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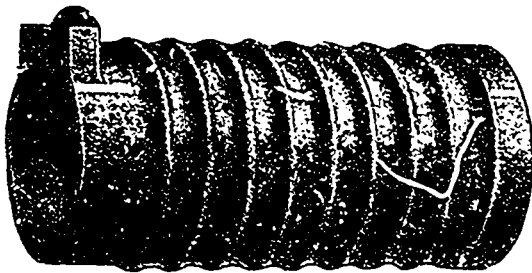
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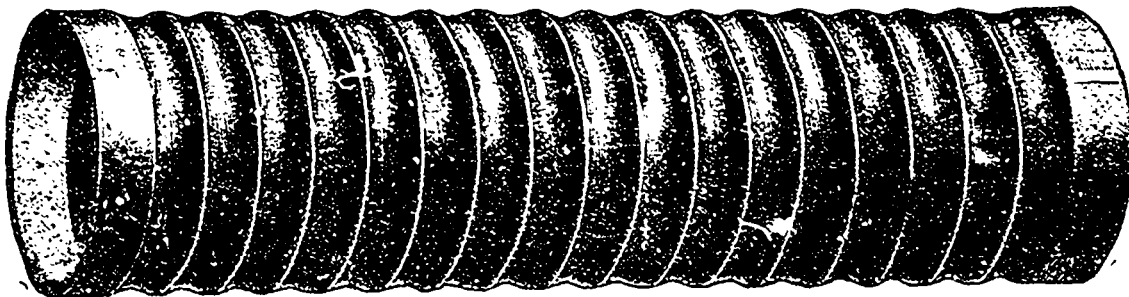


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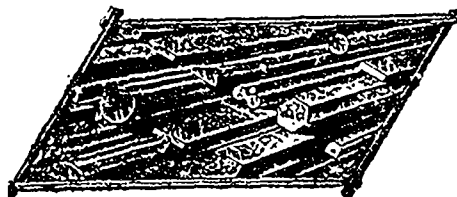
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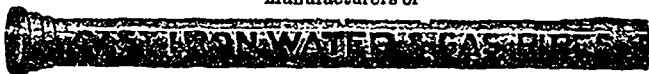
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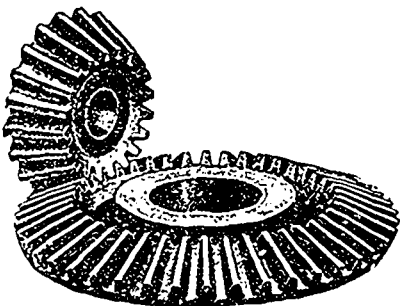
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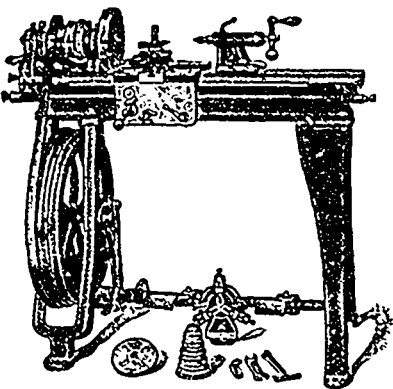
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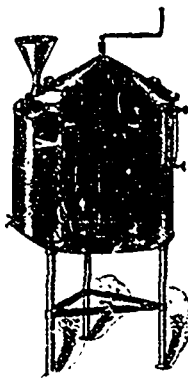
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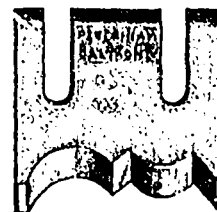
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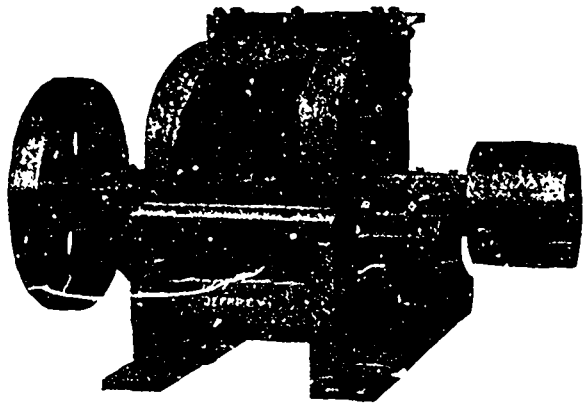
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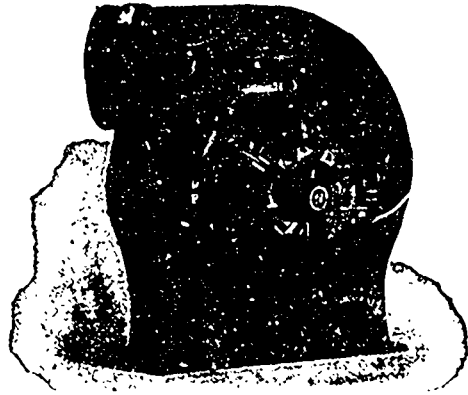
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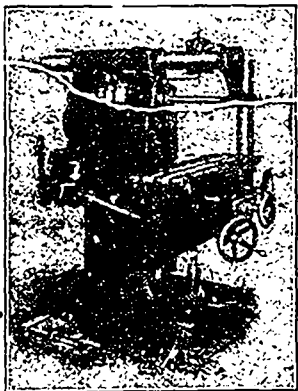


