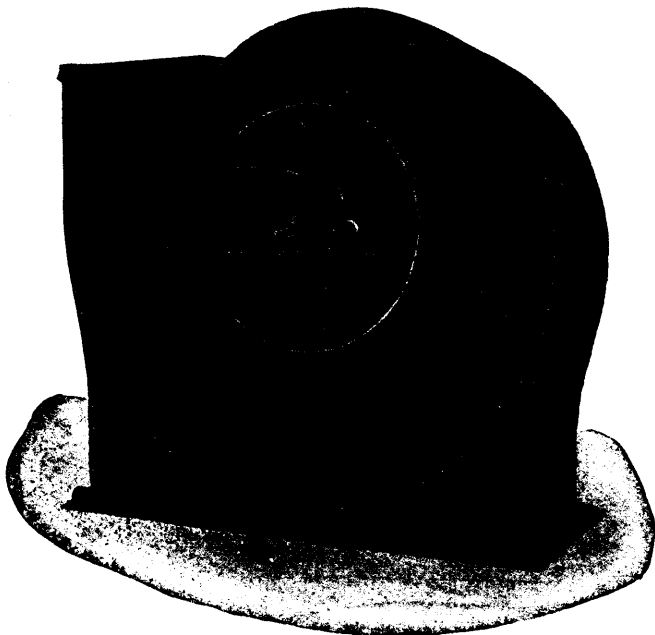
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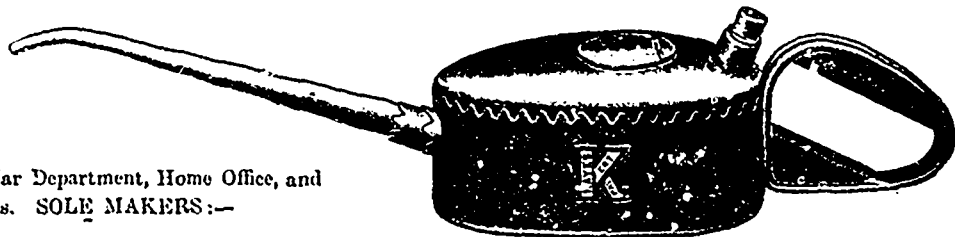
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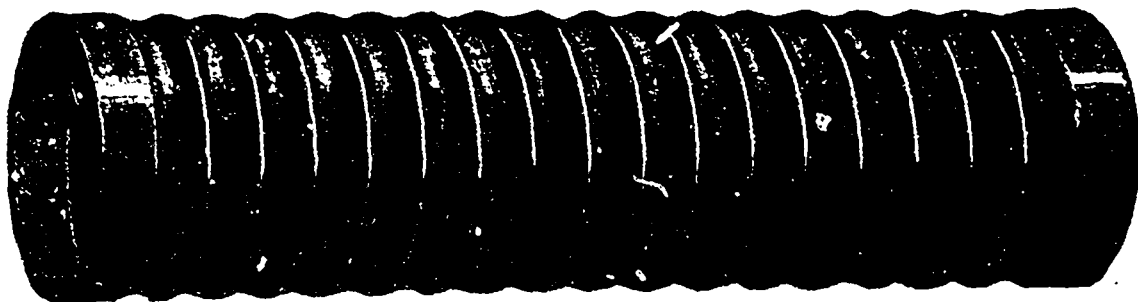
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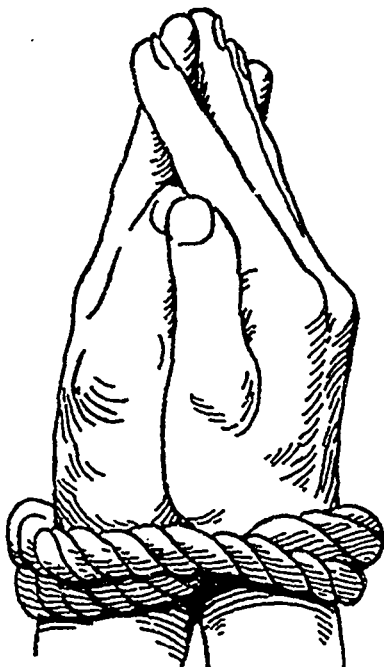
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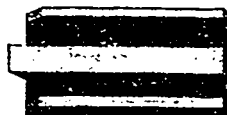
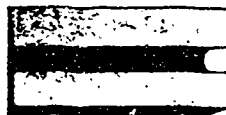


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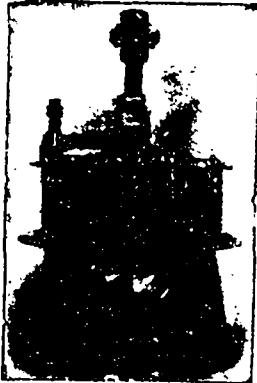
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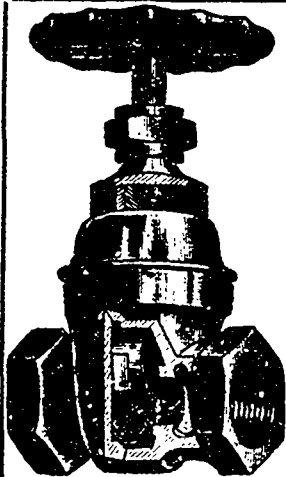
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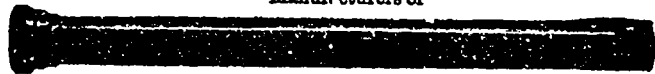
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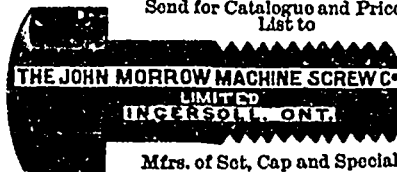
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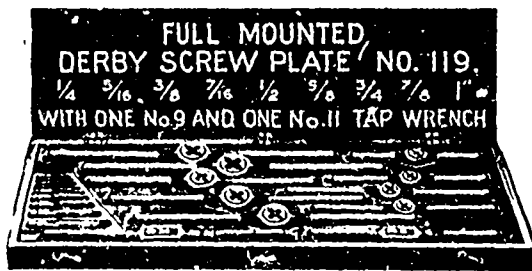
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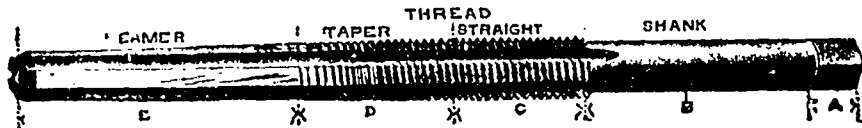
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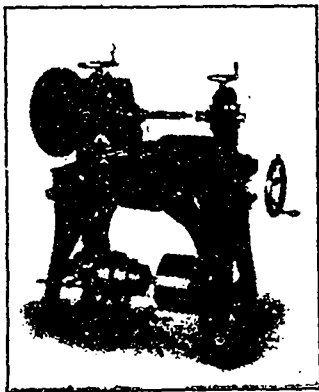
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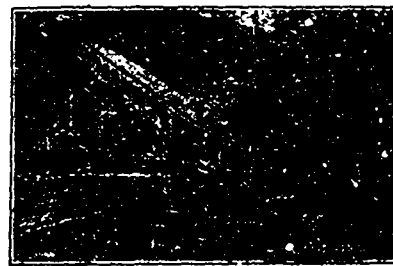
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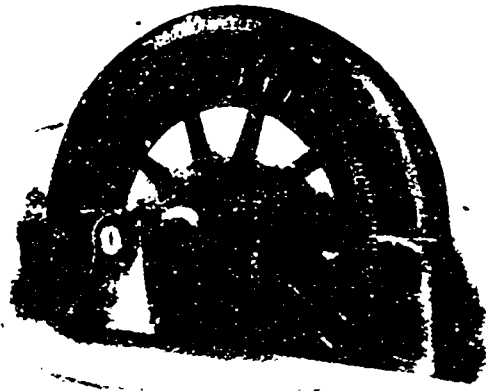
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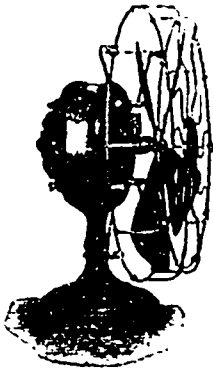
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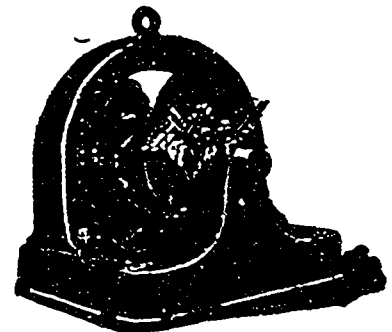
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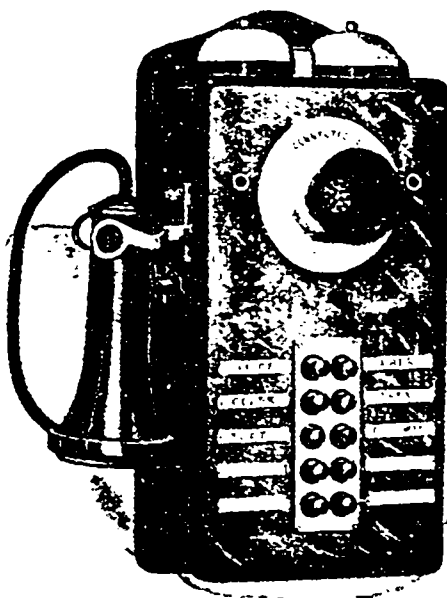


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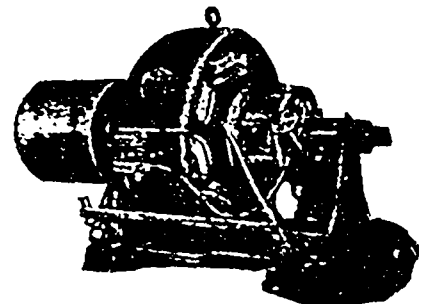
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TABLES

Manufacturing Plant Number.	Total Horse-Power.	Horse-Power to drive Shafting.	Per Cent. to Drive Shafting.	Manufacturing Plant Number.	Total Horse Power.	Horse-Power to Drive Shafting.	Per Cent. to Drive Shafting.
1.....	400	157	39.2	7.....	40.4	20.7	51.2
2.....	74	57	77	8.....	74.3	40	53.8
3.....	38.6	25.3	65.6	9.....	47.2	24.5	51.8
4.....	59.2	47.9	80.7	10.....	190	108	56.9
5.....	112	64	57	11.....	107	74.5	69.7
6.....	168	91	54.2	12.....	241	114	47.3
Average, heavy machine work,	62.3	Average, light machine work,	55.1

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J. J. CASSIDEY, - - - Editor.
D. O. McKINNON, - - - Business Manager.

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THE TARIFF.

The Finance Minister presented his "budget" to the Dominion House of Commons last week. Speaking of tariff revision Mr. Fielding stated that there would be no material changes in the tariff this session although there would be a few minor resolutions. Machinery for making beet-root sugar was now exempt from duty, and the House would be asked to extend that exemption for six months longer, that is until December 31 next. The reason for this was the fact that factories were being constructed and the extension would give them the free rate intended when the extension was first adopted. A like extension would be granted to machinery used in alluvial gold mining.

A resolution would also be introduced to confirm an arrangement with the Grand Trunk Railway Company respecting the return to Canada of steel rails sent out of the country to be re-rolled and afterwards used on the company's branch lines. There was no mill in Canada where this work could be done, and the company had asked that the rails be re-admitted free of duty. That request had not been granted, but instead of such an arrangement a resolution would be presented imposing a duty of 25 per cent. on the value of the labor employed in re-rolling the rails, but this to apply only so long as there was no mill in Canada for doing the work. The duty on steel rails was a specific one of \$7 per ton, being equivalent to an ad valorem rate of 25 per cent., and that rate had been imposed in the present case.

The Tariff Commission, said Mr. Fielding, had, during the last recess visited all parts of the country and listened to the representations of all interests. During the coming recess that report would be studied, and a revised tariff prepared ready to present to Parliament in the autumn provided the present session did not last so long that an autumn session would be impossible. The changes in the tariff would not be great; they would be in the nature of a re-adjustment to meet the changed conditions of the country's trade.

EXPORTS OF CANADIAN PRODUCTS.

The value of Canadian products exported to other countries during the fiscal year ended June 30, 1905, are classified as follows:

Manufactures.....	\$21,191,333
The mine.....	31,932,329
The fisheries.....	11,114,318
The forest.....	33,235,683
Animals and their produce.....	63,337,458
Agricultural products.....	29,994,150
Miscellaneous.....	49,675

Total..... \$190,854,946

The percentage of each as relates to the whole is:

Manufactures.....	11.2 per cent.
The mine.....	16.8 " "
The fisheries.....	5.1 " "
The forest.....	17.5 " "
Animals and their produce.....	33.5 " "
Agricultural products.....	15.5 " "
Miscellaneous.....	0.4 " "

Total..... 100.0 " "

The distribution of these exports was as under:

	British Empire.	United States.	All Countries.
Manufactures..	\$10,052,186	\$8,280,842	\$21,191,333
The mine.....	1,545,090	28,764,461	31,932,329
The fisheries...	4,047,786	4,593,564	11,114,318
The forest.....	12,908,331	17,837,049	33,235,683
Animals and their produce.	57,038,634	5,906,259	63,337,458
Agricultural products....	22,935,904	5,034,640	29,994,150
Miscellaneous..	33,839	9,950	49,675

Total..... \$108,579,770 \$70,426,765 \$190,854,946

The percentage of distribution was:

British Empire.....	50.5 per cent.
United States.....	36.5 " "
All other countries.....	13.0 " "

Total..... 100.0 " "

The distribution of Canadian manufactures in the British Empire in 1905 was to

Great Britain.....	\$6,378,419
Australia.....	1,608,219
Bermuda.....	71,723
British Africa.....	360,867
" East Indies.....	17,792
" West Indies.....	228,256
" Guiana.....	28,482
" Honduras.....	3,105
" Possessions—all other.....	4,151
Fiji Islands.....	1,517
Hong Kong.....	3,022
Newfoundland.....	895,871
New Zealand.....	450,562

Total..... \$10,052,186

The only countries in the British Empire to which no Canadian manufactures were exported in 1905 were Gibraltar and Malta.

The foreign countries to which Canadian manufactures were exported in 1905 and the values thereof were as follows, not including any countries to which the values were less than \$1,000:

United States.....	\$8,280,842
Argentina.....	133,145
Belgium.....	243,600
Brazil.....	52,207
Central America.....	30,203
Chili.....	35,833
China.....	593,105
Cuba.....	34,209
Denmark.....	19,025
Danish West Indies.....	1,802
Dutch West Indies.....	1,825
Dutch Guiana.....	1,279
Ecuador.....	5,229
Egypt.....	10,582
France.....	441,888
French Africa.....	10,573
French West Indies.....	24,007
Germany.....	351,578
Hawaii.....	7,544
Holland.....	249,511
Italy.....	47,153
Japan.....	98,499
Mexico.....	67,332
Norway and Sweden.....	61,144
Panama.....	17,729
Peru.....	3,405
Philippines.....	23,807
Porto Rico.....	1,422
Portugal.....	1,450
Roumania.....	1,614
Russia.....	185,265
San Domingo.....	1,391
St. Pierre.....	35,530
Spain.....	22,698
Switzerland.....	8,525
Uruguay.....	6,859
Colombia.....	5,122
Venezuela.....	18,034
Unenumerated.....	4,181
Total to other than British countries.....	\$11,139,147

In the above list there are 38 non-British countries enumerated and 14 unenumerated, including Austria-Hungary, Azores, Bolivia, Corea, Dutch East Indies, German Africa, Greece, Hayti, Iceland, Madeira, Persia, Portugese Africa, Spanish Africa and Turkey.

The exports of Canadian manufactures in 1905, their general classification and value were in part as under:
Iron and steel and manufactures of, viz.:

Stoves.....	\$16,738
Castings.....	73,836
Pig iron.....	86,078
Machinery, n. e. s.....	312,865
Sewing machines.....	22,863

Typewriters.....	\$125,544
Scrap iron and steel.....	106,642
Hardware, n. e. s.....	153,226
Steel and manufactures of.....	245,562
Agricultural implements.....	2,313,620
Aluminum—pigs, bars, etc.....	534,598
Books, pamphlets, etc.....	181,671
Biscuit, bread, etc.....	31,660
Brick.....	5,028
Buttons.....	2,491
Cartridges.....	106,779
Cement.....	5,430
Clay, manufactures of.....	2,775
Clothing.....	159,759
Coke.....	473,590
Cordage.....	344,024
Cotton fabrics.....	1,074,737
Cotton goods—other.....	29,052
Cotton waste.....	69,406
Drugs, chemicals, etc., n.e.s.....	834,838
Dye stuffs.....	3,070
Electrical apparatus.....	21,285
Extract of bark.....	57,861
Explosives and fulminates.....	184,531
Fertilizers.....	229,212
Furs.....	18,305
Glass and glassware.....	16,163
Grindstones.....	27,985
Hats and caps.....	5,815
India rubber and manufactures of.....	252,956
Jewellers' sweepings.....	78,026
Junk.....	188,351
Lamps and lanterns.....	4,637
Leather—manufactures of.....	2,344,909
Lime.....	75,498
Liquors.....	706,665
Metals, n.o.p.....	235,181
Musical instruments.....	289,792
Oil cake.....	101,641
Oil, n.e.s.....	46,889
Paper—wall.....	23,053
Paper, n.e.s.....	1,768,020
Rags.....	214,334
Ships.....	56,313
Soap and starch.....	34,968
Stone—ornamental, etc.....	3,797
Sugar and syrup.....	1,959
Tin—manufactures of.....	37,535
Tobacco and manufactures of.....	82,184
Tow.....	26,394
Vehicles.....	243,796
Wood—manufactures of, etc.....	4,417,038
Woolen goods.....	690,349
Miscellaneous.....	49,675
Unenumerated.....	1,337,934
Total value exports of manufactures.....	\$21,191,333

The value of Canadian manufactured products exported to other countries in the year, indicated was as follows:

	Great Britain.	British Empire.	United States.	All Foreign Countries.
1900 .	\$5,625,073	\$7,670,433	\$4,857,413	\$6,553,854
1901 .	6,652,336	9,023,969	4,963,247	6,988,239
1902 .	7,322,602	10,425,443	6,024,373	8,037,527
1903 .	6,728,293	10,363,380	8,236,129	10,261,587
1904 .	6,231,094	10,163,586	7,416,498	9,700,463
1905 .	6,378,419	10,052,186	8,280,842	11,139,147

THE METRIC SYSTEM—6.

We are pleased to notice in the May issue of Industrial Canada that the executive council of the Canadian Manufacturers' Association are giving some attention to the question of the compulsory adoption of the metric system in Canada. It is recorded that at the last meeting of the council "a communication was read from Marshall Cushing, secretary of the National Association of Manufacturers of the United States, urging the Canadian Association to take action to counteract the efforts being made to further the adoption of the metric system." "This communication" we are told "was dealt with in connection with the Commercial Intelligence report referred to later." Referring to the report of the Commercial Intelligence Committee under the sub-head "Metric System" it says:

For the discussion of this subject Mr. J. P. Murray was invited to meet with the committee. The question is one of great importance to Canada owing to the attempts that are being made to pass favorable legislation at Washington and to the vigorous opposition that has been shown by the National Association of Manufacturers. The committee considers that there are two sides to the question and that from the information at hand the association is not prepared to take a decided stand one way or the other. They, however, beg to recommend to the council the following resolution:

"That the association requests the government not to take any action to encourage the adoption of the metric system until such time as action is taken by the British Government."

There is no record that at that or at any other meeting of the executive council of the Canadian Manufacturers' Association any opinion pro or con was expressed or action taken regarding the proposed enforcement of the metric system in Canada.

It is evident that the executive council of the C.M.A. do not read the papers, and therefore are not posted as to what is going on in the world regarding things that affect the manufacturing interests of Canada, and of the Empires, with which we are so intimately connected. They seem to be oblivious of the fact that but very recently at the instigation of the Dominion Government, in the same building in which they were holding their meeting, and within ten steps of the door of their meeting place, Prof. MacLennan discussed to an audience of Toronto business men concerning the metric fad. They were invited to attend, the meeting was public and some of the members of the council were present. They seem to be oblivious to the fact that the Dominion Government had employed Prof. MacLennan to tour the country from ocean to ocean, and is now doing so in an endeavor to reconcile the manufacturers and business men to the coming time when, if possible, the use of the metric system shall be compulsory in all the transactions that

transpire in our commercial life to the absolute exclusion of the British systems that have been in vogue for hundreds of years. The council really seem not to be aware of what the metric system is nor what its compulsory adoption would mean, not having heard Prof. MacLennan's lecture nor having read what Canadian papers have to say about it. They ask the government not to encourage the adoption of the metric system until such time as the British Government takes such action, being oblivious of the fact that the free use of the system has been law in Canada, Great Britain and the United States for many years. Notwithstanding the efforts of Prof. MacLennan to popularize the fad, and all that has been said and written about it in this country, the milk and water non-action of the council seems to have been instigated by a communication from a foreign country. A good sturdy British association has been in active existence for a number of years combating the fad over there, and literature published by it could be had for the asking, but the council seem to be oblivious to that fact. "The committee considers that there are two sides to the question and therefore they advise the association not to take a decided stand one way or the other." Bully for the committee.