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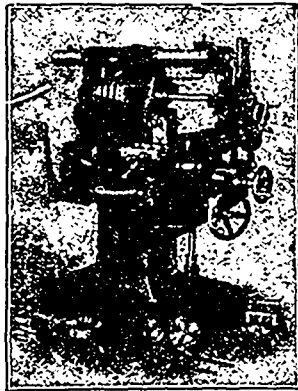
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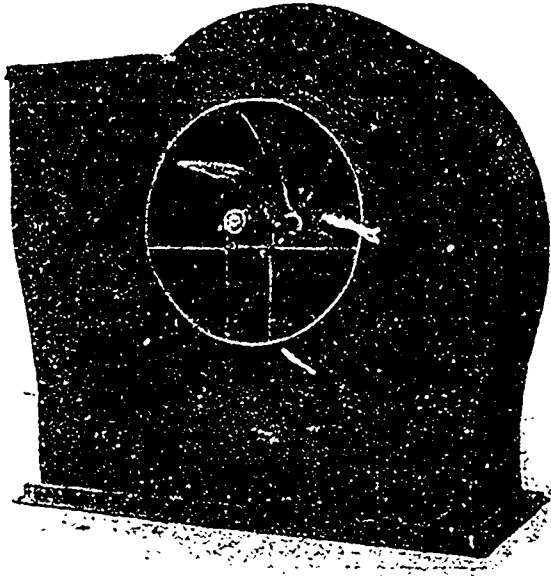
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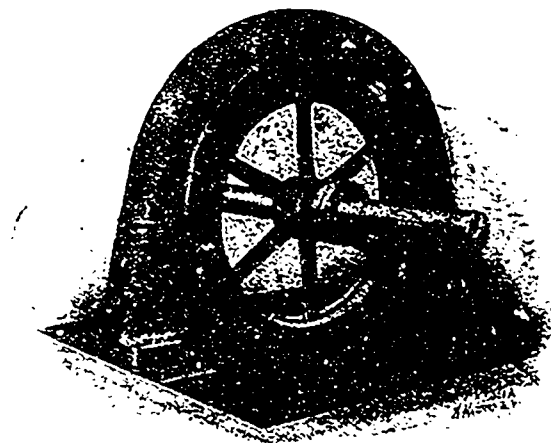
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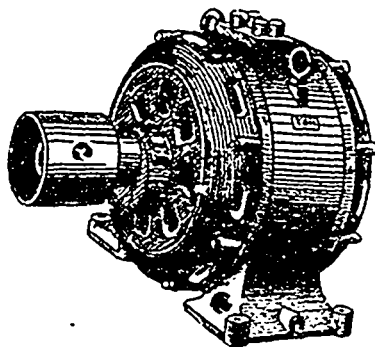
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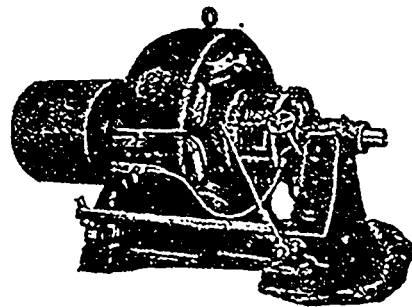
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TABLES

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. CASSIDY, Editor and Manager.