Mr. Murray, who was invited to discuss the matter with the committee, was well qualified to do so in a most intelligent manner. He is connected with perhaps the largest woolen manufacturing industry in Canada, and he no doubt explained that under no circumstance could that industry continue in business if it were compulsory to use the metric system in its transactions. Mr. Murray knows that there are no two sides to the question as the committee says there is. There are millions of dollars invested in the Canadian textile industry by members of the C.M.A. that are now being jeopardized by an unfortunate propaganda to force the compulsory use of the metric system upon Canada; and there are many other millions invested in other Canadian industries by other members of the C.M.A. thus in jeopardy, although the association, according to the committee, are not prepared to take a decided stand in their defense. Why not?

For the information of the Dominion Minister of Inland Revenue who is taking such active interest in propagating the compulsory adoption of the decimal system fad in Canada; of Prof. MacLennan, who is assisting him to do so at the expense of the public treasury, and of the committee of the association who know so little of the matter that they are unable to express an opinion regarding it, we would inform them that recently—March 8 last—in the British House of Commons answering a question as to the probability of an opportunity being afforded for a discussion of the compulsory adoption of the metric system in Great Britain as a non-political and non-contentious question, Sir Henry Campbell-Bannerman, the premier, said he could make no promise for the passing this session of a bill to make compulsory after a lapse of two years the use of the metric system of weights and measures. Such a bill if it became law would necessarily render illegal the use of existing weights

and measures, and he did not think there was any ground for anticipating that such a measure would be non-contentious.

We would also inform these gentlemen that the British government have instructed British consuls and commercial agents throughout the world that whenever in making reports on commercial matters to the government, where weights and measures are expressed, the metric system is not to be used, but rather the present system with which the people have been accustomed for hundreds of years.

We would also inform them that the Littaner compulsory metric bill lately pending before the coinage weights and measures committee of the United States House of Representatives, to which reference was made in the communications received by the executive council of the C.M.A. from the secretary of the American Manufacturers' Association, has been killed in that committee. This result was brought about by the opposition of the manufacturers of the United States to any disturbance of established standards. The committee was overwhelmed with protests and arguments from men who would have been forced to bear the expense and trouble of the change if the bill had passed. The supporters of it consisted mainly of college professors, scientific men and some of the employes of government bureaus who have for years met with slight opposition in their persistent efforts to secure the adoption of metric weights and measures by force. The prospects of their success were at one time excellent. It is by no means unlikely that the United States would now have two systems of weights and measures, one official and the other popular, had not the manufacturers been aroused to the danger by the National Association of Manufacturers. That association through its secretary bent all its energies to the work of placing the facts before the committee and directing the work of those who were in opposition. The contest illustrates the necessity for working organizations. The result proves that no compulsory metric bill is possible in the United States if proper and sufficient means are taken to place the truth before the legislators and the people. The only danger to existing standard arises from indifference which gives the coveted opportunity to scientific theorists and ignorant politicians.

What are Canadian manufacturers going to do about defeating the Maclellan propaganda in this country?

THE SIXTH CONGRESS OF CHAMBERS OF COMMERCE.

According to the official programme sent out by the secretary, the sixth Congress of the Chambers of Commerce of the Empire will open on July 10 in London, England.

It announces that the congress will be presided over by Mr. Thos. F. Blackwell, President of the London Chamber of Commerce; that the Rt. Hon. Earl of Elgin, Colonial Secretary, is Honorary President of the Imperial gathering; that Lord Strathcona, High Commissioner for Canada in London, is one of the vice-presidents, and that resolutions for the final edition of the programme must be sent in by the colonies not later than June 15.

Among the subjects given in the programme for discussion are the following:—British capital in the colonies, British commercial agents; cable communication; Canadian bankruptcy law; codification of the commercial laws of the empire; colonial duty on catalogues; commercial education; commercial relations between the mother country, her colonies and dependencies; commercial travellers' taxes and also licenses; Consular service; decimal system of weights, measures and currency; defence of the empire; emigration; fast steamship service; food supply; Imperial penny postage; Imperial Council; importation of Canadian cattle into Great Britain; insolvency law; merchandise marks; most-favored nation treatment for British colonies; national indemnity in time of war; naturalization laws; Newfoundland; parcel post rates; postal rate on Imperial publications; shipping bounties; registration of firms and surtax on rum.

Resolutions are to be moved respecting all of these subjects, and thirty-five of them are to be moved by representatives of Canadian boards of trade and commerce and of the Canadian Manufacturers' Association.

Regarding the question of the commercial relations between the mother country and her colonies a resolution will be submitted by the Canadian Manufacturers' Association reading:

"Resolved that this sixth Congress of Chambers of Commerce of the Empire urges upon his Majesty's Governments in the United Kingdom and in all British dominions the advisability of arranging at an early date to their mutual benefit and satisfaction reciprocal preferential trade measures with the other portions of the empire."

The Toronto Board of Trade will move a like resolution, with an additional clause that in order to make such a scheme operative "the chair shall appoint before this congress dissolves a representative and proportionate committee of home and colonial delegates to devise a scheme of this nature and report to this or a similar commercial congress."

The Vancouver Board of Trade will submit a resolution, urging upon "the Imperial Government and upon the Governments of the colonies the appointment of an Imperial Council to consider questions of Imperial interests, especially those tending to promote international trade." Similar ideas are set forth in resolutions of the Liverpool and Aberdeen Chambers of Commerce.

Dealing with the questions of defence of the empire the Montreal Board of Trade will move:

"Resolved that this congress hereby reaffirms the principle of the resolution adopted at the last congress, that it is the duty of the self-governing colonies to participate in the cost of the defence of the empire."

The Chambre de Commerce, Montreal, supports this position, but believes the colonies should "claim the privilege of keeping their own initiative as to the nature and mode of help which they may agree to offer."

Both the Montreal Board of Trade and the Chambre de Commerce submit resolutions expressing a desire for the annexation of Newfoundland to the Canadian Confederation.

The latter organization also expresses its view on emigration and says that while "the colonies are disposed to give the best encouragement to immigration coming from the metropolis or from the European continent, insist upon measures being taken to insure the choice of a class of immigrants having all the physical and moral qualifications which they have a right to exact from settlers in return for the advantages which they confer upon them. They protest against the tendencies recently manifested, more particularly on the part of certain courts in the metropolis, to convert the self-governing colonies into penal colonies, and request the governments of these colonies to adopt the most stringent measures in order to send back to their native land immigrants not having the desired qualifications."

On the matter of the decimal system of weights, measures and currency, the Vancouver Board of Trade; the Chamber of Commerce of Montreal; the British Chamber of Commerce for the French Rivera and Principality of Monaco; the London Chamber of Commerce and the Canadian Manufacturers' Association all submit resolutions urging the adoption of such a system; and the latter association recommends the appointment of a royal commission to investigate, and if possible recommend, a uniform system for the empire.

Commercial travellers' taxes which have been imposed in some parts of the colonies have given rise to the following resolution from the Birmingham Chamber of Commerce:

"That this congress is of opinion that the taxes at present levied by certain colonies on commercial travellers being the sole representatives of houses established in other parts of the British Empire, operate as a restraint on the development of inter-Imperial trade and cause considerable irritation and annoyance; that the congress is therefore of opinion that such taxes should be abolished; and that a memorial on the subject should be addressed to his Majesty's principal Secretary of State for the Colonies and to the Premier of each self-governing British colony."

PRODUCTION OF IRON AND STEEL IN CANADA.

The American Iron and Steel Association has received from the manufacturers the statistics of the production of steel ingots and castings and of finished rolled iron and steel in the Dominion of Canada in 1905. It has been necessary to estimate the production of one rolling mill.

The total production of all kinds of steel ingots and castings in Canada in 1905 was much the largest in the history of the Dominion and exceeded by 221,412 tons that of 1902, the year of next largest production, when 182,037 tons were made. As compared with 1904 the increase amounted to 254,665 tons or over 171 per cent. Bessemer and open-hearth steel ingots and castings were made in both 1904 and 1905, the production of open-hearth steel amounting in the latter year to over 59 per cent. of the total. Almost all the open-hearth steel reported in 1904 and 1905 was made by the basic process. The Bessemer steel was all made by the acid process. A

few hundred tons of steel were made in 1905 by a special process. The direct steel castings made in 1905 amounted to 9,394 tons against 6,505 tons in 1904. Our records do not show that Canada has made any crucible steel down to the close of 1905.

The following table gives the production of all kinds of steel ingots and castings in Canada from 1894 to 1905, in gross tons.

Years.	Gross tons.	Years.	Gross tons.
1894.....	25,685	1900.....	23,577
1895.....	17,000	1901.....	26,084
1896.....	16,000	1902.....	182,037
1897.....	18,400	1903.....	181,514
1898.....	21,540	1904.....	148,784
1899.....	22,000	1905.....	403,449

The production of all kinds of finished rolled iron and steel in Canada in 1905 was also much greater than in any previous year, and amounted to 385,826 tons, as compared with 180,038 tons in 1904, the year of next largest production, an increase of 205,788 tons, or over 114 per cent.

The following table gives the production of all kinds of iron and steel rolled into finished forms in Canada from 1895 to 1905, in gross tons.

Years.	Gross tons.	Years.	Gross tons.
1895.....	66,402	1901.....	112,007
1896.....	75,043	1902.....	161,485
1897.....	77,021	1903.....	129,516
1898.....	90,303	1904.....	180,038
1899.....	110,642	1905.....	385,826
1900.....	100,690		

The production of Bessemer and open-hearth steel rails in 1905 amounted to 178,885 gross tons, against 36,216 tons in 1904; structural shapes, 885 tons, against 447 tons in 1904; nail and spike plate, 4,110 tons, against 5,030 tons in 1904; plates and sheets, 4,944 tons, against 3,102 tons in 1904; all other finished rolled products, excluding muck and scrap bars, blooms, billets, sheet bars, and other unfinished forms, but including for 1905 1,120 tons of forging blooms or forging billets, 197,002 tons against 135,243 tons in 1904. The total quantity of all kinds of iron and steel rolled into finished forms in Canada in 1905, including forging blooms and forging billets, amounted to 385,826 tons, against 180,038 tons in 1904. Of the 385,826 tons of finished iron and steel reported for 1905, about 318,405 tons were rolled from steel and 67,421 tons from iron, as compared with 126,850 tons rolled from steel and 53,188 tons from iron in 1904.

In 1905 the rolling mills and steel works in Canada which operated cut nail or wire nail factories produced approximately 366,800 kegs of cut nails and wire nails, as compared with 324,000 kegs of cut nails and wire nails in 1904.

On December 31, 1905, there were 21 completed rolling mills and steel works in Canada. In addition one plant was being built and two plants were projected. Of the completed plants three were equipped for the manufacture of steel castings only, one for the manufacture of open-hearth steel ingots only, five for the manufacture of Bessemer or open-hearth steel ingots and rolled products, and twelve for the manufacture or rolled products only. The building plant was being equipped for the manufac-

ture of black plates and tin plates and terne plates. One of the projected plants is to be equipped for the manufacture of skelp and bar iron and the other for the manufacture of wire rods.

Of the 21 completed rolling mills and steel works in Canada on December 31, 1905, four were located in Nova Scotia, five in Quebec, ten in Ontario, one in New Brunswick, and one in Manitoba. The single building plant is in Ontario. The two projected plants are also in Ontario.

EDITORIAL NOTES.

The Canadian Manufacturers' Association will hold its annual convention at Winnipeg, on September 17, 18, and 19.

The backdown of the anthracite mine workers when they decided not to strike, but to accept the propositions of the operators, was made official by President Mitchell, of the United Mine Workers and his committee, signing the agreement by which the conditions provided under the award of the anthracite strike commission are to continue for three years longer. The miners are to go back to work as soon as the colleries are ready. This leaves Mr. Mitchell with nothing to show for his promises to the mine workers. They were over a month in idleness and return under the same conditions they could have obtained before the suspension of work on April 1. Not a single point has been made by Mitchell to offset the loss of over five weeks' wages.

The Provincial Secretary's Department points out that Mr. Hoyles' bill respecting prospectuses is now law, having been assented to on April 27. In effect it requires prospectuses of every company selling shares or debentures in Ontario, whether chartered under the laws of the Province or elsewhere, to be filed in the Secretary's Department. Prospectuses must also be given to every purchaser or intending purchaser of stocks or debentures. Officials of the department say that company promoters would do well to bear the new law in mind and avoid trouble.

The Ontario Government will have a large exhibit from New Ontario at the Toronto Exhibition this year. The Grand Trunk, the Canadian Pacific and the Canadian Northern Railways are considering the propriety of having a joint building at the Exhibition, the ground floor to be used for exhibits and the floor above for offices.

How would Canadian manufacturers like to be compelled to change all their drawings, plans and specifications used in their shops throughout this land, if the metric system law was passed and made compulsory? They would have to do so, as no others would be legal. Our courts would recognize no others. Every farm and building lot in Canada would have to have a new survey made and recorded.

There need be no fear of the metric system being forced

on the American people in any form, and the present Congress is paying little attention to its advocates. The American manufacturers have put a spoke in that wheel. They have spoken with no uncertain sound, and their voices have had enough carrying power to reach Washington. America is too busy at this moment with realities to be chasing will-o-the-wisps.—Hardware Dealers' Magazine.

The London Times' correspondent at Rome cables that paper as follows:—"The Postal Union Congress practically ended May 22. The main achievement of the Congress directly affecting the public was the cheapening of postage on heavy letters. Not only has the unit of weight been raised from 15 to 20 grammes, but the postage has been reduced from 25 centimes to 15 for 20 grammes after the first of June. These changes will be even more favorable to Anglo-Saxon non-metric countries than those using the decimal system, the British delegates having secured the adoption of one ounce. Unfortunately the congress could not be induced to lower the initial rate of letter postage. The British and Japanese proposals for a reduction to 20 centimes both failed. New Zealand's advocacy of universal penny postage was rather a demonstration than a business proposal. A little success was scored by picture postcards in internationalization. Permission was granted hitherto by only a few countries to write on the left-hand half of the address side. Still a more welcome boon to the public is the new reply coupon, which takes the form of a postal order to the bearer exchangeable in any country for a postage stamp of the value of 25 centimes.

The Royal Society commenced its twenty-fifth annual session in Ottawa last week, Prof. Johnson, of McGill University, Montreal, in the chair. Sir Sandford Fleming, supported by Benjamin Sulte, Lieut.-Col. Denison, Dr. Keefer, and Sir James Grant, presented a strong plea for universal uniformity in weights and measures. After considerable discussion it was decided that a committee of seven, the majority composed of members of the mathematical and geological sections, should be appointed to report on the whole question of the metric system. About every manufacturing industry in Canada, particularly the manufacturers of textile fabrics, every manufacturer of machines and machinery, every manufacturer and dealer in hardware, every carriage and wagon maker, and every farmer who uses a plow, would be most disastrously affected by the compulsory adoption of the metric system. The executive council of the Canadian Manufacturers' Association think there are two sides to the question and are undecided which to take, and so a police court judge and several other equally astute scientists from the mathematical and geological sections of the Royal Society kindly undertake to tell us what we should do.

A telegram from Berlin, Germany, a few days ago states that Mr. E. N. Foss, of Boston, vice-president of the

American Reciprocity League, had had another interview with the German foreign secretary to discuss a reciprocity treaty between that country and the United States, on the expiration of the existing provisional agreements. Herr Koerner, head of the trade section of the foreign office, was present. Mr. Foss carried with him a letter of recommendation from Baron Speck von Sternburg, the German ambassador to the United States. Trade between Germany and the United States is large, and valuable to both countries, and the object of Mr. Foss is to encourage it by all proper methods. Not so with the trade between Germany and Canada, when unfortunate misunderstandings and disagreements rule the situation, growing out of the tariff preference shown to Great Britain by Canada.

Canada's foreign trade for the ten months ended April 30 reached the total of \$435,742,955, or nearly \$69,000,000 more than for the same period of the year previous. The imports amounted to \$225,257,576, an increase of \$25,280,200, and the exports to \$189,757,157, a gain of \$35,815,754. The increase in exports of domestic produce was \$10,535,554, more than that in imports. The most notable gain is in exports of agricultural products which amounted to \$18,392,640. The other increases were:—Mine \$2,868,007; fisheries \$4,286,117; forest \$3,735,314; animals and their produce \$3,563,041; manufactures \$2,937,146. Imports for April amounted to \$23,046,639, as against \$20,708,422 for the same period of the previous year. Exports of domestic produce were \$13,362,662, as compared with \$9,088,495. Following are the figures for the ten months in detail: Imports for consumption, ten months—

	1905.	1906.
Dutiable goods.. . . .	\$120,673,298	\$138,344,074
Free goods..... . . .	79,304,078	86,913,502
Total.. . . .	\$199,977,376	\$225,257,576
	1905.	1906.
Duty collected.. . . .	\$34,035,280	\$37,708,663
Domestic exports, ten months—		
	1905.	1906.
The mine.....	\$24,622,986	\$27,490,993
The fisheries.....	8,882,788	13,168,905
The forest....	24,802,682	28,537,996
Animals and their produce....	53,082,323	56,645,364
Agricultural products..... . .	25,709,620	44,102,260
Manufactures.....	16,811,351	19,748,497
Miscellaneous.....	29,653	63,142
Totals.....	\$153,941,403	\$189,757,157

A press telegram from London says that the Association of Chambers of Commerce had received a communication from the Commercial Intelligence Committee of the British Board of Trade to the effect that the committee are considering the early despatch to Canada of a commercial mission to ascertain and investigate the extent and

nature of the competition British goods have met with there, also with a view to indicating any further openings which may exist for British trade. Walter Rycroft, of Richardson Lee and Rycroft, Limited, Manchester, has been appointed to represent the Association of Chambers of Commerce. The extent and nature of the competition which British goods have met with in Canada has frequently been shown in this journal, which has proved that American competition, notwithstanding the preferential tariff, is crowding British goods out of this market. There are at least two things working to this end—failure of adaptability of British goods to the requirements of Canadian consumers, and failure of British manufacturers to advertise and endeavor to exploit their goods in Canada as American manufacturers do.

According to the statistics of the collector of customs of Santo Domingo, the foreign trade of the Dominican Republic for the last year was carried on principally with the United States, Germany, France, and Great Britain, in the order named as to relative importance. The trade with the United States amounted to \$6,445,346, or 65 per cent. of the whole, and represented imports received from that country valued at \$1,961,075, and exports invoiced at \$4,482,271. Thus, the United States purchases 65 per cent. of all the native products exported, and furnishes 59 per cent. of the merchandise imported during the year. Seventeen per cent. of the trade went to Germany, 11 per cent. to France, and a little over four per cent. to Great Britain, the latter being the only country mentioned whose sales to the Republic were greater than its purchases from it.

The Newfoundland trade returns show that in the past seven years the value of the imports has increased from \$6,311,244 to \$10,269,293, and the value of the exports has increased from \$6,936,315 to \$10,669,342. The imports from Canada have increased 100 per cent., from Great Britain 37 per cent., from the United States 42 per cent. The exports to Canada have increased 105 per cent., to Great Britain 35 per cent., and to the United States 128 per cent.

British trade with Cape Colony, where a preferential tariff in favor of Great Britain is in effect, has turned out worse than trade with Canada, which also has a preferential tariff. British exports to Cape Colony declined seven per cent. in 1905, as compared with 1904, while imports into the Cape from foreign countries increased, and also from other British colonies. The preferential tariff went into effect in 1904, but in that year there was no increase in the imports from Great Britain. There is talk of increasing the tariff, and also the preferential rate, from 2½ to 5 per cent.

Canada buys more machinery and metals from the United States than any other single country in the world.

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.

The Argentite Mining & Smelting Co., Toronto, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include G. C. Loveys, J. M. Ewing and W. B. Raymond, Toronto.

The Dominion Cobalt Mining & Development Co., Cobalt, Ont., have been incorporated with a capital of \$450,000, to carry on a mining, milling and reduction business. The provisional directors include R. K. Lindsay, W. J. Sanderson, and J. T. Later, Winnipeg, Man.

The ship yards on the Niagara River, at Bridgeburg, Ont., are being rushed to completion in order that the Canadian Shipbuilding Co. may get to work immediately on the construction of two of the largest steamers ever built in Canada. One is a 10,000 ton steel freight steamer for the Chicago & St. Lawrence Transportation Co., and the other is a new palace steamer for the Canadian Pacific Railway Co., for use on the upper lakes and presumably to go on the new Victoria Harbor route. The Bridgeburg yards will be completely equipped with modern machinery and appliances.

All public lands in Ontario containing corundum will in future be dealt with by the Government in the same manner as other mining lands under the Mines Act. This is the result of an order-in-council passed by the Ontario Government a few days ago. The lands were withdrawn from sale or disposal in 1898. The new regulation will not interfere with the agreements made by the government with J. N. Shenstone, Benjamin A. C. Craig, the Canada Corundum Co., and with the Corundum Refiners, Limited.

A recent order-in-council of the Ontario Government sets aside Coleman Township, in which the Cobalt camp is situated, with the exception of Cobalt and Kerr Lakes, as a mining division, separate from the Temiskaming reserve. Mr. George T. Smith, mining recorder at Haileybury, will have charge of the area. According to the Act, passed last session, under which this is done, in districts specially rich in ore, claims shall not exceed 20 acres in extent.

The Tilbury East Oil Co., Tilbury, Ont., have struck oil on the J. W. Smith property near Stewart, making the second producing well there. It is flowing 50 barrels per day.

The immigration into Canada for the ten months from July, 1905, to the end of April, 1906, inclusive, was 117,587, as compared with 99,309 for the same period last year, making a net increase of 18,278. The total immigration through ocean ports shows an increase of 7,010 and from the United States, 11,268.

The Minister of Mines for Ontario announces that a free site will be given any one building a smelter in New Ontario.

The Dominion Sewer Pipe Co., who erected works in Swansea, Toronto, last year, have already found it necessary to make

extensions. Two stories are being added to the present building besides which a new coal and clay house has been built. These additions will give the company 60,000 square feet of drying floor space.

The Cockshutt Plow Co., Brantford, Ont., intend to extend their plant. The moulding shop is to have a 70 foot addition, as is also the iron storage building. The changes that are being made will allow room for the extension of the experimental department.

Messrs. Stephen Hepner & Co., Port Elgin, Ont., will erect a three story factory at that place.

Messrs. McNairney & Kehoe, Huntsville, Ont., will erect an addition to their hotel there.

The Toronto Street Railway Co., Toronto, will expend \$1,500,000 in improving their system.

The town of Whitby, Ont., will call for tenders for the construction of 10,000 feet cement sidewalks.

The steel tank elevator of the Ogilvie Flour Mills Co., Fort William, Ont., partly collapsed May 26. Loss about \$250,000.

The factory of Messrs. A. Keenleyside & Co., London, Ont., was destroyed by fire May 26. Loss about \$1,000.

The Bachus-Brooks Co., Minneapolis, Minn. have purchased the property of the Keewatin Lumber Co., Keewatin, Ont., and are erecting a new sawmill.

The ratepayers of Ridgetown, Ont., have voted favorably on by-laws fixing the assessments of the R. Watt Machine Works at \$2,000 per year for ten years and J. E. Middleditch at \$1,000 per year for the same period.

Mr. R. Wilson Smith, ex-Mayor of Montreal, who was recently appointed a director of the Lake Superior Consolidated Co., says:—"The rail mill can now turn out 600 tons of rails per day. With the addition of a blast furnace it will soon be able to turn out a thousand tons. The steel rails will be the very best, and those who buy them will give the company repeat orders. There are rail orders twelve months ahead. These, of course, have not to be delivered immediately. There is no more promising enterprise in the Dominion to-day than the Soo industries. It is the biggest potentiality, not only in Canada, but of this entire continent. I have no hesitation in saying that for the completeness which marks several features, for the homogeneous principle running throughout the whole, for natural resources to maintain and replenish the industrial activities, this is the completest thing on the continent."

The Electric Heaters, Limited, Ottawa, have been incorporated with a capital of \$100,000, to manufacture gas, electricity, fixtures, lamps, etc. The provisional directors include A. F. Leggatt, W. L. P. Smith and A. A. Sears, Ottawa.

The Kilkeel Co., Toronto, have been incorporated with a capital of \$20,000, to

manufacture steamboats, etc. The provisional directors include A. W. McKenzie, D. B. Hanna and L. W. Mitchell, Toronto.

The Crown Lumber Co., Ottawa, have been incorporated with a capital of \$20,000, to manufacture timber, furniture, doors, etc. The provisional directors include C. Desmarais, Hull, Que.; T. Brethour, and W. D. Morris, Ottawa.

The township of Brighton, Ont., will erect three steel bridges.

It is stated that a mica factory will be established at Ottawa. Jno. E. Askwith, Ottawa, is interested.

Messrs. John Bertram & Sons Co., Dundas, Ont., will erect another factory at that place.

R. J. Strauss, Brantford, Ont., will organize a company in Guelph, Ont., for the manufacture of high-grade hosiery.

Crowe's Iron Works, Guelph, Ont., will erect a plant there.

It is reported that an 85-foot vein of copper has been discovered on the Judge-Jumble mine, Cobalt, Ont.

A hospital will be erected at Fort William, Ont., at a cost of about \$25,000.

A town hall will be erected at Eganville, Ont.

E. Hughes, Welland, Ont., will erect a block at that place.

The congregation of Crawford Street Methodist Church, Toronto, will erect a Sunday School building at a cost of about \$20,000.

The Windsor, Essex & Lake Shore Rapid Railway Co., Kingsville, Ont., have placed an order with the E. Keeler Co., Williamsport, Pa., for 150x7-foot self-supporting steel stack and large breeching in connection with this as well as all the pipe work and other construction.

The Crescent Coal Co., Toronto, have been awarded the contract for supplying coal for the Temiskaming & Northern Ontario Railway Co. for one year. The amount contracted for is 15,000 tons.

A biographical building will be erected in connection with Queen's Medical College, Kingston, Ont., for which the Ontario Government have made a grant of \$50,000.

The ratepayers of Fort William, Ont., have voted favorably on a by-law authorizing the installation of a waterworks system at a cost of about \$125,000.

The premises of the Western Oil Co., London, Ont., were damaged by fire May 18 to the extent of about \$2,000.

The Brinton Carpet Co., Toronto, will erect a new factory at Peterborough, Ont.

The George block, Bancroft, Ont., was destroyed by fire May 22. Loss about \$10,000.

The directors of the Y.W.C.A., Brantford, Ont., will erect extensive additions to the building there.

The Peterborough Cereal Co. and the Otonabee Power Co., Peterborough, Ont., will erect a new building at that place.

The Toronto & Hamilton Sewer Pipe Co., Hamilton, Ont., will rebuild their plant, which was destroyed by fire recently, at a cost of about \$50,000.

J. F. Scholtz, Stratford, Ont., will erect a whip factory at that place.

The Robo & Clothing Co., Berlin, Ont., will erect an addition to their factory at that place.

A Carnegie library will be erected at Brampton, Ont., to cost \$10,000.

The Board of Education, Hamilton, Ont., will ask the City Council to provide \$35,000 for the erection of an addition to the Wentworth Street school.

The Bell Telephone Co., Toronto, will shortly call for tenders for the erection of two new buildings.

The Department of Railways and Canals, Ottawa, invite tenders up to June 15, for the construction of concrete superstructures for the wooden piers at the entrance to the Murray Canal, and reinforced concrete bridges to span the openings between piers.

The J. W. Stone Boat Mfg. Co., Kenora, Ont., have been incorporated with a capital of \$25,000, to manufacture boats, canoes, etc. The provisional directors include T. J. Langford, H. T. Champion and G. W. Murray, Winnipeg, Man.

The Erie Telephone Co., Selkirk, Ont., have been incorporated with a capital of \$10,000, to carry on the business of a telephone company. The provisional directors include G. E. Dashner, A. Yager and E. Hoover, Township of Rainham, Ont.

The Tilbury Canning Co., Tilbury, Ont., have been incorporated with a capital of \$25,000, to manufacture boxes, bottles, etc., and to carry on a general canning business. The provisional directors include W. C. Crawford, J. S. Richardson and W. J. Moffat, Tilbury, Ont.

The Lawson Cobalt Silver Mining Co., Eganville, Ont., have been incorporated with a capital of \$500,000, to carry on a mining, milling and reduction business. The provisional directors include W. Lawson, D. F. McGregor and J. H. L. George, Eganville, Ont.

The Ontario Iron & Steel Co., Toronto, have been incorporated with a capital of \$500,000, to manufacture iron, steel, etc. The provisional directors include J. L. Steffel, Albany, N.Y.; W. M. German, and D. Ross, Welland, Ont.

The Punville Gas Development Co., Dunnville, Ont., have been incorporated with a capital of \$40,000, to manufacture gas, oil, etc. The provisional directors include L. Werner, T. Marshall and W. W. Krick, Dunnville, Ont.

The Dominion Henderson Bearings, Limited, Toronto, have been incorporated with a capital of \$300,000, to manufacture wire, machinery, etc. The provisional directors include W. Bowman, Georgetown, Ont.; J. F. Adams and C. W. Thompson, Toronto.

The Merritton Paper Mill Co., Merritton, Ont., have been incorporated with a capital of \$300,000, to manufacture paper, etc. The provisional directors include S. G. Brown, T. N. Brown, St. Catharines, Ont.; and H. G. Beech, Watertown, N.Y.

The Armstrong Mfg. Co., Markdale, Ont., have been incorporated with a capital of \$200,000, to manufacture lumber, timber, etc. The provisional directors include M.

Armstrong, W. A. Armstrong, Markdale, Ont., and F. X. O. Trudel, Montreal.

The Columbus Cobalt Silver Co., Toronto, have been incorporated with a capital of \$450,000, to carry on a mining, milling and reduction business. The provisional directors include J. Columbus, D. Simpson, Cobalt, Ont.; F. C. Jarvis, Toronto.

The Wolst-Rees Cobalt Silver Mining Co., Windsor, Ont., have been incorporated with a capital of \$250,000, to carry on a mining, milling and reduction business. The provisional directors include J. W. Wolst, F. S. Kralzet and A. Binkinnann, Detroit, Mich.

The Albert Mining Co., Toronto, have been incorporated with a capital of \$375,000, to carry on a mining, milling and reduction business. The provisional directors include S. J. Pickering, W. J. Brown and G. C. Campbell, Toronto.

The North Range Nickel & Iron Mining Co., Sudbury, Ont., have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include W. J. Bell, A. B. Gordon and R. McBride, Sudbury, Ont.

The Wendigon Silver & Copper Mining Co., Windsor, Ont., have been incorporated with a capital of \$400,000, to carry on a mining, milling and reduction business. The provisional directors include A. Green, Spokane, Wash.; J. A. Hunt, Detroit, Mich., and J. W. Hanna, Windsor, Ont.

The ratepayers of Niagara-on-the-Lake, Ont., voted favorably on a by-law to raise \$15,000, for the purpose of putting down cement sidewalks.

The North American Cobalt Refining Co., have purchased the property of the Hoepfner Co., Hamilton, Ont., and will operate a plant for refining Cobalt ores.

The Canadian McVicker Engine Co., Galt, Ont., have been established to manufacture gas and gasoline engines and will erect three large buildings at that place.

A report issued by Hon. Sydney Fisher, Minister of Agriculture, gives the following facts regarding maple sugar:—The sugar-making season is now over, and while this province (Quebec) was not quite up to that of previous years, the season was a fairly good one, and in the other three sugar-making provinces was about up to the usual. Sugar and syrup are made in four provinces—Ontario, Quebec, New Brunswick and Nova Scotia—and enormous quantities are turned out. In 1901 the product amounted to 17,804,825 pounds, the money value of which was \$1,780,482. Canada supplies over three-sevenths of the output of the maple sugar and syrup of the world, and is capable of furnishing six times the quantity of sugar and syrup she does if the owners of the maples would push the work as they could. Nova Scotia, New Brunswick, Quebec, and eastern Ontario mark the northern and western boundary or limits of the sugar maple. It extends south into Vermont, New Hampshire, Pennsylvania, New York, and Ohio in considerable quantities and a great deal of maple products are put out there. The sugar maple does not grow in Europe except in aboretums.

The corporation of Meaford, Ont., have placed an order with The Smart-Turner

Machine Co., Hamilton, Ont., for complete auxiliary pumping plant, consisting of duplex compound condensing pumping engine and independent jet condenser, pump, etc.

The Ashland Emery & Corundum Co. are now operating the Burgess corundum in Carlow, Ont. The plant consists of a mill 110x60 feet. There are six concentrators, in which the crushed material is treated, the iron being eliminated by means of a revolving magnet. The Wilfley tables of the latest pattern are used, the system of dry concentration being practically the same as used in gold reduction mills. The company have ordered \$20,000 worth of additional machinery from England, which is about to be installed. The power is furnished by a 70 h.p. engine, with two 70 h.p. boilers. Thirty-five men are employed. The company owns the water power at Little Carlow, from which electric power can be developed.

The Central Foundry, Limited, Toronto, have been incorporated with a capital of \$200,000, to carry on a general foundry business. The provisional directors include H. T. Bush, Port Hope, Ont., H. L. Bowers and R. C. Donald, Toronto.

Messrs. J. H. Jackson & Co., Toronto, have been incorporated with a capital of \$10,000, to manufacture gold, silver, etc. The provisional directors include T. E. Wrenshall, S. King, and J. H. Ewart, Toronto.

The sawmill of Messrs. Black & Perry, Fergus, Ont., was destroyed by fire May 11.

The Pure Gold Mfg. Co., Toronto, are installing an automatic feed pump and receiver, to operate with 8 pounds steam, being built by the Smart-Turner Machine Co., Hamilton, Ont.

The planing mill of Messrs. George Gordon & Co., Cache Bay, Ont., was destroyed by fire May 23. Loss about \$25,000.

The International Electric Co., London, Ont., have been incorporated with a capital of \$100,000, to manufacture electricity, machinery, etc. The provisional directors include A. R. Bickerstaff, G. Stevenson and E. MacKenzie, Toronto.

The Canada Law Book Co., Toronto, have been incorporated with a capital of \$200,000, to carry on a printing and publishing business. The provisional directors include R. R. Cromarty, H. O'Brien and H. L. Dunn, Toronto.

Messrs. Loveland & Stone, Cutler, Ont., are installing a duplex steam pump, built by the Smart-Turner Machine Co., Hamilton, Ont.

The Brown-Lee Co., Guelph, Ont., have been incorporated with a capital of \$50,000, to manufacture toilet preparations, medicines, etc. The provisional directors include E. S. Hardie, H. Mahoney, and J. E. Brown, Guelph, Ont.

The Herald Printing Co., Fort William, Ont., have been incorporated with a capital of \$40,000, to carry on a printing and publishing business. The provisional directors include W. H. Hamilton, W. T. Rankin and W. C. Lillie, Fort William, Ont.

The Contractors Supply Co., Toronto, have been incorporated with a capital of \$100,000, to manufacture builders' supplies, etc. The provisional directors include T. W. Self, F. Saunders and W. Smallwood, Toronto.

The Smart-Turner Machine Co., Hamilton,

Ont., are supplying a set of indigo dyeing machinery to Hamilton Cotton Co., Hamilton.

The Brethour Milling Co., London, Ont., have been incorporated with a capital of \$250,000, to manufacture lumber, timber, etc. The provisional directors include G. E. Coleman, B. V. Hole and R. Ferguson, London.

The Canadian Cannery have placed an order with the Smart-Turner Machine Co., Hamilton, Ont., for a duplex pump, to be used in connection with their Wellington plant.

The Ohio Cobalt Mining Co., Haileybury, Ont., have been incorporated with a capital of \$60,000, to carry on a mining, milling and reduction business. The provisional directors include H. H. Smith, W. B. Franey, Toronto, and B. R. Dawson, Steubenville, Ohio.

The University Mines, Toronto, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include H. L. Kerr, G. Glendinning, Toronto, and W. J. Blair, New Liskeard, Ont.

The machinery shop of B. Wagner, Kinsale, Ont., was destroyed by fire May 11. Loss about \$4,000.

G. Hill, Hamilton, Ont., will erect an eight story warehouse at that place.

The Maple Leaf Milling Co., Kenora, Ont., will erect a flour mill at that place.

The Toronto & Belleville Rolling Mills, Belleville, Ont., have been incorporated with a capital of \$99,900, to manufacture machinery, coal, iron, etc. The provisional directors include W. D. Morris, H. Nicholson and G. E. Barber, Ottawa.

Messrs. E. Leonard & Sons, London, Ont., have ordered two duplex boiler feed pumps, from the Smart-Turner Machine Co., Hamilton, Ont.

The Canadian Northern Hotel, Fort William, Ont., will erect three additional stories to their premises at a cost of about \$5,000.

Messrs. Church, Norton & Bowlby, Tilbury, Ont., have struck an oil well with a flow of 100 barrels per day.

The Delany-Pettit Co., Toronto, will extend their factory 100x72 feet.

The Commissioners of the Transcontinental Railway, Ottawa, invite tenders up to June 7, for 65,000 tons of eighty pound steel rails, and the necessary fastenings, and for 1,545,000 railway ties.

All Saints' church congregation, Peterborough, Ont., will erect a new church building at that place.

The Canada Carriage Co., Brockville, Ont., will erect a three story building at a cost of about \$20,000.

The sewer system, electric light and power plant, Berlin, Ont., will be extended at a cost of about \$48,000.

The congregation of Knox Presbyterian church, Stratford, Ont., will erect a Sunday school building at a cost of about \$18,000.

Messrs. McCollum, Forster & Gooderham have placed an order with the Smart-Turner Machine Co., Hamilton, Ont., for an independent jet condenser.

The waterworks system, Ottawa, will be extended at a cost of about \$100,000.

The Lorimer Automatic Telephone System,

Chicago, will establish a branch at Peterborough, Ont.

The Constable Construction Co., Pittsburg, Pa., have been awarded the contract by W. H. Rowe, Pittsburg, for the erection of a large summer residence at Cobourg, Ont., at a cost of about \$150,000.

The Department of Marine and Fisheries, Ottawa, invite tenders up to June 12, for a direct connected suction pump and triple expansion steam engine for a dredge, to be delivered at Sorel, Que.

The Canning Co., Simcoe, Ont., will erect an addition to their storeroom.

The Dominion Brewery Co. have recently placed an order for a side suction centrifugal pump with the Smart-Turner Machine Co., Hamilton, Ont.

W. O'Benne, Stratford, Ont., will erect an office building at a cost of about \$10,000.

The Grand Trunk Railway Co. will erect a steel bridge at Hamilton, Ont.

The Canada Furniture Co., Walkerton, Ont., will erect an addition to their premises at that place.

The premises of the Toronto Bolt & Forging Co., Swansen, Ont., were destroyed by fire recently. Loss about \$200,000.

The sawmill of Messrs. Little Bros., Haileybury, Ont., was destroyed by fire May 12. Loss about \$10,000.

The Cobalt Smelting & Refining Co. have purchased land at Argentite, Ont., where they will erect a smelter at a cost of about \$120,000.

The premises of the Grand Central Hotel, Niagara Falls, Ont., were destroyed by fire May 21.

The managers of the House of Providence, Toronto, will erect an infants' home at a cost of about \$60,000.

The Smart-Turner Machine Co., Hamilton, Ont., have received an order for one of their standard duplex pumps from the Berlin Button Works, Berlin, Ont.

The Upper Canada College, Toronto, have placed an order with the Robb Engineering Co., Amherst, N.S., for a 150 h.p. Robb-Mumford boiler.

The by-law for \$37,000, to enlarge the electric light plant was carried in Barric, Ont., on May 18, by a large majority. The new equipment will consist of water-tube boilers, a 450 h.p. Corliss valve engine, direct connected to a two phase, 2,200 volt, revolving field generator, necessary switch-board apparatus, piping, condensers, heaters, pumps, economizers, etc., and a series alternating street lighting system. Specifications will be ready about June 1, and tenders will probably be received not later than ten days after this date. Mr. K. L. Aitken, 164 Bay Street, Toronto, is consulting engineer.

The Smart-Turner Machine Co., Hamilton, Ont., have recently supplied one of their duplex steam pumps to the Northern Navigation Co., Collingwood, Ont.

The American Locomotive & Machine Works, Montreal, will expend \$1,000,000 in extending their works at Longue Pointe. The principal enlargements will be the steel bridge and the locomotive departments. This firm are securing many contracts for structural steel work in various parts of Canada.

The Dominion Steel Car Co., Montreal, closed out most of the contracts last week for the machinery equipment for their new plant and a number of New York machinery men were in Montreal and carried away with them orders for considerable business. About all the machine tool equipment has been closed for, but it is understood that the power contracts are still to be let. The equipment included considerable punching, shearing and riveting machinery and several orders for heavy cranes. J. A. Lamont, who has his headquarters at Montreal, is in charge of the purchasing.

The expansion of building operations in all parts of the country has so increased the business of W. H. C. Mussen & Co., dealers in railway and contractors' supplies, Montreal, that they have been compelled to extend. They have purchased the large warehouse situated at Nos. 21 and 23 Colborne Street, Montreal. This will give them excellent facilities for handling their goods, as the new warehouse faces the canal, and has railway sidings within 100 feet of the goods entrance.

The St. John, P.Q., Birek Co., St. John, Que., have been incorporated with a capital of \$75,000, to manufacture brick, tools, etc. The charter members include J. Simard, E. Normandin and A. Simard, St. John, Que.

The Rheame Foundry Co., Montreal, have been incorporated with a capital of \$49,000, to manufacture iron, steel, stoves, etc. The charter members include J. Rheame, J. L. Rheame and A. L. Binnet, Montreal.

The George Long Co., Sherbrooke, Que., have been incorporated with a capital of \$90,000, to manufacture machinery, implements, furniture, etc. The charter members include G. Long, T. Long, and W. Morris, Sherbrooke.

A branch postoffice will be erected at Montreal to cost about \$57,000.

The premises of the Canada Leather Co., Verdun, Que., were damaged by fire May 17. Loss about \$3,000.

The sawmill of Messrs. Cassette & Trudel, St. Tite, Que., was destroyed by fire May 17. Loss about \$10,000.

The Saguenay Electric Light & Power Co., Montreal, have been incorporated with a capital of \$250,000, with power to take over the Cartierville Electric Light & Power Co.

The Imperial Steam Laundry, Quebec, Que., was damaged by fire May 20. Loss about \$19,000.

The schooner St. Antoine, which was carrying machinery for the new mill of Messrs. Price Bros. & Co., Grand Bay, Que., was destroyed by fire May 18.

The Smart-Turner Machine Co., Hamilton, Ont., have recently received an order for one of their duplex boiler feed pumps from the Dixville Butter & Cheese Co., Dixville, Que.

The Canadian Westinghouse Co. are doing a large business in steam turbo-generator equipments. The Northern Electric & Mfg Co., Montreal, duplicated an order recently for a 300 k.w., Westinghouse-Parsons turbo-generator unit, to be installed in their power house alongside of one of the same capacity now in service. The generator is a 220 volt, three phase, 7,200 alternation machine.

operating at 3,800 r.p.m., and will be of the latest enclosed type, while the turbine will operate at 150 pounds steam pressure with 100 degrees superheat. Their present turbine is operating part of the year condensing and through the winter non-condensing, the exhaust steam being used during the winter for heating purposes. It was the splendid operation of this steam turbine generating unit which led the company to order the one about to be installed.