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**ROBERT WATT ELLIOT.**

Died at his late residence, 109 Pembroke Street, Toronto, November 12, 1905, Robert Watt Elliot, in the seventy-first year of his age.

Robert Watt Elliot was born July 26, 1835, on a farm in the township of Eramosa, County of Wellington, Ontario. His father, William Elliot, was born in Hammersmith, London, England, from which place he came to Canada in 1827. His mother, Mary Oliphant, was born in St. Andrews, the University City and ancient capital of Scotland. By her mother's side she was related to James Watt, the celebrated engineer, and it was from this connection Mr. Elliot derived his middle name.

After living for some years upon his farm in Wellington County, Mr. William Elliot removed with his family to the town of Dundas, Ontario, where he engaged in the drug business, moving from there to Toronto in 1853 to become managing partner in what was for seventeen years known as the firm of Lyman, Elliot & Co., of which Robert W. Elliot, the subject of this sketch, was from the first an active assistant, and for the greater part of the time junior partner.

His primary education was gained in a township schoolhouse built of logs, to which children came from homes some of them twelve miles away. While living in Dundas he was grounded in mathematics, geometry and Latin; and after removal to Toronto he took courses in chemistry, natural history and anatomy in Toronto University.

Having thus laid the foundation of his technological education, he wasted no time in putting it to practical use. He was put in charge of the manufacturing department of the business of Lyman, Elliot & Co., where he became actively engaged in the manufacture of chloroform, ethers, nitrate of silver and other chemicals, in which he showed great proficiency and achieved large success. Later the Lyman, Elliot, & Co. firm was dissolved, and a new concern formed consisting of Mr. William Elliot and Mr. R. W. Elliot, who also acquired

**Another Tariff Edition.**

As soon as the proposed revision of the tariff has been made and adopted by the Dominion Parliament, thus becoming the law of the land, a full and absolutely correct reproduction of it copied from the official document, will be published in the Canadian Manufacturer. It is impossible at this time to say just when that event will occur, probably about the latter part of next year. In the same special edition will be published in full, as heretofore, the tariff of the United States, both under the one cover, a convenience which will be fully recognized by our readers.

the large works on Beverley Street, Toronto, covering about two acres of ground; and here the firm, under the management of Mr. R. W. Elliot, combined the manufacture of the chemicals spoken of with those of linseed oil and oil cake; corrosion and grinding of white lead; manufacture of paints, etc.

No pains or expense were spared in bringing the products of this important Canadian industry to a high state of perfection; and it was in encountering the numberless difficulties which constantly presented themselves in this business, that Mr. Elliot became an ardent advocate of what came later to be known as Canada's National Policy of tariff protection, even before the question became one of practical politics.

After the death of Mr. William Elliot the business was continued under the name of Elliot & Co., in which Mr. W. S. Elliot, son of Mr. R. W. Elliot was associated, and under which name the firm became an incorporated stock company.

Although for many years a leading wholesale merchant of Toronto, Mr. Elliot never lost sight of his manufacturing investment, and, up to the beginning of the illness that terminated in his death he was in almost daily attendance at his Beverley Street works.