The Hadley Cement Co., Cote St. Paul, Que., have been incorporated with a capital of \$50,000, to manufacture rubber and leather cements, inks, etc. The charter members include J. P. Dent, W. J. George and T. Hall, Montreal.

The Standard Shirt Co., Messrs. J. P. Back & Co., the A. H. Sims Co., and the G. H. Harrower Co., Montreal, manufacturers of cotton wear, have amalgamated with a capital of \$3,000,000.

A waterworks system will be installed at Richmond, Que., at a cost of about \$25,000.

The Shearer, Brown & Mills Co., Montreal, have purchased the Dixon timber limits at Buckingham, Que., and will erect mills there.

The Little Sisters of the Poor, Montreal, will erect a home for aged people at a cost of about \$55,000.

The ratepayers of Waterloo, Que., voted favorably on a by-law granting A. F. Savaria \$30,000 towards constructing additional buildings.

The warehouse of Messrs. Wm. McNally & Co., Montreal, was destroyed by fire May 24. Loss about \$8,000.

The Times building, Yarmouth, N.S., was destroyed by fire recently. It will be rebuilt.

The congregation of the Lutheran Church, Bridgewater, N.S., will erect a new church building at that place.

A 160 h.p. Babcock & Wilcox boiler is being installed at the Caledonia Colliery, Glace Bay, N.S.

The Dominion Iron & Steel Co., Sydney, N.S., are having a new switching engine built for them by the Locomotive & Machine Co., Montreal. The dimensions are:—Cylinders, 18x24 in.; wheel base of engine and tender, 38 ft.; of which the driving wheel base is 11 ft.; weight of engine and tender in working order, 170,000 lbs.; heating surface, 1,188.2 sq. ft.; 1,074.4 being the tubes and 113.8 the fire box; grate area, 22.6 sq.-ft.; boiler straight top, radial stayed; working pressure, 160 lbs.; tubes, 188 of 2 in. diameter and 11 ft long; driving journals main 7½x8½ in.; tender 4½x8 in.; tender, wood frame; tank U shape sloping back, 3,000 gals. capacity; coal capacity 5 tons; wheels cast iron, 44 in. centres, 51 in. outside diameter; tender wheels, 33 in. diameter. All the engines at the plant, nine standard and six narrow gauge, are in constant use now.

The Victor Wood Works, Amherst, N.S., have been incorporated with a capital of \$100,000, to manufacture lumber, woodenware, etc. The provisional directors include H. L. Hewson, F. L. Blair, and W. B. Murdoch, Amherst.

A syndicate is asking the legislature of Nova Scotia to extend the time for completing the Nova Scotia Eastern Railroad from

Halifax to Guysboro, with a branch line to or near New Glasgow, for the purpose of getting an outlet for the coal from the Pictou collieries. The original subsidy of \$5,000 a mile is regarded inadequate, and about \$12,000 is asked for. There will be three harbors, Sydney, Halifax, and County Harbor, on the Atlantic.

The machine shops of the Nova Scotia Steel Co., Bell Island, N.S., were destroyed by fire recently.

The Amherst Foundry Co., Amherst, N.S., will erect an addition to their shops 60x40 feet.

Messrs. McDonald Bros., Truro, N.S., have been awarded the contract by Stanfield's Limited, Truro, for the erection of several buildings, the main one to be 158x111 feet.

The Rhodes-Curry Co., Amherst, N.S., have been awarded the contract by the Canadian Northern Railway Co., for the construction of one hundred flat cars.

The congregation of St. Luke's Cathedral, Halifax, N.S., will erect a new building at a cost of about \$250,000.

The Rhodes-Curry Co., Amherst, N.S., have been awarded the contract for five passenger coaches for the Temiskaming & Northern Ontario Railway Co., and also for four coaches for the Crossen Car Co., Cobourg, Ont.

The Miramichi Paper & Pulp Co., Chatham, N.B., will erect an addition to their plant at that place.

The building trade throughout the West continues exceedingly active at all centres of population. Reports say there is particular briskness about the erection of buildings at Winnipeg, Man. A feature of the work going forward is the erection of new apartment houses. As a rule these buildings contain between twenty or thirty suites of from three to six rooms each.

The grist mill of Messrs. Howard & Taylor, Miniota, Man., was destroyed by fire May 20. Loss about \$8,000.

The Successful Agriculture Publishers, Limited, Winnipeg, Man., have been incorporated with a capital of \$60,000, to carry on a lithographing and printing business. The provisional directors include W. W. Irwin, H. R. McTavish, and J. F. Cameron, Winnipeg, Man.

The Western Elevator Co., Winnipeg, Man., will erect a 650,000 bushel elevator at Fort William, Ont.

A public school will be erected at Oak River, Man., at a cost of about \$10,000.

Messrs. J. Y. Griffin & Co., Winnipeg, Man., will erect a cold storage plant at Fort William, Ont.

The Neepawa Mfg. Co., Neepawa, Man., have been incorporated with a capital of \$50,000, to take over the business of Messrs. Gardiner Bros., to manufacture the Gardiner Blower and to carry on the business of a machine and repair shop. The provisional directors include D. R. Gardiner, J. Gardiner and W. J. Hamilton, Neepawa, Man.

The Hudson Bay Co., Winnipeg, Man., have ordered a 130 h.p. Robb-Mumford boiler from the Robb Engineering Co., Amherst, N.S., for their store there.

The Canada Supply Co., Winnipeg, Man., have been incorporated with a capital of

\$60,000, to manufacture wares, merchandise, etc. The provisional directors include F. J. Travers, Montreal, J. A. Black, Amherst, N.S., and G. E. Griffith, Winnipeg, Man.

The Dominion Produce Co., Winnipeg, Man., have opened a branch at Brandon, Man.

The premises of the Northern Elevator Co., Emerson, Man., were destroyed by fire May 19. Loss about \$20,000.

A. McMillan, Winnipeg, Man., has secured patent rights in Canada and other countries for a chemical process for tempering and welding copper.

The Great West Power & Machinery Co., Winnipeg, Man., have been organized to erect gas works there.

The North-West Travelers' Association will erect a six story building at Winnipeg, Man., at a cost of about \$80,000.

The Men's Own Institute, Winnipeg, Man., will erect a building at a cost of about \$30,000.

The Morse Hardware & Lumber Co., Swan River, Man., have been incorporated with a capital of \$100,000, to manufacture lumber, timber, etc. The provisional directors include H. V. Morse, J. T. Douglas and S. G. Sanford, Swan River, Man.

Messrs. Porter & Co., Winnipeg, Man., will erect a six story warehouse.

J. E. Smith, Brandon, Man., will erect a block to cost about \$50,000.

G. H. Walton, Winnipeg, Man., will erect an apartment block at a cost of about \$80,000.

The Creamery Co., Brandon, Man., will erect a creamery at a cost of about \$15,000.

Robt. McAlpine, Glasgow, Scotland, will erect a large block at Winnipeg, Man.

A school building will be erected at Trherne, Man., at a cost of about \$18,000.

The Alberta Milling Co., Edmonton, Alta., will erect an addition to their warehouse at that place.

The premises of the Western Hardware Co., Regina, Sask., were damaged by fire, May 14. Loss about \$25,000.

The H. W. Laird Co., Regina, Sask., have been incorporated with a capital of \$50,000, to carry on a wholesale, jobbing and commission business.

A Roman Catholic school will be erected at Edmonton, Alta., at a cost of about \$45,000.

A Normal school building will be erected at Calgary, Alta.

E. C. Perry, Minneapolis, Minn., will establish a biscuit factory at Calgary, Alta.

J. P. Hall, Willow City, North Dakota, proposes establishing a soap factory at Saskatoon, Sask.

The Smart-Turner Machine Co., Hamilton, Ont., have supplied one of their standard dulpex pumps to the Northwestern Transportation Co., Athabasca Landing, Alta.

Included in the estimates for the province of Saskatchewan is the sum of \$350,000 to cover expenditure during the current year of three steel bridges on concrete foundations. These bridges are as follows:—At Saskatoon estimated total cost, \$100,000;

at Battleford, estimated total cost, \$200,000, and at Prince Albert total cost of enlarging C.N.R. railway bridge for traffic purposes, \$50,000. Among the public works items are construction of small bridges, \$125,000; road improvements, \$100,000; boring and testing for water, \$40,000.

The Calgary Pressed Brick & Sandstone Co., Calgary, Alta., have been incorporated with a capital of \$100,000, to manufacture brick, tile, sewer pipes, etc. The provisional directors include E. H. Grandall, Calgary, Alta.; A. F. MacLaren, Stratford, Ont.; and E. R. Clarkson, Hamilton, Ont.

A public school will be erected at Sintaluta, Sask., at a cost of about \$11,000.

J. Jansen, Rosthern, Sask., will erect a business block at a cost of about \$10,000.

The Saskatchewan Hotel Co. will erect a hotel at Regina, Sask., at a cost of about \$150,000.

A waterworks system will be installed at Macleod, Alta., at a cost of about \$95,000.

The Canadian Pacific Railway Co. will erect a roundhouse at Red Deer, Alta.

The Standard Lumber Co. will erect a mill at Elkmouth, B.C., at a cost of about \$200,000.

The Vancouver Island Portland Cement Co., Tod Creek, B.C., will enlarge their plant there, and will erect a branch at Calgary, Alta.

The Robb Engineering Co., Amherst, N.S., have received an order through the Canadian Westinghouse Co., Vancouver, B.C., for two 20 h.p. engines to be used for lighting purposes on the Canadian Pacific Railway Co.'s steamer "Prince Royal."

R. McQuarrie, Port Kells, B.C., will erect a lumber and shingle mill at that place.

The F. W. Hunting Lumber Co., Vancouver, B.C., will erect a new sawmill at a cost of about \$75,800.

A courthouse will be erected at Cranbrook, B.C.

United States Consul Smith, of Victoria, B.C., writes that the Minneapolis syndicate, which purchased 43,000 acres of fir and cedar lands on Vancouver Island, estimates the land to contain a billion feet of lumber. The company proposes to build a mill with a capacity of 40,000,000 to 70,000,000 feet per annum. A railroad will be built to the coast, and the company will operate its own fleet of tugboats.

The Quatsino Power & Pulp Co., Victoria, B.C., will erect a new pulp mill at Quatsino Sound, B.C., at a cost of about \$200,000.

Max Heberlein, inventor of the Huntington-Heberlein process of roasting ores, has been installing an 80-ton roaster at Trail, B.C., which will handle the matte and crude ore of that plant. This process was that which enabled the Australian mines to handle their own product, and, in consequence, forced the smelters of Europe to come to Canada, especially to the Slocan, for their ores. It is stated that, whereas formerly an eight-hour shift at Trail could produce 290 100-pound bars of bullion, the same shift can now handle 520 bars. The new converter furnace at the Pilot Bay smelter, under process of construction for some months past, was successfully blown in. The new mill at the La Plata, which will add a large tonnage to the output of Nelson district, is ready for operation.

Latest reports from the Eva, Camborne, mine show that property to be in fine condition. It has paid from its own output from the beginning and is now producing regularly about \$4,500 worth of gold each month, with immediate prospect of a material increase in the output.

The Klondiko Water Supply Co., Dawson, Yukon, have been incorporated with a capital of \$6,000,000, to construct bridges, reservoirs, etc. The provisional directors include A. McDonald, W. Barrett, Dawson, and R. Kelly, Vancouver, B.C.

FINANCIAL.

The Bank of Hamilton has opened a branch at Milverton, Ont.

The Royal Bank of Canada are opening a branch at Kensington, P.E.I., a village not far from Summerside.

The Eastern Township Bank will erect a ten story building at St. John, N.B.

The Union Bank of Canada has opened a branch at Cupar, Sask.

The Bank of British North America has opened a branch at North Battleford, Sask.

The new Royal Bank building on St. James Street, Montreal, is now well under way, and the work on it is being rapidly forwarded.

The Union Bank of Canada have opened branches at Craik and at Maple Creek, Saskatchewan.

The Union Bank have increased their paid-up capital from \$1,336,150 to \$1,500,000. This amount is the balance of allotment to shareholders not taken up and subsequently sold by tender.

New Liskeard, in the Cobalt district, has decided to issue \$2,000 debentures to instal a waterworks system.

A Wall Street rumor has it that the Great Northern Railway propose to issue \$25,000,000 stock for financing J. J. Hill's Canadian transcontinental, but that action would be deferred till a charter had been secured at Ottawa.

The annual statement of the Sovereign Bank for the year ending April 30 has just been issued. A net profit at the rate of 10.35 per cent. on paid-up capital was earned. An increase of from \$1,300,000 to \$3,585,000 was made, while further payments on present subscriptions will bring the sum to \$4,000,000. An increase of \$34,492 in profits; \$217,860 in circulation; \$3,542,091 in deposits; \$3,059,117 in current loans; \$615,814 in call loans; and of \$6,899,103 in total assets was shown.

At the meeting of the Imperial Bank on May 23, the shareholders agreed to increasing the capital from \$4,000,000 to \$5,000,000. The new stock will be issued at 200. Recognition of the able and successful conduct of the bank's affairs by the president and general manager, Mr. D. R. Wilkie, was shown by an increase in his salary of \$10,000 per annum. During the year dividends at the rate of 10 per cent. per annum were paid, amounting to \$335,406; the bank premises and furniture account was credited with \$100,000 and the profit and loss was increased by \$100,379. At the same time the rest account was increased by \$927,741, the premium received on new capital stock issued since the

1902 meeting. The directorate was increased to eleven, Messrs. Cawthra Mulock, Toronto, Wm. White, Winnipeg, and Hon. Richard Turner, Quebec, being added. Mr. D. R. Wilkie was re-elected president and Hon. Robert Jaffray as vice-president.

ELECTRICITY.

Electrical machinery and appliances of all kinds, electrical power plants and other progress in the electrical industries will be noted here.

The Canadian De Forest Wireless Telegraph Co. are completing arrangements for a station at Haileybury, Ont., to open immediate communication with Toronto, and supplies have been ordered.

Since January 1, 1906, the New York Telephone Co., and the New York & New Jersey Telephone Co. have gained 14,807 new telephones in New York city. There are now in service and under contract in Greater New York 256,962 telephones, making the metropolis "the best telephoned city in the world." According to the figures given out by the company, New York city has two and a half times as many telephones as London, more than five times as many as Paris, and nearly four times as many as Berlin. There are more telephones in New York than in London, and the 10 other largest cities of Great Britain combined, and more than there are in Berlin and the eight other largest cities of the German empire. Every telephone added to the system increases the value of the service to its users.

The German government have fixed June 28 as the date for an international wireless telegraph convention at Berlin. The United States have been asked to participate in this convention, the purpose of which is to make regulations for the control of wireless telegraph systems. At present there is no regulation covering wireless telegraph.

The Mexican investor says that the invention of an apparatus to make use simultaneously of the telegraph and telephone over the same wire is receiving a practical test in Mexico by the Mexican Central Railway. It means also that long-distance telephoning will be possible over the regular telegraph wires without interfering with their use for telegraphic purposes, and thus renders available thousands of miles of telegraph wire already placed for telephone purposes.

Mr. Lim Dat, a successful Chinese merchant of Victoria, B.C., has organized among his countrymen located in British Columbia a two million dollar company to construct an electric trolley railway in China from Canton to San Wu, a distance of 60 miles. No white men need apply for stock, as their presence in the company would forfeit the charter from the Chinese Government. The route of the proposed line is a populous one. Canton having a population of 2,000,000, and San Wu 500,000. The prospectus of the new company sets forth that there are no serious topographical difficulties to be encountered in building the line; that water power will be obtained from the Quai Long Shun Mountains, 30 miles from San Wu; that now there are 22 junks plying on the river between these points, carrying heavy cargoes and many passengers; that it takes these junks 14 hours to make the trip, which the

electric cars will make in three hours. It is also stated that the summer cars to be operated—the climate being warm—will each be equipped with 50-h.p. motors. The plan is to build the line entirely with Chinese labor, even using Chinese electricians as far as possible. It is stated that the company also intends to seek from the city of Canton a concession of the light and power privileges. The streets there are so narrow that some difficulty would be experienced in attempting to secure the franchise for a city street railway system, although this may be sought later. Altogether it is a remarkable enterprise to be organized and controlled entirely by Chinese. Mr. Lim Dat, its promoter, is at the head of the leading Chinese mercantile firm in Victoria, known as "Gim Fook Yuen." They own a large brick block, conduct a department store, a rice mill, and have several other stores in British Columbia, as well as a branch house in China. Mr. Dat, in 1895, invented and secured a patent on an improved device for electric rice-mill machinery, the first patent issued to a Chinaman in British North America.

ELECTRIC TRACTION.

The Windsor, Essex & Lake Shore Rapid Railway Co. have decided that their line shall be operated by electricity. This system will connect Windsor, Kingsville, Leamington and Chatham, and residents of this populous section will ride on one of the most complete inter-urban roads on the continent.

A number of prominent Canadian capitalists, associated with Mr. E. A. Tennis, of Philadelphia, are interested in the line.

After careful investigation and comparison with steam and with the ordinary direct current system of electric traction, the management found that there was a marked difference in the cost of equipment—that the operating expenses would be less—and that cars could be run at a higher speed—by the use of the single phase alternating current system as now furnished by the Canadian Westinghouse Co.

For this new road, the Canadian Westinghouse Co. are furnishing a similar type of single phase equipment to that designed for the Grand Trunk Railroad for motive power in the St. Clair tunnel—as well as for the New York, New Haven & Hartford road for the electrification of their main line out of New York City.

The construction of the road between Windsor, Kingsville, Leamington and Chatham, has been intrusted to the Keystone Construction Co., Philadelphia, Pa.

That steam turbines are readily adaptable to cotton mill work is again brought out by the fact that the Francis Cotton Mills have recently adopted Westinghouse-Parsons turbines for their power plant at Biscoe, N.C. This plant adds one more to the list of cotton mills using steam turbine power. Some of the plants in this field are those of the Pelzer (S.C.) Mfg. Co., 1,500 k.w.; the Oneita Knitting Mills, Utica, N.Y., 500 k.w.; Henietta (N.C.) Mills; Gray Mfg. Co., Charlotte, N.C.; Modena Cotton Mills, Gastonia, N.C., and the Lumberton (N.C.) Cotton Mills. These plants are now in highly successful operation.

PUBLICATIONS.

The publishers of The Canadian Manufacturer solicit in advance, if possible, catalogues, circulars, and other industrial publications issued by manufacturers. We wish to review such literature, and bring the principal points to the attention of our readers.

The Economic Power, Light & Heat Supply Co., Limited, 40 York Street, Toronto, have sent us a circular in which they say:—"Power is one of the most important problems manufacturers, electric light stations and grist mills have to contend with, and we are in a position to offer you the cheapest and most reliable method of producing it. We are manufacturers of the Pintsch suction gas plant and are the sole agents in Canada for the National Gas Engine Co., of Ashton under Lyne, England. There are already installed over 200,000 h.p. of these engines and gas plants in all parts of the world, and they all are running very satisfactorily. We wish to draw attention to some of the advantages obtained by the use of suction gas plants and gas engines which are as follows:—No smoke, no gas holder, no chimney, no leakage, no danger, no pressure, no noise, small space, great economy. We guarantee a fuel consumption of not more than one pound of anthracite coal per brake horse power, which is one-quarter the consumption of fuel in the average steam plant. The exhaust gases of the gas engine can also be used for generating steam. If you require cheap power, light or heat, kindly communicate with us and we shall be pleased to give you any information you may require."

The Wm. Hamilton Mfg. Co., Peterborough, Ont., have sent us their illustrated booklet describing the log-handling machinery manufactured by them. The illustrations include the double geared log jack, cable log jack chain with bunk; improved combination double log-way; steam log stop and loader; steam cant lifter, etc.

The Rockwell Engineering Co., 26 Cortlandt Street, New York, are sending several interesting circulars at the moment. One of these is devoted to "Rockwell Oil Burners" for both high pressure and low pressure; another to "Rockwell Brazing Furnaces" for oil or gas fuel; a third to "Rockwell Double Chamber Metal Melting Furnaces." As this firm are recognized as authorities on the construction of these specialties many readers of this paper will probably desire these circulars. They will be sent on request.

The American Steam Pump Co., Rattle Creek, Mich., have ready for distribution their illustrated catalogue No. 14, devoted to detail descriptions of the Marsh steam pump for all purposes. The book contains 140 pages of descriptive matter, cuts, tables of sizes and designs, the work being well worthy of the study of any firm using pumps for any duty. Not the least valuable feature of the book is the explanations and directions given to engineers regarding the care of pumps. A copy of this valuable catalogue will be sent to any readers of this paper on request.

J. W. Ball, formerly general foreman of the Canada Foundry Co.'s nut and screw department, has accepted the position of general superintendent of the works of the Standard Bolt & Screw Co., Toronto.

PERSONALS.

The Minister of the Interior, upon recommendation of Dr. Haanel, Superintendent of Mines, has authorized an investigation of the iron ore resources of Canada. The work will be divided into three sections, that in Eastern Ontario and Quebec being in charge of Mr. F. Cirkel, in Western Ontario in charge of Mr. Shele, and that in Nova Scotia in charge of Professor Woodman.

Professor A. P. Coleman, of the School of Practical Science, Toronto, will explore the iron ranges in the district east of Lake Nepigon. He is undertaking the work for the Bureau of Mines.

Hon. Frank Cochrane, Ontario Minister of Lands, Forests and Mines, has appointed Mr. Samuel Price, a well known barrister of St. Thomas, Ont., as Mining Commissioner under the Act passed during the recent session of the legislature. He will have the powers of a judge of the High Court of Justice in relation to the trial of mining disputes. He may hear appeals from the decision of the recorders to be appointed at various mining centres, and from his decision only one further appeal to a Divisional Court judge is permitted.

At the recent annual meeting of the Empire Club of Canada held in Toronto, the following officers were elected:—President, Mr. J. P. Murray; vice-presidents, Messrs. J. F. M. Stewart, J. M. Clark, K.C., and H. C. Osborne; executive committee, H. S. Pell, J. Castell Hopkins, Alex. Fraser, J. R. Roaf, G. H. Muntz, W. J. Greene, Dr. E. K. Richardson, Dr. W. E. Clouse, Major J. Mason and F. B. Featherstonhaugh.

The annual general meeting of the shareholders of the Dominion Wire Rope Co. was held in Montreal recently when the following directors and officers were re-elected for the ensuing year:—President, F. W. Fairman; vice-president and managing director, F. H. Hopkins; secretary-treasurer, J. J. Rosevear.

Mr. A. L. Mudge, who has been appointed estimating engineer of Allis-Chalmers-Bullock, Limited, Montreal, is one more Canadian, who after experience in the great industrial establishments of the United States, has returned to take a responsible position at home. After graduating from McGill University in Mechanical Engineering in 1894, and in electrical engineering in 1895, he spent one and a half years with the Canadian General Electric Co., Peterboro, Ont., and afterwards some time with the Royal Electric Co., Montreal. From 1899 to 1901 he was electrical engineer for the Grand Trunk Railway System from Portland to Detroit. From Montreal he went to Pittsfield, Mass., to take charge of construction work for the Stanley Electric Mfg. Co. During the past two years he has been with the Allis-Chalmers Co., partly in the Bullock Electric Works, Cincinnati, and latterly in the head office, Milwaukee.

The sixteenth annual meeting of the Ontario Association of Stationary Engineers was held at the city hall, Hamilton, Ont., a few days ago, President G. Fowler in the chair. About 80 members were present. Officers were elected as follows:—A. M. Wickens, president (Toronto); W. A. Sweet,

vice-president, (Hamilton); treasurer, C. Moseley (Toronto); registrar, W. G. Blackgrove (Toronto). The meeting adjourned to meet in Brantford, Ont., May 27, 1907.

The secretary of the Canadian Forestry Association has received word from Mr. C. M. Beecher, chairman of the reception committee for the meeting of the Forestry Association which is to be held in Vancouver in September, that British Columbia people are making preparations for the reception of the Forestry Association. The Governor-General has informed the officers of the Forestry Association that he intends to be present at the meeting. It is possible that Sir Wilfrid Laurier may attend also.

Messrs. E. H. Keating, well known throughout Canada as formerly city engineer of Toronto and later as manager of the Toronto Street Railway, and D. J. Russell Duncan, who for many years has been engaged as civil and mechanical engineer in London, England, have opened, under the name of Keating & Duncan, offices in the Home Life Building, Toronto. They will carry on business as civil engineers, special attention being given to hydraulic, municipal, electrical and industrial undertakings.

SECURED SITE FOR FACTORY.

The Chapman Double Ball Bearing Co., Toronto, have secured a site near the Dundas Street bridges at Sorauren Avenue for their new factory. The business of this company is growing so rapidly that the present factory is altogether too small and the new works, which will be modern in every way, will make possible a great increase in the output of double-ball bearings. Several excellent orders have been taken by this company in the past week or so.

FORT WILLIAM.

Indications point toward great industrial activity in Fort William, Ont., during the next few years. The city is negotiating with a car wheel foundry company with a view to its establishment there. Several other industries are spoken of as likely to locate there. The position of the city, at the head of navigation on the Great Lakes, makes it an ideal manufacturing centre for firms catering to Western business.

TO MANAGE TORONTO OFFICE.

Mr. B. Muscat has been appointed manager of the new branch which the Syracuse Smelting Works, Montreal and Toronto, have opened up in the latter city. Mr. Muscat, who is a native of Toronto, has been connected with the Syracuse Smelting Works, both with Montreal and New York plants for several years. The Toronto branch will handle the rabbit metal, solder, type metal and white metal mixtures manufactured by the firm, also pig tin, pig lead, antimony, aluminum, bismuth and other metals imported by them.

The Steward & Romaine Mfg. Co., Philadelphia, Pa., manufacturers of expansion and toggle bolts, have acquired several additional floors on their present premises and will now be able to double their output.

The Cling-Surface Co., of Buffalo, have moved into larger and more modern premises. This firm has an excellent connection throughout Canada.

A TEST OF THERMITE.

A despatch from Glace Bay, N.S., states that during the last few days tests of thermite were made at the machine shops of the Dominion Coal Co. there a few days ago. The frame of boiler for S. and L. engine No. 43 was welded together, thermite being used. The despatch concluded: "This is the first time thermite has been tried in Nova Scotia. The test was conducted by Daniel Bell, mechanical foreman of the Coal Co., and the success which attended it is largely due to the skill and knowledge of this compound which Mr. Bell possesses. The successful issue of the test is most gratifying to the company as its use will mean a saving of two or three days labor and a considerable amount of money on every job done. Thermite will be used exclusively by the company in future repair work.

WELSH TIN PLATE INDUSTRY.

Consul D. W. Williams, of Cardiff, reports that there is a marked depression in the tin plate trade of Wales. It began to be felt when the disturbances occurred last year in the Russian oil field.

In 1904 Russia bought 30,530 tons of tinned plates and tinned sheets from the Welsh makers, but its demand fell off rapidly during the last months in 1905, and it has now practically disappeared, for the Welsh exports to Russia during the three months ending March 31, 1906, amounted to only 219 tons. There has been also a steady falling off in the exports to Canada and the United States, as indicated by the following table, comparing the first quarter in 1906 with the corresponding period in 1905, in tons:

Country.	1905.	1906.	Dec.
Canada.....	3,793	2,626	1,167
United States.....	19,118	10,873	8,215

The exports to Germany, Holland, Belgium, France, Portugal, India and Australia during the same period show slight increases, but there was a net decrease in the total exports for the quarter, as they fell to 91,771 tons, as compared with 95,659 tons for the corresponding quarter in 1905. The new German tariff led to purchases in anticipation, which swelled the Welsh exports during the past six months, but they have now ceased, which adds to the depression. Overproduction is another cause. The great improvements occasioned by the struggle to neutralize the effects of the American tariff have largely increased the capacity of the Welsh tin mills, and in depression the competition is felt more. The high price of tin is another item which, by adding to first cost, handicaps the makers. The price rose Saturday, April 7, 1906, to £174 (\$846.77) a ton, the highest for many years. The prices of other materials are higher than they were last year.

The effect of the depression has been the terminating of the 28-day contracts with the men and the inaugurating of week to week or day to day contracts. Some mills have stopped, and many others will be forced to stop unless conditions change.

The Boston, Mass., Herald publishes a list of 98 American manufacturing and industrial companies that have branches in Canada. In this list New York City figures first with 24 establishments, Detroit second with 11, and Buffalo third with 7.

THE DEMAND FOR HIGH GRADE BRASS CASTINGS.

Referring to the fact that the majority of jobbing brass foundries cater to the heavy work trade, the castings for which may be made with a considerable percentage of scrap, the Brass World believes that a reaction will come from the sharp competition thus created and that a better grade of castings will at length be required. Price has had so much to do with the awarding of contracts that quality has depreciated. The article further says:

"Many castings have no requirements except that they shall be brass. Others require ease in machining. Pin holes, dross or other imperfections do not injure them. Other castings are required to respond to a little more rigid requirements. On the other hand, there is a demand for castings which shall be right in color, in machining and in solidity. We do not refer to statutory work or similar lines of art castings which are in a class by themselves and without the province of the jobbing foundry, but to castings which can be made with the ordinary brass founder's equipment. We feel sure that a brass foundry which advertises a fine grade of brass castings as one of its products and is prepared to turn them out regularly will find an increasing demand for its wares. The price, which must, of course, be high, will be gladly paid provided the quality of the castings is such as to warrant it. Such castings are not always small or difficult to mould. The grade of castings turned out by the manufacturers of high grade builders' hardware will suffice to indicate what is necessary. It will take a jobbing foundry quite a time to build up a trade of this character. New metals will have to be used and good moulding, but when a reputation is established the business will be profitable, for good prices can be obtained."

The Fort Pitt Malleable Iron Co., Pittsburgh, Pa., have enlarged their plant at McKees Rocks, Pa., and are now building additional annealing ovens to provide a capacity of 1,100 tons per month. Having discontinued the grey iron business the firm have dropped that portion of their old name, and are exclusively confining themselves to the manufacture of malleable castings.

The reputation of the Lowell Crayons, which are made especially for textile work, has led to the imitation of these goods by dealers seeking to sell their own goods as Lowell Crayons. The Lowell Crayon Co., Lowell, Mass., have instituted suit against such a dealer and obtained a decree in restraining him from using in any way, or in advertising to the public, the Lowell Crayon, which is protected under registered trade mark.

The Whiting Foundry Equipment Co., Harvey, Ill., who have equipped several plants in Canada, have under way a number of important additions to their plant. The extensions comprise a new pattern shop, 96x44 feet, and an addition, 130x52 feet, to the machine shop. The latter will give additional shipping facilities, permitting two tracks to cut through the shops and facilitating the loading of electric travelling cranes and equipment of heavy capacities. These improvements have been made necessary by the steadily increasing business which this company is now enjoying.

MACHINERY AND ENGINEERING.

A Review of New Machinery, Power Appliances and Factory Equipment of all Kinds.

STURTEVANT HORIZONTAL ENGINES.

For the driving of direct-connected generators the Sturtevant horizontal engine, class H.C.1., shown on the accompanying illustration, has been especially designed. Modifications, however, insure successful operation as independent engines. As the design provides ample bearing surfaces, abundant lubrication, and light, strong parts, it admits of very high speed, which is closely regulated by an automatic governor.

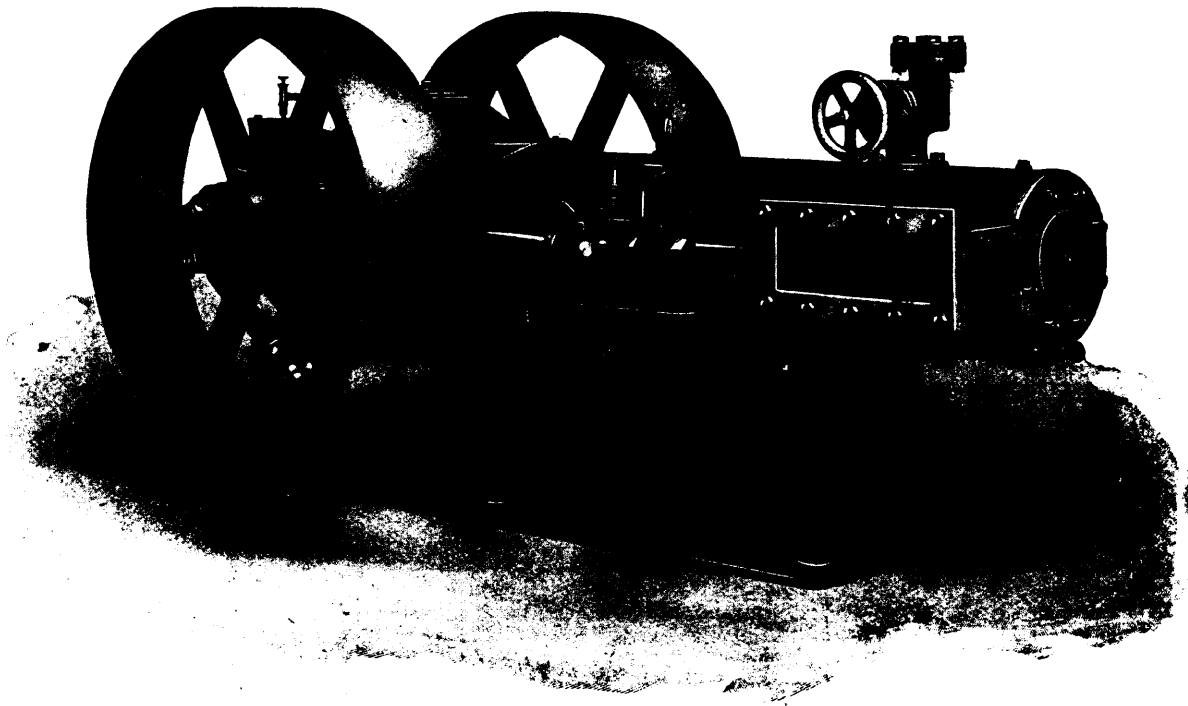
Continuous operation for weeks at a time, with but little supervision, and a minimum loss from friction is secured by completely incasing the accurately finished parts and providing a system of lubrication that positively and continuously supplies the bearings with oil under pressure. An oil pump operated by the crank shaft draws oil from the reservoir and forces it through pipes and internal passages in the moving parts to the

Although enclosed for protection from dust and grit, the moving parts are accessible by means of oil-tight plates or covers on the frame and crank case, or if necessary, the entire crank case may be removed. The frame is bolted to a bed plate or sub-base of such proportions and weight as insure freedom from vibration.

A double-ported piston valve, perfectly balanced to minimize power expended for operation, regulates the flow of steam to and from the cylinder. Working in a renewable bushing and having cast-iron packing rings turned to a perfect fit, it is easily maintained steam tight. The motion for correct steam distribution is given to this valve through a slide and rod by an eccentric attached to a rite automatic governor contained in the fly wheel. The range of cut-off is from zero to three-quarters stroke, and the speed is so delicately regulated by automati-

the engine frame, is equipped with adjustable cast-iron slippers to allow for wear, and provided with a steel cross-head pin flattened on two sides. At the crank-pin end the connecting rod of forged steel has a cast-iron box lined with Sturtevant white metal, hammered in and accurately bored; at the crosshead end it is provided with a steel trap, an adjustable key, and a bronze box. The crank pin is extra large. To the webs of the crank shaft, which is forged from a single piece of open-hearth steel, are firmly secured the cast-iron counterweights.

Sturtevant H.C. 1 engines are made with interchangeable parts machined to gauge, and in places where extreme accuracy is desired scraped to surface plate or finished in the grinding machine. The engine and sub-base have a well-finished surface, while the cylinder, crank case, rim and face of fly-wheel, etc., are highly polished.



Sturtevant Horizontal Engine. Class H.C. 1.

main bearings, the crank pin, crosshead pin and guides, valve slide and eccentric. The pressure of about 15 pounds per square inch maintains a thin film of lubricant between these metal surfaces, and by preventing contact greatly reduces friction and wear, and insures a mechanical efficiency considerable over 90 per cent. The forced lubrication and complete enclosing of the parts result in a clean, durable, and economical steam engine.

A watershed partition with a bronze stuffing box is inserted in the frame a few inches from the cylinder. Its position and construction allow ready access to the cylinder stuffing box, while preventing the oil in the frame from entering the cylinder on the piston rod, and making it impossible for the water formed in the stuffing box to get into the casing.

cally altering the point of cut-off that the variation from no load to full load is but one and one-half per cent. To reduce condensation, the casting forming the cylinder and valve chest is heavily lagged with magnesia and asbestos of the best quality, held in place by a panelled cast-iron casing of neat design. Damage from water in the cylinder is avoided by placing at each end, a relief valve, which may be adjusted to open at any desired pressure. The cylinder is tapped for indicator piping.

For lightness and strength the cast-iron piston is cored out and provided with internal ribs; it is fastened to the piston rod, forged from open-hearth steel, by being forced on a taper and then secured by a nut and pin. Cast-iron packing rings of best material and perfect fit prevent leakage. The crosshead, moving in guides cast in one piece with

The B. F. Sturtevant Co., Hyde Park, Mass., manufacturers of these engines issue a booklet showing illustrations of working parts and giving tables of net horse power and all dimensions. This booklet will be sent to any readers of this paper on request.

CONCRETE REINFORCED WITH STEEL.

By W. E. Ramsay.

During the past two years much progress has been made in the use, in building operations, of concrete reinforced with steel. So many of the most important building operations of recent years have been carried to completion with this class of fire-proofing material, that its efficiency is generally admitted.

In fact at the present time a system of reinforced concrete, which will stand a thorough, scientific test, and which is found satis-

factory in fire resisting quality, load carrying capacity without entailing additional cost, is readily admitted to the specifications of the most eminent architects and engineers.

The superiority of concrete construction of stone or cinder concrete reinforced with the Clinton system or other forms of steel embedded in the concrete over the system of fire proof arch, built up of particles in the form of hollow burnt clay blocks, is no longer questioned. The Baltimore, Rochester and San Francisco fires have settled this controversy.

In the report No. 13 of the Insurance Engineering experiment station, re the Baltimore fire, the following appeared:—"The floor arches of many different spans and of different details of construction, but in the main of terra-cotta or lime-tile, show much the same sort of distress as the partitions. The band between the tiles is broken, quite generally, and the tiles themselves are broken in great numbers. The lower face or soffit of the tiles has split off over large areas and 50 per cent. or 60 per cent. of the terra cotta floor construction, will, I fear, need to be replaced or reinforced. Where concrete floor arches and concrete steel construction received the full force of the fire it appears to have stood well, distinctly better than the terra cotta."

It is safe to say that any one of the accepted systems of reinforced concrete is safer as a fire-proofing and will carry a greater concentrated or distributed load than will any form of hollow block construction. As a fire-proof and monolithic construction there can be no comparison for the simple reason that when subjected to heat the expansion of the steel superstructure, the reinforcing material and the concrete mass is practically the same, but the expansion of terra-cotta blocks is five times greater than the steel superstructure that sustains it and the consequence is that in the case of heat, the hollow blocks having less resistance, crush themselves and fall from their position.

In the advanced age that we have reached, economy and construction must be considered. Every building should be erected to earn a certain revenue and while the cost of reinforced concrete construction is much less than that of hollow tile, the weight is also very much less and the steel superstructure to retain this weight can consequently be lighter. One point in favor of the Clinton system, is on the fact that the electrically welded fabric establishes a continuous bond in the concrete and creates an actually monolithic construction. It can be laid in lengths up to 300 feet. The desirability of this method as contrasted with a system where lapped ends of steel fabric are necessary every few feet, is readily appreciated.

For this reason, if perchance a collapse (and there are very few) occurred, no entire collapse of any arch erected with Clinton can occur unless the weight imposed on the arch is sufficient to break all the wires. For roofs of great lengths the continuous bond is an ideal feature as no better roof can be erected than by using the concrete slabs knit together for great lengths with this fabric. The Clinton can be used in the erection of wide span arches up to 20 feet; also for the floor of bridges, constructions of culverts, tunnels, shafts, sewers, retaining wells, footings, coal and ash pockets, etc.

It is really wonderful how much advance

the Clinton and other approved systems of fire-proof construction has made in the City of Montreal within three years. The best and largest buildings erected since the serious fire in the Board of Trade some few years ago are so constructed. That building itself was supplanted by a reinforced concrete structure as well as the Royal Victoria Hospital, the Alexandra Hospital, the Maternity Hospital, the Merchants' Bank Building, the M.A.A.A. Building, the Coristine Building, the new Harbor sheds, Sir Wm. MacDonald's extensive college at Ste. Ann's, the Sherbrooke apartments, the Mount Royal Club, the McGill Union Building, Mark Fisher Sons & Co.'s building, Henry Morgan & Co.'s building, and many others, and at the time of writing specifications for the New Windsor Hotel to be erected in this city call for reinforced concrete construction throughout.

CANADIAN RIGHTS FOR SALE.

The Canadian rights for Samain's pump, invented by M. Pierre Samain, one of the foremost hydraulic engineers of the day, are offered for sale.

It is well known that the centrifugal pump is cheap and gives a big discharge compared with its size. But this pump cannot raise water to a greater height than 100 feet and runs at an excessive speed. Besides it is very irregular in its service and is easily affected by variations of speed and temperature.

On the other hand the direct-acting pump is useful for raising liquids to a great height, but the low speed of such a pump generally requires a complicated driving gear. The price is high and the construction bulky.

The Samain Annular Piston Pump raises water 300 feet without any additional parts, and works as regularly as an ordinary direct-acting pump. At the same time the cost of Samain's pump is one half.

The speed of the Samain pump is from 400 to 500 revolutions per minute, a medium speed which admits of the use of every kind of driving motors.

The body of the Samain pump is formed by two cylinders both stationary and concentric. A third cylinder called the piston is mobile between the two cylinder surfaces, and works in such a manner that its own surface is tangent, inside and outside, to the other cylinders.

The inlet and outlet are separated in the pump body by a partition. Thus four spaces of variable capacity are produced, so that they communicate, alternately, with both openings.

In this way the pump is a double piston pump, except that in the usual piston pump only the cylinder plane surfaces are working, while in the Samain pump this work is done by both cylindrical surfaces. Moreover there are no valves. There is never any air in the pump, there is no unoccupied space, consequently the column of water discharged is absolutely full and regular.

The parts of the Samain pump are easily constructed and without special plant, and the cost of construction is therefore very low.

The Samain pump can be used for all purposes from the small lubricating pump to the most powerful machines required for unwatering a mine, or the irrigation of large tracts of land. It can be used for any kind of liquid

however dense without danger of clogging or interruption.

The Samain pump is reversible. It is cheaper, stronger, and simpler than any other pump in existence. It contains only one movable piece, and we offer to place the Samain pump in competition with any other pump in the world.

Information regarding the Canadian rights for this pump can be secured through THE CANADIAN MANUFACTURER, Toronto.

THE NATIONAL GAS ENGINE.

For many years the attention of the leading British experts in engineering has been directed to the improvement of the gas engine, with the result that in the Mother Country this engine has reached its highest development.

And of the English gas engine none have won wider repute than the "National," manufactured by the National Gas Engine Co., which was organized in 1889.

From time to time improvements have been made, however, and since 1897, when Dugald Clerk, one of the foremost authorities on the gas engine, joined the directorate of the company, the "National" has been recognized in the first rank in efficiency and durability.