Early in his business career Mr. Elliot felt and appreciated the burden that bore so heavily upon those who were endeavoring to establish various manufacturing industries in Canada, growing out of the operation of the tariff which was for revenue only—there was no suggestion of protection in it; and he became associated with a number of other manufacturers who organized "The Manufacturers' Association of Ontario," of which Mr. James Watson, of Hamilton, was the first president, which position he held for three consecutive years until 1878; and it is interesting to know that it was during the incumbency of Mr. Watson that the name of the organization was changed to "Ontario Manufacturers' Association." Mr. R. W. Elliot was elected president of the Ontario Manufacturers' Association in 1884 and again in 1885; and it was at the annual meeting in this latter

year that, at the suggestion of Mr. Elliot, the name was changed to "Canadian Manufacturers' Association"; and to him the honor is due of having been the first president of that association under its present name. For many years, and until quite recently, Mr. Elliot remained in close touch with the association as chairman of its executive committee and its tariff committee.

In other public matters Mr. Elliot figured as president of the Toronto and Nipissing Railway Co.; director of six other railways in Ontario; president of the Board of trade of Toronto; a promoter of the Credit Valley Railway, now a part of the great system of the Canadian Pacific Railway; and a director of the Toronto, Grey and Bruce Railway Co. during the time of the reconstruction of the road. He was a president of the St. George's Society; president of the Ontario and Owen Sound Steamship Co., Harbor Commissioner; president of the Ontario College of Pharmacy, and for many years a director of the Toronto Industrial Exhibition Association.

Deceased was a member of Jarvis Street Baptist Church, a member of the Albany Club, for several years president of the Toronto Rowing Club, and was always a lover of all healthy outdoor sports.

He is survived by his widow, one son, Mr. W. S. Elliot, who is in charge of the business, and two daughters, Mrs. Biggar, wife of Lieut.-Col. Biggar of Ottawa, and Miss Violet Elliot, at home.

#### EXAMINE BOTH PICTURES.

At a seance of the Tariff Commission held in Montreal a few days ago, Mr. Archibald McGoun, K.C., a professor in McGill University, gave expression to views on the tariff question which deserve notice. Viewing the matter from an anti-tariff standpoint, his argument was that the tariff is a tax, and that we have come to think that it is only those who profit by it who have a right to be consulted or to speak with regard to it. He sought to discover just how much protection was needed to make the labor cost of British goods equal to that of Canadian. His calculations were based on average weekly wages, which he found were \$2.52 higher for men in Canada than in Great Britain. The difference in favor of or against Canada, according to the point of view, was 98 cents in the wages of women and 86 cents in the wages of children. In order to equalize this difference and make the cost of labor to the British manufacturer as high as to the Canadian it was necessary to impose a duty of only 7.27 per cent. on manufactures, 8.78 per cent. on textiles, and 10.44 per cent. on iron and steel. So far as the difference in wages is concerned it is probable that Mr. McGoun understates his case, for while he may be accurate as to the difference in weekly wages, Canadian workmen strike a pace that British workmen will not assume. Often Canadian and American workmen, while drawing higher weekly wages than men in similar occupations in Britain, receive actually less wages in proportion to the work they perform. They do so much more work in a week that the labor cost is often actually less in Canada than in Britain.

Mr. McGoun evidently thinks that the cost of production in Canada should be measured by the English standard; and that no credit should be given to the Canadian workman when he adopts methods which the British workman will not adopt if producing, by the use of improved machinery, more goods than the British workman can possibly produce in an equal number of hours or days. Were it not for the tariff the condition of the Canadian workman would immediately become identical with that of the British workman; and that Mr. McGoun understands very well. But he is quite willing that such should be the case, his sympathy being directed, not towards the Canadian workman, but towards the Canadian consumer. What is the condition of the humbler classes of Great Britain to-day as compared with the similar classes in Canada? It might improve Mr. McGoun's argument if he could show that the condition of the humbler classes in Great Britain, under free trade, was as good or better than the conditions that prevail in the consuming masses in Canada under protection. There are no great numbers of unemployed artisans and working people in Canada, as Mr. McGoun knows. If able-bodied people in Canada do not have employment it is because they do not seek it—if they go hungry it is because they will not work. In Canada, under protection, no man need go hungry, while in Britain thousands of people go hungry because they can find no work. Press telegrams and the newspapers tell us of the conditions now existing there. A contemporary describes the situation thus:

Fifty thousand unemployed men from the East-end of London waiting upon Mr. Balfour and demanding legislation to save them and their families from starvation was certainly an impressive spectacle. Five thousand women, wives and daughters of the unemployed bombarding Downing Street, and announcing that unless something be speedily done there may be bloodshed, added to the strength of the possibly unwelcome visit. It is to be feared that the industrial situation in the Old Land is not improving, but on the contrary, is becoming more strained. The fact was made apparent on the occasion of the recent visit of the King to London to open the new streets, for the unemployed were to the fore with a petition calling for a session of Parliament to deal with their case. The question was handled sympathetically by his Majesty, and the petitioners were referred to the constitutional advisers of the Crown.

To the Government the sufferers have gone, but no hope of action helpful to them is held out. The Government will do what it can, but that is not much. Contemporaneously with the outcry from the unemployed comes a report upon the displacement of labor in Britain, owing to the growing importations from abroad. It appears that last year there were brought into Britain for consumption goods such as can be manufactured there to the value of £63,212,000, or of \$316,000,000. The labor entering into this enormous importation is estimated to be worth £31,606,000, or \$158,000,000. If these goods were made in the United Kingdom, the business of producing them would call for 397,000 persons, at thirty shillings a week, and as a result maintenance would be given to possibly a million and a half of people. In 1851 the foreign manufactured goods imported into Great Britain reached a value of but \$45,000,000. The importation last year of \$316,000,000



worth indicates that the displacement of British labor is becoming greater and greater as the years pass by, and as the population increases. It is explained that the industrial population is deprived of employment, not merely owing to the competition of foreign manufacturers, but owing to the operations of British industrial establishments. Many of these enterprises have been compelled to transfer themselves to European centres in order that they may manufacture there and be free from the import duty which the countries in question lay upon goods from Great Britain. Once established abroad, the industries find it to their advantage to manufacture in the foreign countries for the British market, by which market foreign-made goods are received free of duty. Thus the legislation of certain Continental nations has captured for them British industries for the supply of goods to British people.

There are current all sorts of suggestions for the relief of the unemployed. Some people are calling for public works. Others want larger workhouses, and a more efficient system of outdoor relief. The great Liberal party holds, judging by its press, that the cultivating of the waste lands—lands now held as parks and preserves—is the solution of the difficulty. But, really, the only way out seems to lie in an instalment of protection. If industry be stimulated or defended there will be work for thousands now unable to find it. Again, if the foreigner who has the run of the British market for his agricultural produce be required to take his place behind the British producer, the profits of agriculture will be such that the waste lands will not long remain in their present state. A trial of Mr. Chamberlain's project is what the country needs.

Mr. McGoun should contrast the two pictures—the comfort and contentment of the whole people of Canada under protection, and the squalor and misery of the masses in England under free trade.

#### MORE PROTECTION NEEDED.

At a meeting of the Tariff Commission held in Montreal a few days ago several of the prominent manufacturers of products of iron and steel presented their views which were listened to with close attention by the Commissioners, particularly Hon. Mr. Fielding, the Finance Minister. One of the strongest pleas made for higher duties was that of Mr. J. C. McCormick, president of the Dominion Wire Mfg. Co., who, speaking on behalf of the wire manufacturers, asked that no change be made in the present duty on wire nails or upon wire, and further asked that various classes of wire now on the free list be transferred to the dutiable list at not less than 20 per cent. He also asked for a duty on galvanized wire and barbed wire.