In the catalogue issued by the company illustrations are given of about a score of different engines, but it is at once apparent that in the construction of all, the design has been from one standard type and that each detail has been arrived at after the careful consideration of experts.

Among the important features embodied in the "National," are: Perfect regulation of speed at different powers; easy and safe starting by inexperienced hands; durable ignition tubes; gas consumption strictly in accordance with power used; every convenience in cleaning necessary parts; perfect self-lubricating, without waste; and highest class workmanship, with simplicity of construction. To all the larger size engines magneto electric ignition is fitted.

In view of the steadily increasing interest in, and demand for, gas engines throughout Canada it is not surprising that a Canadian firm should secure the agency of this engine. This has been done by the Economic Power, Light & Heat Supply Co., Toronto, who have also the agency of the Pintsch suction gas plants, a combination which should mean a large demand from manufacturers throughout Canada. This firm would like enquiries from any readers of THE CANADIAN MANUFACTURER.

FUMIGATED WIPING RAGS.

In another page in this paper I. L. Scheinman & Co., Detroit, Mich., are making an announcement regarding the wiping rags which they are at present offering on the Canadian market.

This firm have installed all the necessary machinery for preparing wiping rags to do the same work as waste. They make a feature of two grades, No. 1 consisting of light calico material, thoroughly washed and fumigated, with all buttons, hooks, starchy parts, etc., removed, in pieces running from four to six to the pound, at 5 cents per pound. No. 2 grade are fumigated but not washed and

without hooks, starchy pieces, etc., removed at 3½ cents per pound.

The firm draw the distinction between these rages and those ordinarily sold by junk dealers by pointing out that about 30 per cent. dirt and 20 per cent. buttons, starchy parts, etc., have been removed from theirs. Moreover, being fumigated and cleaned they are free from germs and from the danger of spontaneous combustion.

This line is one that should be of use to many readers of THE CANADIAN MANUFACTURER. I. L. Scheinman & Co. would be pleased to receive enquiries from any of them.

NO MORE FIRE ENGINES.

Railroads replaced the stage coach, trolleys superseded the horse cars—and the new turbine pumps and power are taking the place of the fire engines. This system has been a complete success in Philadelphia, where it was first tested, and the City of Toronto decided to do away with the fire engines in the down town district and put in the steam turbines.

The turbine pumps now building have a capacity of 5,000,000 gallons of water every 24 hours, at a maximum pressure of 300 pounds to the square inch. The water will be supplied to a high pressure piping net work, covering the district to be protected.

The pumps are always ready to work—the steam is up—and when fire breaks out, all that is necessary is to couple on the hose to the fire plugs, and the water pours out. This does away with fire engines altogether.

The Canadian Westinghouse Co. have the contract for this new pumping station and are supplying two 1,100 h.p. Westinghouse Parson steam turbines.

In the specifications, drawn up by the city engineer, it was stipulated that turbine and pump must be so constructed that either could be examined for repairs without disturbing the other half of the unit.

The pumps are of the two-stage turbine type and manufactured by the John McDougal Caledonian Iron Works of Montreal.

A striking feature of this system—which is impossible with fire engines—is the diffusion valves. In cases of large fires, and tall buildings, the two pressure stages will be operated in series; where lower pressure is desired, the speed of the unit will be reduced in proportion. By means of electrically controlled valves, a stream of water under low pressure for say the first story of a burning building, and another stream under high pressure for the sixth, eighth or tenth story, may be secured from the same plug by varying the pressure at the pumping station.

This system, as originated in Canada by the Canadian Westinghouse Co. will give Toronto the most up-to-date fire fighting apparatus in the Dominion—and will do much to prevent a repetition of the disastrous conflagration which lately destroyed a large section of the business district.

HYDRAULIC PROSPECTING.

W. H. Linney, superintendent of the Nipissing mines in the Cobalt region, is adding to his present force of ninety men, and expects to get out more ore this summer than has yet been taken from the property. The boilers and engines have been set up in the new hydraulic power house on the shores of

Petersen Lake, and the hydraulic giants will be busy stripping the surface soil from the ledges by the middle of June. The timber has been cleared from a large area adjoining the lake.

Mr. Linney says that the soil will hardly average four feet in depth in this section, and he hopes to strip from 150 to 200 acres with his giants during the present spring and summer. It is probable that several rich veins will be uncovered by this process, and already there is talk of similar work being undertaken by some of the other camps if they are in position to get the water.

While this is the first instance of hydraulic stripping and mining at Cobalt, and while, of course, it is best adapted to operations on a large scale, there is no question but that it is the cheapest and most effective way of getting at large sections of the ledge itself. One giant will do more in a day than a large gang of men could do in a week, and do it more effectively.

THE JEWEL AUTOMATIC ENGINE.

For some weeks H. W. Petrie, Toronto and Montreal, has been offering "specials" to machinery and power equipment buyers throughout Canada. The number of direct orders resulting from these "specials" has been so great that Mr. Petrie has decided to continue making such offers for some time.

Elsewhere in this issue he is making a "special" of the "Jewel" automatic engine. This engine has been in service in Canada and the United States for many years and has given the best possible results both as to economy and service. Among the present users are the Toronto Board of Trade, the Muskoka Navigation Co., and the Northern Navigation Co., who use them for running dynamos.

"The 'Jewel' is fitted with the Rites governing system, swinging upon a common supporting pin, ensuring the least possible chance for derangement. With the balanced valve used, this governor produces a regulation practically perfect, with constant speed with or without load. Enquiries regarding this engine or any other equipment should be sent direct to H. W. Petrie, Toronto.

MACHINE SHOPS AMALGAMATE.

To-day, June 1, 1906, marks the beginning of a new firm in Toronto, the Schofield-Holden Machine Co., Limited. This firm has been formed by the merging of R. Schofield, 14 Court Street and A. P. Holden, 105 Adelaide Street West, both of whom have won wide recognition as expert machinists.

The head office of the firm will be at 14 Court Street and a machine shop for larger work is being fitted up on Carlaw Avenue, where they intend to build gasoline engines and motor launches.

Many readers of THE CANADIAN MANUFACTURER will be interested in the union of these two strong firms and the extension of their equipment for the building of special machinery and gasoline engines.

"NORTON-SYSTEM" TELEPHONES.

The Norton-System Telephone Co., Limited, are fitting up a factory and warehouse at 64 York Street, Toronto. This firm was organized last February with \$100,000 capi-

tal to take over the business of the Hotel Bell & Telephone Co., of Halifax. The latter firm had been in business for many years and had built up a strong connection in all parts of Canada. The growth of business in Ontario and the Great West has, of late years, been so rapid that since the incorporation of the new company, with Frank E. Norton as managing director and A. H. Hatfield as secretary-treasurer, it was found advisable to bring the head office and factory to Toronto. The firm will continue to make telephones, switch boards, annunciators and telephone equipment for factories, mills, hotels and private or municipal exchanges.

SEEKING TENDERS FOR PLANT.

The Frost & Wood Co., Limited, Smith's Falls, Ont., are replacing the premises destroyed by fire some months ago with a four story brick building of standard slow burning mill construction, with no openings in the floors, having a floor area of between 140 and 150 thousand square feet. The new buildings are so designed as to give a maximum production, with minimum handling.

The entire plant will be electrically driven, a system of motor group drives k.w. and 220 k.w. generators, respectively. These engines are of the compound condensing type and will use superheated steam. Besides supplying power, these generators will light the works with about 500 incandescent lights and 125 arc lights. A complete sprinkling equipment with a 50,000 gallon tank on a steel tower is another feature as well as a 1,000 Underwriters' fire pump. The brick stack at the power house will be 110 feet high with a 66 inch inside diameter.

At present the Frost & Wood Co. are calling for tenders for boilers, generators and a large complement of iron and wood working machinery.

NEW USES FOR ALUMINUM.

Reports from Great Britain show that consumption of aluminum has increased so rapidly that the world's supply at present falls far short of the trade demand. Many users of the metal, particularly those engaged in the motor-car industry, are suffering great inconvenience without any immediate prospect of substantial relief. The world is dependent for its supply of aluminum on four sources of production. The chief of these is represented by the Pittsburgh Reduction Co. at Niagara Falls. In Great Britain there is the British Aluminum Co., whose plant is at the Falls of Foyers, and on the continent of Europe there are the Neuhausen works in Switzerland, and works in Germany.

In the United States shortage was aggravated by a strike of workmen. Americans sought to cover their requirements in this emergency by importing from Great Britain, but there was no aluminum there to be had. The British production amounts to about 2,250 tons per annum, which does not meet the needs of that country, and additional plants are being laid down in Scotland and Wales. There was a great demand on the continent of Europe for this metal, and the result has been that aluminum ingots were quoted the first of April at \$350 a ton, or \$200 above the market price ruling last July, but the quotation is purely nominal, inasmuch as there is no material to be had in England.

The London Times says that aluminum

has come very prominently into use for castings, such as are necessary in electrical work, and an immense impetus has been given to the industry by the adoption of the metal for crank cases and gear boxes in automobiles. Aluminum is also very largely displacing copper for the manufacture of pans such as are used in wax refining, jam boiling, etc. It is claimed that where brass can be used aluminum is, with rare exceptions, equally applicable, is equally economical, and has the great advantage of being about one-third of the weight.

It will naturally be asked why the great expansion of demand for the metal has not been accompanied by a corresponding increase of production. The answer is that the producers have miscalculated the rate of pro-

gress, the present consumptive demand being very greatly in excess of that at the same period of last year. The rapid development of the motor car industry is, no doubt, chiefly responsible. The supply of aluminum cannot be increased at will, as is the case with many commodities.

In America aluminum is being adopted for electric wires. The metal has not, however, been applied to this use in England.

A GREAT ELECTRIC GENERATOR.

A despatch from Hamilton, Ont., says that the Canadian Westinghouse Co. have just completed and shipped the largest electric generator ever made in Canada. It is for the

British Columbia Electric Railway Co. The equipment which the company is sending to the western city consists of one generator, 2,000 h.p., three phase, 7,200 alternations, 200 revolutions a minute, engine type, revolving field for direct connection with water wheel; one rotary connection, 1,350 h.p., 500 volts, three phase, 7,200 alternations, 400 revolutions a minute; eight air blast transformers, each 733 h.p., 2,200 volts to 24,200 volts, 7,200 alternations; also the necessary switch boards, regulating and controlling devices.

This is the fourth generator of this size supplied to the B.C.E.R. Co., the other three having been furnished by the Pittsburg firm before the Canadian Westinghouse Co. was organized.

The A. R. Williams Machinery Co., LIMITED

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Iron Machinery
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Wood-Working
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GENERAL MILL
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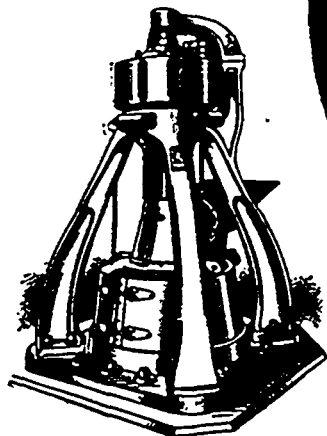
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The GRIFFIN Mill

The Greatest Pulverizing Machine in the World

Used Wherever Portland Cement is Made

OVER 50 PER CENT. OF THE PORTLAND CEMENT MANUFACTURED IN THE
UNITED STATES TO-DAY IS GROUND IN THE GRIFFIN MILL.



The Griffin Mill pulverizes more cement than the combined output of all other machines used for this purpose.

Thoroughly tested by continually successful and constantly increasing use during the past sixteen years.

Portland Cement Clinker reduced from 1/2 inch to required fineness in one operation, with no auxiliary apparatus. No other machine made will do this.

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Send for Catalogue and full information.

Bradley Pulverizer Company, 92 State St., Boston



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Our Station Seats are made of thoroughly seasoned Hardwood and perfectly annealed Malleable Iron Legs. Finished in Natural Wood or painted Red or Green and fastened together with Bolts.

Makes splendid Deck Seat.

Everlasting, Comfortable, Durable, Good Value.

Study the Design of the Sturtevant Engine



Note the fine proportions, the complete enclosing features, the system of forced lubrication, the watershed partition and the ready access to piston rod stuffing box. Then send for Bulletin 125 and further detailed information.

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Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus; Fans, Blowers and Exhausters; Steam Engines, Electric Motors and Generating Sets; Fuel Economizers; Forges, Exhaust Heads, Steam Traps, etc. 574

THE CHEAPEST POWER KNOWN

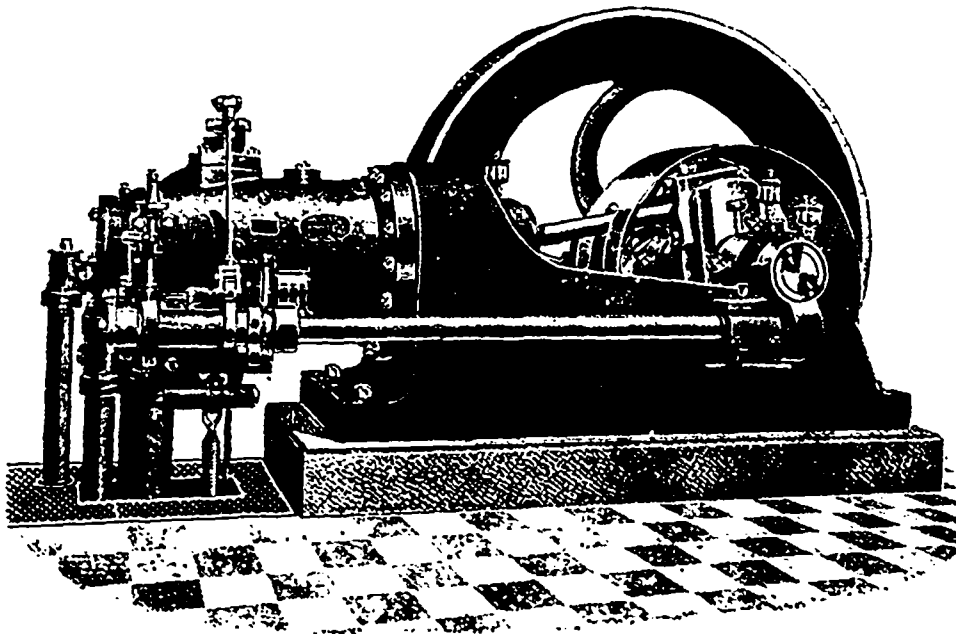
Pintsch Suction Gas Plants and National Gas Engines.

PLANTS

- No Smoke
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- No Danger
- No Leakage
- No Gas Holder
- No Noise
- No Boiler
- No Chimney

Engines in sizes from 2 to 50 H.P.

Suction Gas Plants in sizes from 10 to 1000 H.P. in single generators.



120 to 160 H.P. National Gas Engine.

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- Most Durable
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- Easy Starting
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- Low Cost
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- Vertical Ball Governors

Total Power already installed, over 200,000 H.P.

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**Manufacturers
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Highest Grade
Refractory
Materials**
**7,000 Regular
Customers**

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Fire Clay : Silica : Magnesia : Chrome

BRICK

**Sole Agents For
Carl Spaeter
Magnesite**

**Importers of
Chrome Ore**

**1,100,000
Daily Capacity**

PAINT ADULTERATION.

In a pamphlet containing the results of two years' experiments, Mr. C. W. Willimott makes a strong appeal to Canadian paint manufacturers to secure pigments from home sources. He says most of the imported paint is adulterated to an almost incredible degree. A sample of Venetian red was taken from an Ottawa store recently and was found to contain less than 20 per cent. of the sesquioxide of iron, and altogether an adulteration of about 60 per cent. Mr. Willimott writes:

"It is bad enough to know that the pigment trade of Canada insists on highly adulterated goods, but if the trade must have inferior colors at least let us do our own mixing. We have all the inert materials at hand."

Over 200 samples of clays collected be-

tween the Atlantic and Pacific Oceans were tested for their coloring properties. Many of the crude clays were found to possess ample bodies and colors to constitute good paints, and though their durability may be safely predicted, it can only be determined by prolonged exposure. The same may be said of the burnt material, but it is reasonable to expect that their permanency may be regarded with less doubtful apprehension, on account of the destruction of all organic matter.

Several amendments were made to Mr. Emmerson's bill to amend the railway act, the chief of which gives power to the Railway Commission to compel railways in cities, towns or villages to connect their lines for the purpose of transferring engines and cars from one railway to another. A special

committee will deal with the clauses bringing telephone tolls under the supervision and control of the Railway Commission.

THE SOUTHERN CALIFORNIA NEW TRAIN.—BEST ROUTE.

The Los Angeles Limited, electric lighted, new from the Pullman shops, with all latest innovations for travel comfort, leaves Chicago 10.05 p.m. daily, arrives Los Angeles 4.45 p.m. third day via Chicago, Union Pacific & North-Western Line and The Salt Lake Route. Pullman drawing room and tourist sleeping cars, composite observation car, dining cars, a la carte service. For rates, sleeping car reservations and full particulars, apply to your nearest agent or address B. H. Bennett, 2 East King St., Toronto.

TO THE VARNISH BUYER

the most serious considerations are quality, reliability and uniformity, and these qualifications are of special importance to the dealer who is trying to build up a permanent varnish trade.

Berry Brothers' label or brand may be safely relied upon as ensuring the above conditions.

Our Varnishes are the safest goods to handle and the surest and most reliable goods to use.

BERRY BROTHERS, Limited

VARNISH MANUFACTURERS

WALKERVILLE, ONT.

Write for our 100 page illustrated catalogue. Every dealer should have a copy for reference.

First-class mills use
LOWELL CRAYONS
 WHY? THEY ARE WORTH THEIR COST.

Will you try our Samples?
LOWELL CRAYON CO., - Lowell, Mass.
 Original Manufacturers.

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 Audits and Investigations a Specialty.

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J. TURNBULL, General Manager
 HEAD OFFICE, - HAMILTON, ONT.

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90 Branches Throughout the Dominion of Canada.

Collections made in all parts of Canada on most favorable terms.

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Established 1849.

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Capital and Surplus, \$1,500,000

Offices Throughout the Civilized World.
 EXECUTIVE OFFICES,

346 & 348 Broadway, New York City, U.S.A.
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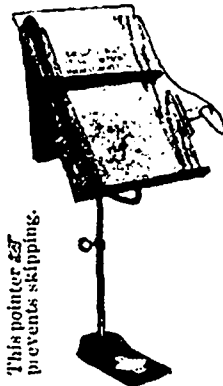
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 London, Ont. Montreal, Que.
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\$1.50 COPY-HOLDER FREE



This pointer set prevents slipping.



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- Brantford, Ont.
- Hamilton, Ont.
- Peterborough, Ont.
- Regina, N.W.T.
- Sherbrooke, Que.
- Toronto, Ont.

FOR SALE, CHEAP!

Fine 3-story brick factory building, besides other storage buildings. If you are contemplating starting a branch in Canada this is a grand opportunity. Heavy electric power and natural gas. For further particulars apply to
 W.M. CHAPLIN,
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Wood Engraver, with 20 years experience in catalogue and advertisement work, seeks position as engraver and process toucher. D. "Clovelly" Compton Rd., Dyke Rd., Brighton, England.

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New Binder Twine Factory; buildings solid concrete, fire-proof; capacity 3 ton, or 60 spindles; room for increasing capacity if desired; Hoover and Gamble machinery throughout; cheap labor; also good water power site; rock banks and bottom, which, if developed, will, besides running factory, bring in good revenue. Apply

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 PRESTON ONT.
 FINE BANK OFFICE, COURT HOUSE & DRUG STORE FITTINGS.
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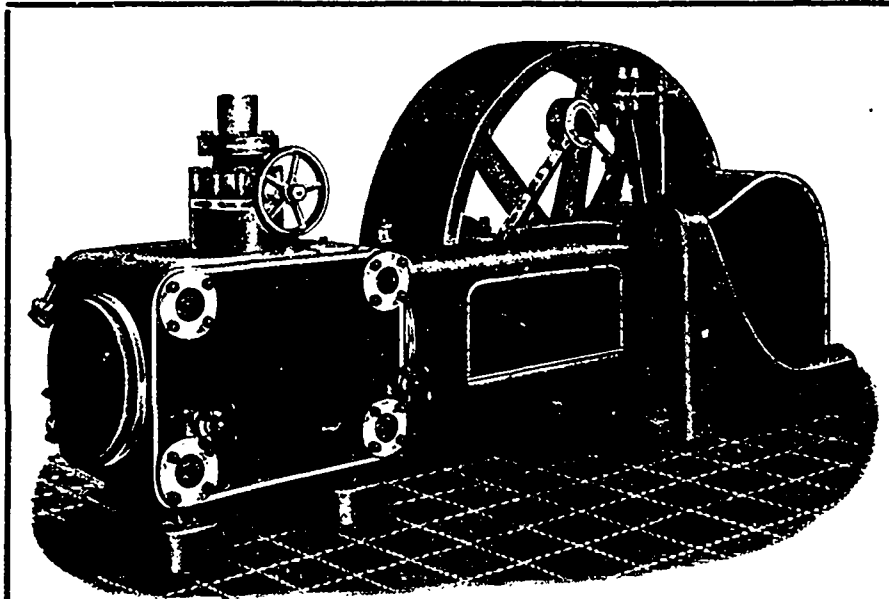
Uniformity and reliability are recognized marks of a McCullough-Dalzell Crucible. It pays to get the best. Write for prices.
McCULLOUGH-DALZELL CRUCIBLE CO., Pittsburg, Pa.

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ORDERS FOR LARGE OR SMALL TONNAGE IN MALLEABLE CASTINGS PROMPTLY EXECUTED.

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**Positively Driven
Encased in Oil**

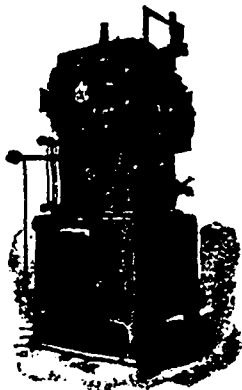
Minimum Wear

**Runs Noiselessly
Minimum Friction**

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The Webster Feed Water Heater and Purifier

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CLASSIFIED INDEX.

Abrasives

Williams, A. R. Machinery Co. Toronto

Acids

Canada Chemical Co., London, Ont.
Canada Process Co., Toronto.
Nichols Chemical Co. of Canada, Montreal.

Air Compressors

Allis-Chalmers-Bullock, Limited, Montreal.
American Steam Pump Co., Battle Creek, Mich.
Canada Foundry Co., Toronto.
Canadian Hand Drill Co., Sherbrooke, Que.
Darling Bros., Montreal.
Smart-Turner Machine Co., Hamilton, Ont.

Alum

Nichols Chemical Co. of Canada, Montreal.

Aluminum

Northern Aluminum Co., Pittsburg, Pa.
Syracuse Smelting Works, Montreal.

Angles, Beams and Girders

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Hopkins, F. H. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Aniline Colors and Dyewood Extracts

Benson, W. T. & Co., Montreal.
Brunner, Mond & Co., Norwich, England.
Canada Chemical Mfg. Co., London, Ont.
Canada Process Co., Toronto.
Casella Color Co., New York City.
McArthur, Corneille & Co., Montreal.
Nichols Chemical Co. of Canada, Montreal.
Winn & Holland, Montreal.

Annealing Muffles and Furnaces (Wire)

Leslie, A. C. & Co., Montreal.
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Antimony

Syracuse Smelting Works, Montreal.

Anvils and Vises

Hopkins, F. H. & Co., Montreal.
Leslie, A. C. & Co., Montreal.

Architects

Gearing, H. Toronto.
Parke, R. J., Toronto.
Vogel, C. H. Ottawa.

Automatic Gear Cutting Machines

Becker-Brainard Milling Machine Co. Hyde Park, Mass.

Axles

Hopkins, F. H. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Babbitt Metal

Petrie, H. W., Toronto.
Syracuse Smelting Works, Montreal.

Banks

Bank of Hamilton, Hamilton, Ont.

Bar Iron and Steel

Bourne-Fuller Co., Cleveland, Ohio.
Hopkins, F. H. & Co., Montreal.
Leslie, A. C. & Co., Montreal.
London Rolling Mills, London, Ont.
Union Drawn Steel Co., Hamilton Ont.

Belt Dressing

McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Sadler & Haworth, Montreal and Toronto.
Williams, A. R. Machinery Co., Toronto

Belt Fasteners

Bristol Co., Waterbury, Conn.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Sadler & Haworth, Montreal and Toronto.
Williams, A. R. Machinery Co., Toronto.

Belting (Cotton)

Dominion Belting Co., Hamilton, Ont.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Sadler & Haworth, Montreal and Toronto.

Belting (Leather)

Montreal Belting Co., Montreal.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Sadler & Haworth, Montreal and Toronto.
Williams, A. R. Machinery Co., Toronto.

CLASSIFIED INDEX.

(CONTINUED).

Belting (Rubber)

Gutta Percha & Rubber Mfg. Co., Toronto.
 McLaren, D. K., Montreal and Toronto.
 McLaren, J. C., Belting Co., Montreal.
 Petrie, H. W., Toronto.

Belting and Supplies

Bristol Co., Waterbury, Conn.
 Dominion Belting Co., Hamilton, Ont.
 Gutta Percha & Rubber Mfg. Co., Toronto.
 Jeffrey Mfg. Co., Columbus, Ohio.
 Montreal Belting Co., Montreal.
 McLaren, D. K., Montreal and Toronto.
 McLaren, J. C., Belting Co., Montreal and Toronto.
 Petrie, H. W., Toronto.
 Williams, A. R. Machinery Co., Toronto.

Blast Furnace Brick

Dunbar Fire Brick Co., Pittsburgh, Pa.
 Elk Fire Brick Co., St. Mary's, Pa.
 Hamilton Facing Mill Co., Hamilton, Ont.
 Harbison-Walker Refractories Co., Pittsburgh, Pa.
 Pennsylvania Fire Brick Co., Beech Creek, Pa.
 Queen's Run Fire Brick Co., Lock Haven, Pa.
 Stowe-Fuller Co., Cleveland, Ohio.

Blowers

Hamilton Facing Mill Co., Hamilton, Ont.
 Sheldon & Sheldon, Galt, Ont.
 Sturtevant, B. F. Co., Boston, Mass.

Boiler Compounds

Canada Chemical Mfg. Co., London, Ont.
 Canada Process Co., Toronto.
 Hamilton Facing Mill Co., Hamilton, Ont.

Boiler Inspection

Boiler Inspection & Insurance Co., Toronto.
 Canadian Casualty & Boiler Insurance Co., Toronto.

BOILERS (See Engines and Boilers)**Bolts and Nuts**

London Rolling Mills, London, Ont.
 Morrow John Machine Screw Co., Ingersoll, Ont.

Brass Founders

Hamilton Brass Mfg. Co., Hamilton, Ont.

Building and Paving Brick

Dunbar Fire Brick Co., Pittsburgh, Pa.
 Hamilton Facing Mill Co., Hamilton, Ont.
 Harbison-Walker Refractories Co., Pittsburgh, Pa.
 Pennsylvania Fire Brick Co., Beech Creek, Pa.
 Queen's Run Fire Brick Co., Lock Haven, Pa.
 Stowe-Fuller Co., Cleveland, Ohio.

Building Iron and Steel

Bourne-Fuller Co., Cleveland, Ohio.
 Canada Foundry Co., Toronto.
 Expanded Metal & Fireproofing Co., Toronto.
 Metallic Roofing Co., Toronto.
 Pedlar People, Oshawa, Ont.

Builders' Materials

Albert Mfg. Co., Hillsboro, Ont.
 Canada Foundry Co., Toronto.
 Conduits Company, Limited, Toronto.
 Expanded Metal & Fireproofing Co., Toronto.
 Gartschore, John J., Toronto.
 Hopkins, F. H. & Co., Montreal.
 Metallic Roofing Co., Toronto.
 Pedlar People, Oshawa, Ont.
 Sheldon & Sheldon, Galt, Ont.

Cables

Dominion Wire Rope Co., Montreal.
 Greening, B. Wire Co., Hamilton, Ont.
 Phillips, Eugene F. Electrical Works, Montreal.

Canada Plates

Leslie, A. C. & Co., Montreal.
 Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Canoes

Peterborough Canoe Co., Peterborough, Ont.

Caps

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

Card Clothing

McLaren, D. K., Montreal and Toronto.
 McLaren, J. C., Belting Co., Montreal and Toronto.

Cast Iron Pipe

Canada Foundry Co., Toronto.
 Montreal Pipe Foundry Co., Montreal.
 McDougall, John, Caledonian Iron Works Co., Montreal.

Castings (Grey Iron, Malleable Iron and Brass)

International Harvester Co., Hamilton, Ont.
 Jenckes Machine Co., Sherbrooke, Que.
 Kerr Engine Co., Walkerville, Ont.
 McDougall, John, Caledonian Iron Works Co., Montreal.
 McKinnon Dash & Metal Works Co., St. Catharines, Ont.

Maxwell, David & Sons, St. Mary's, Ont.
 Smart-Turner Machine Co., Hamilton, Ont.

Cement Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
 Bradley Pulverizer Co., Boston, Mass.
 McDougall, John, Caledonian Iron Works Co., Montreal.

Centrifugal Pumping Machinery

Morris Machine Works, Baldwinsville, N.Y.
 Smart-Turner Machine Co., Hamilton, Ont.

Chain Making Machinery**(Welded Coll Chain)**

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Channels

Bourne-Fuller Co., Cleveland, Ohio.
 Canada Foundry Co., Toronto.
 Leslie, A. C. & Co., Montreal.
 Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Charcoal Pig Iron

Canada Iron Furnace Co., Montreal.
 McDougall, John, Caledonian Iron Works Co., Montreal.

Chemicals

Canada Chemical Co., London, Ont.
 Canada Process Co., Toronto.
 Nichols Chemical Co. of Canada, Montreal.

Chemists

Heys, Thomas & Son, Toronto.

Clay Working Machinery

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Coal, Coke and Charcoal.

Bourne-Fuller Co., Cleveland, Ohio.
 Hamilton Facing Mill Co., Hamilton, Ont.
 Milnes, James H. & Co., Toronto.
 Wilson, H. T. Coal Co., Detroit, Mich.

Coal Cutting Machines

Allis-Chalmers-Bullock, Limited, Montreal.
 Canadian Rand Drill Co., Sherbrooke, Que.
 Jeffrey Mfg. Co., Columbus, Ohio.

Coal Tipples

Jeffrey Mfg. Co., Columbus, Ohio.
 Jenckes Machine Co., Sherbrooke, Que.

Coil Chains

Greening, B. Wire Co., Hamilton, Ont.
 Leslie, A. C. & Co., Montreal.

Coke Oven Brick

Dunbar Fire Brick Co., Pittsburgh, Pa.
 Stowe-Fuller Co., Cleveland, Ohio.

Collection Agency

Petrie, H. D., Hamilton, Ont.

Concrete Mixers

Hopkins, F. H. & Co., Montreal.

Condensers

Smart-Turner Machine Co., Hamilton, Ont.

Conduits (Interior)

Conduits Company, Limited, Toronto.

Contractors' Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
 Gartschore, John J., Toronto.
 Hopkins, F. H. & Co., Montreal.
 Jenckes Machine Co., Sherbrooke, Que.
 McDougall, John, Caledonian Iron Works Co., Montreal.
 Smart-Turner Machine Co., Hamilton, Ont.

Contractors' Plants

Allis-Chalmers-Bullock, Limited, Montreal.
 Hopkins, F. H. & Co., Montreal.
 Jenckes Machine Co., Sherbrooke, Que.
 Petrie, H. W., Toronto.
 Smart-Turner Machine Co., Hamilton, Ont.
 Williams A. R. Machinery Co., Toronto.

Conveying Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
 Babcock & Wilcox, Limited, Montreal.
 Canada Foundry Co., Toronto.
 Jeffrey Mfg. Co., Columbus, Ohio.
 Link-Belt Engineering Co., Philadelphia, Pa.
 McDougall, John, Caledonian Iron Works Co., Montreal.
 Perrin, William R. & Co., Limited, Toronto.
 Smart-Turner Machine Co., Hamilton, Ont.

Copper Materials

Greening, B. Wire Co., Hamilton, Ont.
 Phillips, Eugene F. Electrical Works, Montreal.
 Syracuse Smelting Works, Montreal.

Corrugated Iron

Metallic Roofing Co., Toronto.
 Pedlar People, Oshawa, Ont.

Cotton Banding and Rope

McLaren, J. C. Belting Co., Montreal.

Covers

McCullough-Dalzell Crucible Co., Pittsburg, Pa.
 Pittsburg Crucible Works, Pittsburg, Pa.

Cranes (Electric and Hand Power)

Smart-Turner Machine Co., Hamilton, Ont.

Crayons

Lowell Crayon Co., Lowell, Mass.
 McLaren, J. C. Belting Co., Montreal.

Crucibles

Dixon, Joseph, Crucible Co., Jersey City, N.J.
 Hamilton Facing Mill Co., Hamilton, Ont.
 McCullough-Dalzell Crucible Co., Pittsburg, Pa.
 Syracuse Smelting Works, Montreal.

Crucible Caps

Hamilton Facing Mill Co., Hamilton, Ont.
 McCullough-Dalzell Crucible Co., Pittsburg, Pa.
 Pittsburg Crucible Works, Pittsburg, Pa.

Crucible Covers

McCullough-Dalzell Crucible Co., Pittsburg, Pa.
 Pittsburg Crucible Works, Pittsburg, Pa.

Cutter Grinding Machines

Becker-Brainard Milling Machine Co., Hyde Park, Mass.

Dashes

McKinnon Dash & Metal Works Co., St. Catharines, Ont.

Deep Well Engines

American Steam Pump Co., Battle Creek, Mich.

Dies (Socket, Sewer Pipe and Tile)

Furner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Directories

Kelly's Directories, Limited, Toronto

Draw Benches (Wire)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Dredges

Allis-Chalmers-Bullock, Limited, Montreal

Drills

Allis-Chalmers-Bullock, Limited, Montreal.
 Canadian Westinghouse Co., Ltd., Hamilton, Ont.
 Petrie, H. W., Toronto.

Drills (Pneumatic and Rock)

Allis-Chalmers-Bullock, Limited, Montreal.
 Canadian Rand Drill Co., Sherbrooke, Que.
 Jeffrey Mfg. Co., Columbus, Ohio.

Drop Forgings

Globe Machine & Stamping Co., Cleveland, Ohio

Drop Forging Dies

Globe Machine & Stamping Co., Cleveland, Ohio.

Dry Kiln Apparatus

Sheldon & Sheldon, Galt, Ont.
 Sturtevant, B. F. Co., Boston, Mass.

Dust and Shavings Separators

Sheldon & Sheldon, Galt, Ont.
 Sturtevant, B. F. Co., Boston, Mass.

Dye Stuffs and Chemicals

Benson, W. T. & Co., Montreal.
 Brunner, Mond & Co., Northwich, England.
 Canada Chemical Mfg. Co., London, Ont.
 Canada Process Co., Toronto.
 Cassella Color Co., New York City.
 McArthur, Cornille & Co., Montreal.
 Nichols Chemical Co. of Canada, Montreal.
 Winn & Holland, Montreal.

DYNAMOS (See Motors and Dynamos)**Electric Meters and Transformers**

Allis-Chalmers-Bullock, Limited, Montreal.
 Packard Electric Co., St. Catharines, Ont.

Electric Mine Locomotives

Canadian General Electric Co., Toronto.
 Canadian Westinghouse Co., Ltd., Hamilton, Ont.
 Jeffrey Mfg. Co., Columbus, Ohio.

Electrical Repairs

Keystone Engineering Co., Toronto.

Electrical Supplies

Allis-Chalmers-Bullock, Limited, Montreal.
 Bristol Co., Waterbury, Conn.
 Canadian General Electric Co., Toronto.

CLASSIFIED INDEX.

(CONTINUED).

Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jones & Moore Electric Co., Toronto
Keystone Engineering Co., Toronto.
Packard Electric Co., St. Catharines, Ont.
Toronto & Hamilton Electric Co., Hamilton, Ont.

Elevators and Conveyors

Allis-Chalmers-Bullock, Limited, Montreal.
Darling Bros., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.

Elevator Insurance

Canadian Casualty & Boiler Insurance Co., Toronto.

Emery and Emery Wheels

Forman, John, Montreal.
Hamilton Facing Mill Co., Hamilton, Ont.
Petrie, H. W., Toronto.

Engineers (Chemical)

Heys, Thomas & Son, Toronto.
Hunt Robert W. & Co., Chicago, Ill.

Engineers (Civil)

Parke, R. J., Toronto.
Vogel, C. H., Ottawa.

Engineers (Consulting)

Aitken, K. L., Toronto.
Canadian White Co., Montreal.
Electrical Construction Co., London Ont.
Fensom, C. J., Toronto.
Gearing, H., Toronto.
Hunt, Robert W. & Co., Chicago, Ill.
Keystone Engineering Co., Toronto, Ont.
Marion & Marion, Montreal.
Parke, R. J., Toronto.
Perrin, William R. & Co., Limited, Toronto
Vogel C. H., Ottawa.

Engineers (Contracting)

Babcock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Canadian White Co., Montreal.
Darling Bros., Montreal.
Electrical Construction Co., London Ont.
Fensom, C. J., Toronto.
Keystone Engineering Co., Toronto.
McDougall, John, Caledonian Iron Works Co., Montreal.
Robb Engineering Co., Amherst, N.S.

Engineers (Electrical)

Aitken, K. L., Toronto.
Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Ltd., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Canadian White Co., Montreal.
Crocker-Wheeler Co., St. Catharines, Ont.
Electrical Construction Co., London, Ont.
Fensom, C. J., Toronto.
Jones & Moore Electric Co., Toronto.
Keystone Engineering Co., Toronto.
Marion & Marion, Montreal.
Toronto & Hamilton Electric Co., Hamilton Ont.

Engineers (Mechanical)

Allis-Chalmers-Bullock, Limited, Montreal.
Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
Electrical Construction Co., London, Ont.
Fensom, C. J., Toronto.
Gearing, H., Toronto.
McDougall, John, Caledonian Iron Works Co., Montreal.
Hunt, Robert W. & Co., Chicago, Ill.
Kerr Engine Co., Walkerville, Ont.
Marion & Marion, Montreal.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.
Smart-Turner Machine Co., Hamilton, Ont.

Engineers (Mill and Hydraulic)

Fensom, C. J., Toronto.
Smart-Turner Machine Co., Hamilton, Ont.
Vogel, C. H., Ottawa.

Engineers (Mining)

Heys Thomas & Son, Toronto
Mills, S. D., Toronto.

Engineers and Contractors

Canadian White Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.
Smart-Turner Machine Co., Hamilton, Ont.

Engines and Boilers

Allis-Chalmers-Bullock Limited, Montreal
Babcock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Hopkins, F. H. & Co., Montreal.
Jenckes Machine Co., Sherbrooke, Que.
Morris Machine Works, Baldwinsville, N.Y.
McDougall, John, Caledonian Iron Works Co., Montreal.
Petrie, H. W., Toronto.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.
Smart-Turner Machine Co., Hamilton, Ont.
Sturtevant, B. F. Co., Boston, Mass.
Williams, A. R. Machinery Co., Toronto.

Engravers

Canadian Manufacturer, Toronto.
Jones, J. L. Engraving Co., Toronto.

Exhaust Fans

Hamilton Facing Mill Co., Hamilton, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Exhaust Heads

Darling Bros., Montreal.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Hyde Park, Mass.

Exhausters

Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Hyde Park, Mass.

Factory Sites

(See Factory Locations, page 31.)
Central Ontario Power Co., Peterboro Ont.
Hutcheson, S. M., Paisley, Ont.

Feed Water Heaters

Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Robb Engineering Co., Amherst, N.S.
Smart-Turner Machine Co., Hamilton, Ont.

Files

Spence, R. & Co., Hamilton, Ont.

Fillet (Pattern)

Hamilton Facing Mill Co., Hamilton, Ont.
McLaren, J. C. Belting Co., Montreal.
Sadler & Haworth, Montreal and Toronto.

Filters (Oil)

Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Perrin, William R. & Co., Limited, Toronto.

Filters and Filtering Systems (Water)

Babcock & Wilcox, Limited, Montreal.
Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.

Financial

Bradstreet's, New York City.
Dun, R. G. & Co., Toronto.
Neff & Postlethwaite, Toronto.
Petrie H. D. Hamilton, Ont.

Finals

Metallie Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

Fire Brick and Clay

Dunbar Fire Brick Co., Pittsburgh, Pa.
Elk Fire Brick Co., St. Mary's, Pa.
Hamilton Facing Mill Co., Hamilton, Ont.
Harbison-Walker Refractories Co., Pittsburgh, Pa.
Pennsylvania Fire Brick Co., Beech Creek, Pa.
Queen's Run Fire Brick Co., Lock Haven, Pa.
Stowe-Fuller Co., Cleveland, Ohio.

Fire Escapes

Darling Bros., Montreal.

Fireproof Partitions

Metallie Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

Flour Mill Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Goldie & McCulloch Co., Galt, Ont.

Forges and Blowers

Canada Foundry Co., Toronto.
Hamilton Facing Mill Co., Hamilton, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Founders

Canada Foundry Co., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.
Robb Engineering Co., Amherst, N.S.
Smart-Turner Machine Co., Hamilton, Ont.

Foundry Facings and Supplies

Hamilton Facing Mill Co., Hamilton, Ont.

Fuel Economizers

Babcock & Wilcox, Limited, Montreal.
Sturtevant, B. F. Co., Hyde Park, Mass.

Furniture (Lodge, Opera and School)

Canadian Office & School Furniture Co., Preston, Ont.

Galvanizing

Ontario Wind Engine & Pump Co., Toronto.

Galvanizing and Tinning Machinery and Furnaces (Wire)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Gas and Gasoline Engines

Morrison, T. A. & Co., Montreal.
Smart-Turner Machine Co., Hamilton, Ont.

Gauges (Recording Pressure)

Bristol Co., Waterbury, Conn.

Gauges (Steam)

Penberthy Injector Co., Windsor, Ont.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto

Gauges (Water)

Babcock & Wilcox, Limited, Montreal.
Penberthy Injector Co., Windsor, Ont.

Generating Sets

Sturtevant, B. F. Co., Hyde Park, Mass.

Generators

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Phillips, Eugene F., Electrical Works, Montreal.
Toronto & Hamilton Electric Co., Hamilton, Ont.

Gloves, Mittens and Moccasins

Storey, W. H. & Son, Acton, Ont.

Government Notices

Factory Inspectors.
Minister of Agriculture.

Graphite

Dixon, Jos. Crucible Co., Jersey City, N.J.
Hamilton Facing Mill Co., Hamilton, Ont.
McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Hames

McKinnon Dash & Metal Works Co., St. Catharines.

Hardware

Butterfield & Co., Rock Island, Que.
Garshore, John J., Toronto.
Globe Machine & Stamping Co., Cleveland, Ohio.
Hopkins, F. H. & Co., Montreal.
Morrow, John, Machine Screw Co., Ingersoll, Ont.

Heating and Ventilating Apparatus

Darling Bros., Montreal.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Hoisting Engines

Allis-Chalmers-Bullock, Limited, Montreal.
Jenckes Machine Co., Sherbrooke, Que.

Hoists (Chain and Pneumatic)

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Rand Drill Co., Sherbrooke, Que.
Hopkins, F. H. & Co., Montreal.

Hose (Fire and Pneumatic)

Gutta Percha & Rubber Mfg. Co., Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Sadler & Haworth, Montreal and Toronto.

Hotel

Gallatin Hotel, New York City.

Hydrants

Kerr Engine Co., Walkerville, Ont.
Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.

Hydraulic Accumulators

Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.
Smart-Turner Machine Co., Hamilton, Ont.

Hydraulic Leather

McLaren, J. C. Belting Co., Montreal.
Sadler & Haworth, Montreal and Toronto

Hydraulic Machinery

Canada Foundry Co., Toronto.
Darling Bros., Montreal.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.
Perrin, William R. & Co., Limited, Toronto.
Petrie, H. W., Toronto.
Smart-Turner Machine Co., Hamilton, Ont.
Wilson, J. C. & Co., Glenora, Ont.

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NOTICE The following are the Factory Inspectors for the Province of Ontario:

JAS. T. BURKE, Parliament Buildings, Toronto.
THOMAS KELLY, Parliament Buildings, Toronto.
ARTHUR W. HOLMES, Parliament Buildings, Toronto.
JOHN ARGUE, Parliament Buildings, Toronto.
MARGARET CARLYLE, Parliament Buildings, Toronto.
MRS. JAS. R. BROWN, Parliament Buildings, Toronto.

Persons having business with any of the Inspectors will find them at the above address. HON. NELSON MONTEITH, Minister of Agriculture

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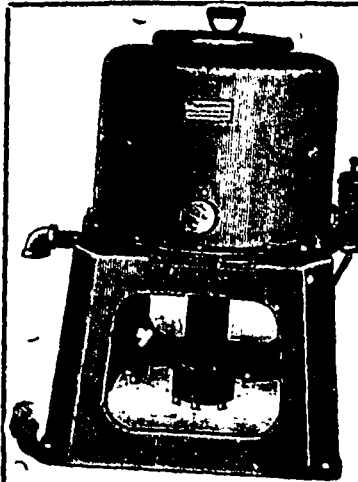


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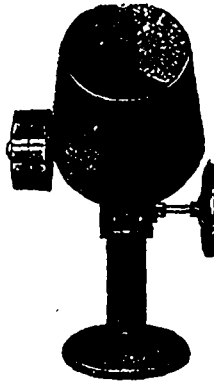
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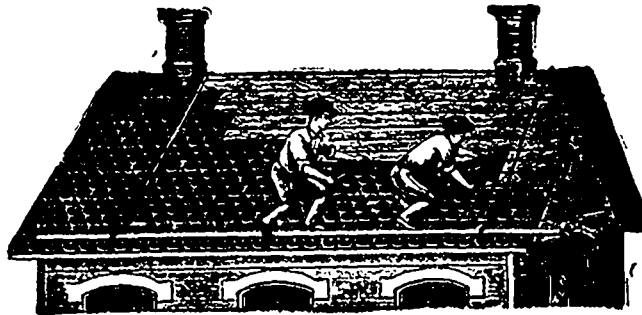
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69 Dundas St.

Winnipeg, Man.
76 Lombard St.

Vancouver, B.C.
615 Pender St.

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Head Office and Works,

OSHAWA, ONTARIO, CANADA

CLASSIFIED INDEX.

(CONTINUED).

Insulated Wires and Cables

Phillips, Eugene F., Electrical Works, Montreal.

Iron and Steel Specialties

Armstrong Mfg. Co., Bridgeport, Conn.
 Bourne-Fuller Co., Cleveland, Ohio.
 Canada Foundry Co., Toronto.
 Leslie, A. C. & Co., Montreal.
 London Rolling Mill Co., London, Ont.
 Lysaght, John, Limited, Bristol, England and Montreal.
 Metallic Roofing Co., Toronto.
 Nova Scotia Steel & Coal Co., New Glasgow, N.S.
 Pedlar People, Oshawa, Ont.
 Petrie, H. W., Toronto.
 Union Drawn Steel Co., Hamilton, Ont.

Injectors

Canada Foundry Co., Toronto.
 Hamilton Brass Mfg. Co., Hamilton, Ont.
 Williams, A. R. Machinery Co., Toronto.

Iron and Steel Inspection

Hunt, R. W. & Co., Chicago, Ill.

Lamps—Electric

Allis-Chalmers-Bullock, Limited, Montreal.
 Canadian General Electric Co., Toronto.
 Canadian Westinghouse Co., Ltd., Hamilton, Ont.
 Forman, John, Montreal.
 Packard Electric Co., St. Catharines, Ont.

Lathes

Petrie, H. W., Toronto.
 Williams, A. R. Machinery Co., Toronto.

Lathes (Wood-working)

Goldie & McCulloch Co., Galt, Ont.
 Petrie, H. W., Toronto.
 Williams, A. R. Machinery Co., Toronto.

Loom Reeds

McLaren, J. C., Belting Co., Montreal.

Lubricators

Hamilton Facing Mill Co., Hamilton, Ont.

Machinists

Goldie & McCulloch Co., Galt, Ont.
 Robb Engineering Co., Amherst, N.S.
 Smart-Turner Machine Co., Hamilton, Ont.

Machinists' Supplies

Armstrong Mfg. Co., Bridgeport, Conn.
 Butterfield & Co., Rock Island, Que.
 Goldie & McCulloch Co., Galt, Ont.
 Gutta Percha & Rubber Mfg. Co., Toronto.
 Hopkins, F. H. & Co., Montreal.
 Jeffrey Mfg. Co., Columbus, Ohio.
 Morrow, John, Machine Screw Co., Ingersoll, Ont.
 Petrie, H. W., Toronto.

Machine Tools

Becker-Brainard Milling Machine Co., Hyde Park, Mass.
 Darling Bros., Montreal.
 Petrie, H. W., Toronto.

Malleable Castings

International Harvester Co., Hamilton, Ont.
 McKinnon Dash & Metal Works Co., St. Catharines, Ont.
 Smith's Falls Malleable Castings Co., Smith's Falls, Ont.

Marine and Stationary Engines and

Boilers

Allis-Chalmers-Bullock, Limited, Montreal.
 Jenckes Machine Co., Sherbrooke, Que.
 Smart-Turner Machine Co., Hamilton, Ont.

Mechanical Draft

Babcock & Wilcox, Limited, Montreal.
 Sheldon & Sheldon, Galt, Ont.
 Sturtevant, B. F. Co., Boston, Mass.

Metal Doors

Metallic Roofing Co., Toronto.
 Pedlar People, Oshawa, Ont.

Stamping

Globe Machine & Stamping Co., Cleveland, Ohio.
 Metallic Roofing Co., Toronto.
 Pedlar People, Oshawa, Ont.]

Metallurgists

Mills, S. D., Toronto.

Mill Machinery and Supplies

Allis-Chalmers-Bullock, Limited, Montreal.
 Armstrong Mfg. Co., Bridgeport, Conn.
 Becker-Brainard Milling Machine Co., Hyde Park, Mass.
 Darling Bros., Montreal.
 Gartshore, John J., Toronto.
 Goldie & McCulloch Co., Galt, Ont.
 Gutta Percha & Rubber Mfg. Co., Toronto.
 Hamilton Brass Mfg. Co., Hamilton, Ont.
 Hamilton, Wm. Mfg. Co., Peterborough, Ont.
 Hay, Peter Knife Co., Galt, Ont.
 Hopkins, F. H. & Co., Montreal.
 Jeffrey Mfg. Co., Columbus, Ohio.
 Jenckes Machine Co., Sherbrooke, Que.
 Morrow, John, Machine Screw Co., Ingersoll, Ont.
 McDougall, John, Caledonian Iron Works Co., Montreal.
 McLaren, D. K., Montreal and Toronto.
 McLaren, J. C. Belting Co., Montreal.
 Petrie, H. W., Toronto.
 Robb Engineering Co., Amherst, N.S.
 Smart-Turner Machine Co., Hamilton, Ont.
 Spence, R. & Co., Hamilton, Ont.

Milling Cutters and Machines

Becker-Brainard Milling Machine Co., Hyde Park, Mass.

Miners' Lamps

Allis-Chalmers-Bullock, Limited, Montreal.

Mining Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
 Canadian Rand Drill Co., Sherbrooke, Que.
 Gartshore, John J., Toronto.
 Hamilton, Wm. Mfg. Co., Peterborough, Ont.
 Hopkins, F. H. & Co., Montreal.
 Jeffrey Mfg. Co., Columbus, Ohio.
 Jenckes Machine Co., Sherbrooke, Que.
 Link-Belt Engineering Co., Philadelphia, Pa.
 McDougall, John, Caledonian Iron Works Co., Montreal.
 Perrin, William R. & Co., Limited, Toronto.
 Petrie, H. W., Toronto.
 Williams, A. R. Machinery Co., Toronto.

Motors and Dynamos

Allis-Chalmers-Bullock, Limited, Montreal.
 Canadian General Electric Co., Toronto.
 Canadian Westinghouse Co., Ltd., Hamilton, Ont.
 Electrical Construction Co., London, Ont.
 Forman, John, Montreal.
 Jeffrey Mfg. Co., Columbus, Ohio.
 Jones & Moore Electric Co., Toronto.
 Keystone Engineering Co., Toronto.
 Petrie, H. W., Toronto.
 Sturtevant, B. F. Co., Hyde Park, Mass.
 Toronto & Hamilton Electric Co., Hamilton, Ont.

Moulding Sand

Hamilton Facing Mills Co., Hamilton, Ont.

Moulders Supplies.

Hamilton Facing Mill Co., Hamilton, Ont.

Nickel

Canadian Copper Co., New York, N.Y.
 Orford Copper Co., New York, N.Y.

Nozzles

McCullough-Dalsell Crucible Co., Pittsburg, Pa.
 Pittsburg Crucible Works, Pittsburg, Pa.

Office and Bank Fittings

Canadian Office & School Furniture Co., Preston Ont.

Oils and Lubricants

Dixon, Jos. Crucible Co., Jersey City, N.J.
 Hamilton Facing Mill Co., Hamilton, Ont.
 Imperial Oil Co., Petrolia, Ont.
 Queen City Oil Co., Toronto.

Oil Cloth

Dominion Oil Cloth Co., Montreal.

Paints and Colors

Berry Bros., Walkerville, Ont.
 McArthur, Corneille & Co., Montreal.

Paper Manufacturers

Barber, Wm. & Bros., Georgetown, Ont.
 Toronto Paper Mfg. Co., Cornwall, Ont.

Patents

Budden, Hanbury A., Montreal.
 Fetherstonhaugh & Co., Toronto.
 Marion & Marion, Montreal.

Patterns (Wood and Iron)

Muxwell, David & Sons, St. Mary's, Ont.

Perforated Metals

Globe Machine & Stamping Co., Cleveland, Ohio.
 Greening, B. Wire Co., Hamilton, Ont.
 Metallic Roofing Co., Toronto.
 Pedlar People, Oshawa, Ont.

Personal Accident

Canadian Casualty & Boiler Insurance Co., Toronto.

Phosphorizers

McCullough-Dalsell Crucible Co., Pittsburg, Pa.

Piano Action and Key Machinery

H. Gearing, Toronto.

Pig Iron

Bourne-Fuller Co., Cleveland, Ohio.
 Canada Iron Furnace Co., Montreal.
 Nova Scotia Steel & Coal Co., New Glasgow, N.S.
 Syracuse Smelting Works, Montreal.

Pipe (Riveted, Iron and Steel)

Babcock & Wilcox, Limited, Montreal.
 McDougall, John, Caledonian Iron Works Co., Montreal.

Pipe Threading Machines

Armstrong Mfg. Co., Bridgeport, Conn.
 Butterfield & Co., Rock Island, Que.
 Petrie, H. W., Toronto.

Pipes and Tubes

Bourne-Fuller Co., Cleveland, Ohio.
 Canada Foundry Co., Toronto.
 Montreal Pipe Foundry Co., Montreal.

Plaster

Albert Mfg. Co., Hillsborough, N.B.

Plates

Bourne-Fuller Co., Cleveland, Ohio.
 Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Plumbago

Hamilton Facing Mills Co., Hamilton, Ont.
 McCullough-Dalsell Crucible Co., Pittsburg, Pa.
 Pittsburg Crucible Works, Pittsburg, Pa.

Pneumatic Tools

Allis-Chalmers-Bullock, Limited, Montreal.
 Canadian Rand Drill Co., Sherbrooke, Que.
 Hamilton Facing Mill Co., Hamilton, Ont.

Pointer Rolls (For Rods and Wire)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Power Plants—Equipments

Allis-Chalmers-Bullock, Limited, Montreal.
 Babcock & Wilcox, Limited, Montreal.
 Canadian General Electric Co., Toronto.
 Canadian Westinghouse Co., Ltd., Hamilton, Ont.
 Darling Bros., Montreal.
 Electrical Construction Co., London, Ont.
 Goldie & McCulloch, Galt, Ont.
 Gutta Percha & Rubber Mfg. Co., Toronto.
 Hamilton, Wm. Mfg. Co., Peterborough, Ont.
 Jeffrey Mfg. Co., Columbus, Ohio.
 Jones & Moore Electric Co., Toronto.
 Keystone Engineering Co., Toronto.
 McDougall, John, Caledonian Iron Works Co., Montreal.
 Packard Electric Co., St. Catharines, Ont.
 Perrin, Wm. R. & Co., Limited, Toronto.
 Petrie, H. W., Toronto.
 Phillips, Eugene F., Electrical Works, Montreal.
 Robb Engineering Co., Amherst, N.S.
 Smart-Turner Machine Co., Hamilton, Ont.
 Sturtevant, B. F. Co., Boston, Mass.
 Toronto & Hamilton Electric Co., Hamilton, Ont.

Processes (Tile, Sewer Pipe, Nozzles and Sleeves)

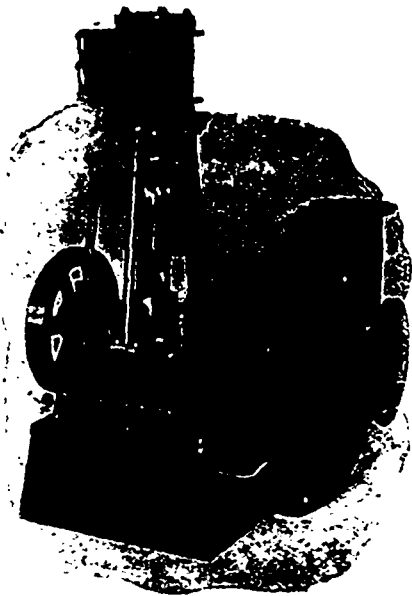
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Pulleys

Darling Bros., Montreal.
 Goldie & McCulloch Co., Galt, Ont.
 Hamilton, Wm. Mfg. Co., Peterborough, Ont.
 Jeffrey Mfg. Co., Columbus, Ohio.
 McDougall, John, Caledonian Iron Works Co., Montreal.
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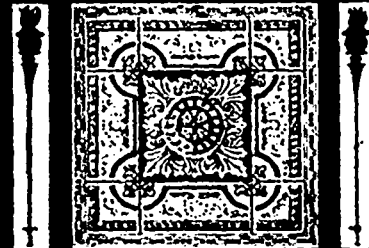
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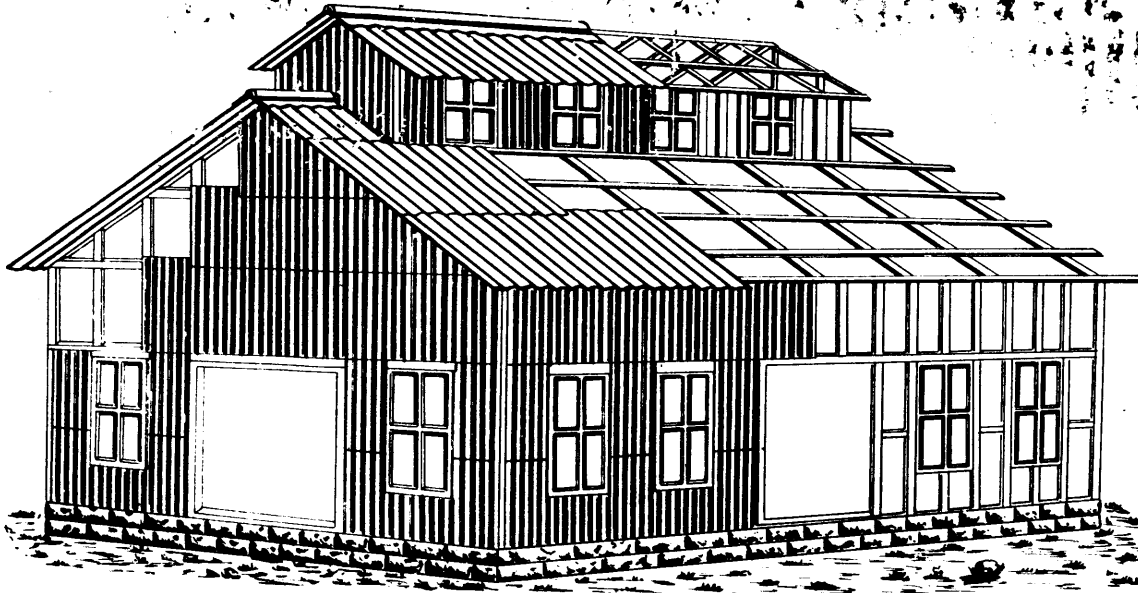
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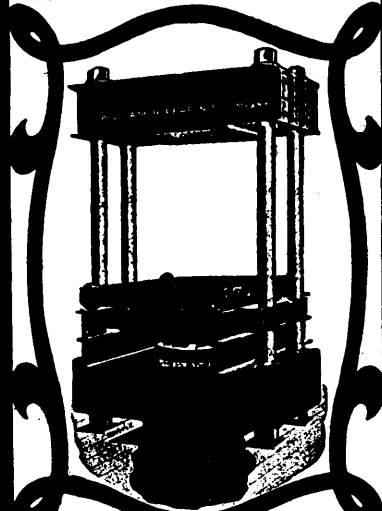
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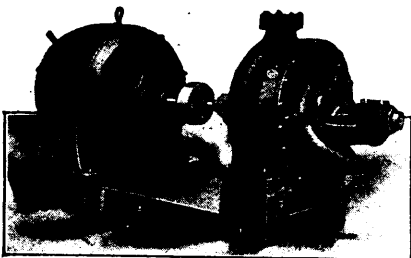
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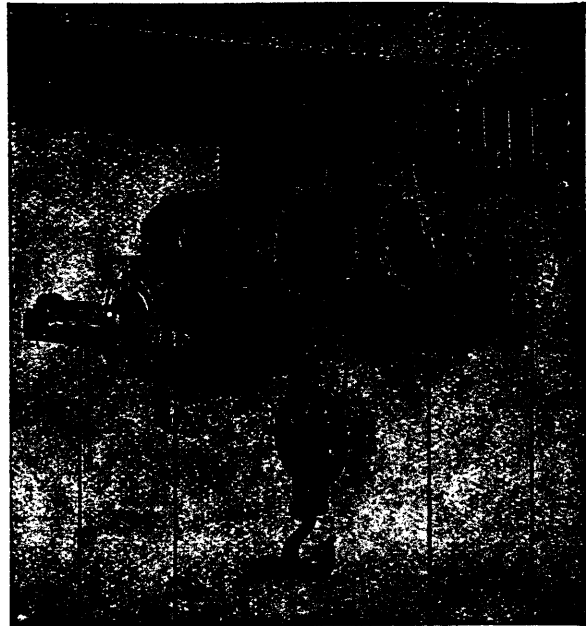
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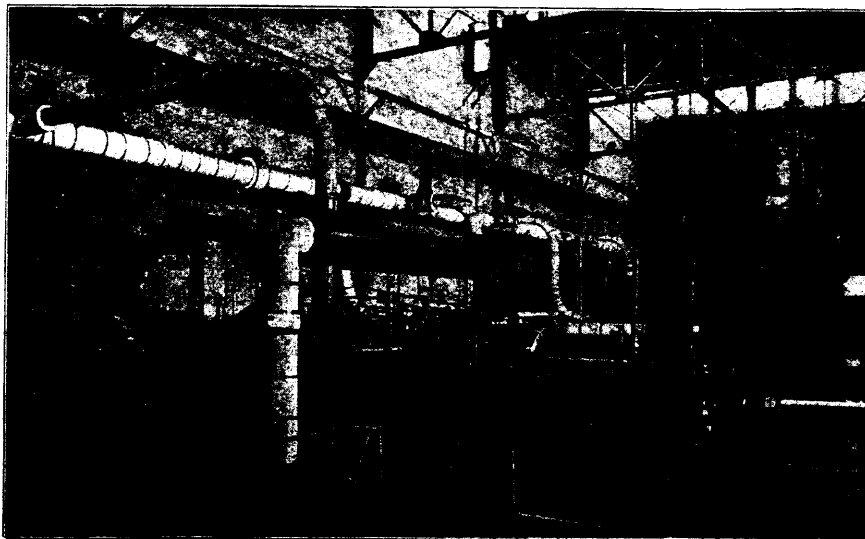
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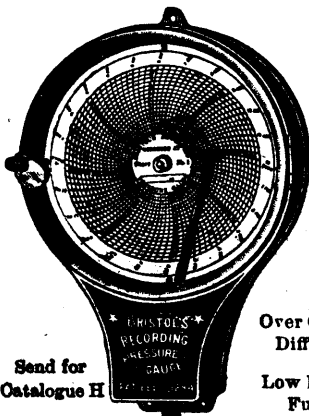
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