He said that during the year ending June 30, 1905, there was imported into Canada the following:—Galvanized wire, 16,692 tons, valued at \$658,123; barbed fencing, 20,579 tons, valued at \$892,367. Ninety-three per cent. of the galvanized wire came from the United States and 86 per cent. of the barbed wire. The remainder came from Great Britain and other countries. Had this quantity of galvanized wire and barbed fencing been manufactured in Canada there would have been distributed in the country in labor, supplies, power, freight, etc., \$845,000. The barbed wire used in Canada last year was 22,000 tons, all of which was imported

with the exception of some 2,000 tons, which was manufactured by the Dominion Wire Mfg. Co. on agreement with the United States Steel Co. Providing that they purchased rods from the United States company, they were allowed to manufacture and market in Canada a certain tonnage of barbed wire at such prices as might be fixed from time to time, based on a price f.o.b., Cleveland. They asked that a specific duty of 50 cents per 100 pounds be placed on galvanized and barbed wire. If this were done not only would this \$800,000 worth of labor and supplies be kept in the country, but the Canadian steel mills would have an additional market of nearly 40,000 tons of rods, equal to over \$1,000,000 in value, or a total of about \$2,000,000 in all being retained in the country and paid for labor, supplies, and freight. The Dominion company, he added, had machinery and plant costing over \$150,000 practically lying idle through not being able to operate their galvanizing and barbed wire departments.

Mr. J. R. Kinghorn, on behalf of the Montreal Rolling Mills, asked that no changes be made in the present rates of duty on rolled iron or steel products, and added that the rolling mill interest was in favor of the Government continuing the bounty system for the purpose of encouraging the production of pig iron and steel in this country. Mr. J. Reid Wilson, speaking in behalf of the Montreal Steel Works, made a strong plea for protection. He pointed out that prior to the duty of \$7 per ton on steel rails, which constituted their raw material in their switch department, they had a protection on frogs and switches under the tariff of 30 per cent., and that since the duty of \$7 had been imposed this duty or protection now amounted to 19 per cent., which was altogether inadequate to protect the industry from the importation of these goods from United States. The company therefore asked that the duty on frogs and switches and intersection work be raised from 30 per cent. to 35 per cent., which would give a net protection of 20 per cent. He also asked that the duty on steel castings be raised from 25 to 35 per cent. ad valorem, thereby giving a net protection of 12 per cent., taking into consideration the extra cost of coal, which had to be imported for this work.

#### AN EDUCATIONAL CAMPAIGN.

The Canadian Industrial League, under the management of the Canadian Manufacturers' Association, conducts what it calls an Educational Campaign, intended to promote the idea of "Canada for Canadians." A few days ago the manager of the League wrote a communication to a Toronto evening paper as follows:

The Imperial Tariff Committee, Mr. Chamberlain's campaign organization, have published in pamphlet form the speech delivered by Mr. Chamberlain at the Birmingham luncheon to the Canadian Manufacturers' Association, together with extracts from speeches of Mr. W. K. McNaught and Mr. W. K. George, in which it is clearly stated that a factory in Toronto, Montreal or Winnipeg is just as real a source of strength to the Empire as if it were located in London, Glasgow, or Belfast; that it is the intention of Canadians to make in Canada everything that we can advantageously pro-

duce; that protection is absolutely necessary to the prosperity and progress of Canadian industries, and that, while Canadian manufacturers do not ask for a prohibitive tariff against Great Britain, they will insist on a tariff which will at least put our Canadian manufacturers on an equivalent footing with the manufacturers of Great Britain, but that it is desired to build up the trade of the Empire by diverting trade done with foreign countries into British channels. The publication of this pamphlet by Mr. Chamberlain's own committee, with his approval, should be a sufficient answer to those who say that Canadian manufacturers have deceived Mr. Chamberlain.

Mr. Chamberlain and his associates, while hoping that an Imperial preferential tariff may ultimately lead to free trade within the Empire, understand that this is at present impracticable, but they believe that it would be possible to make mutual arrangements which would immediately transfer to the United Kingdom a great deal of business that now goes to foreign countries, while at the same time giving colonial products a great advantage in the British market.

The Birmingham luncheon constituted a love-feast at which many agreeable things were said, all in a social and perfunctory manner of course, at which Mr. Chamberlain played the role of host, and Messrs. McNaught and George that of guests. No Imperialist denies that a factory in Canada is an element of strength to the whole Empire, nor that it is the intention of Canadians to make everything at home that can be advantageously produced; but we remember that Mr. Chamberlain has on more than one or two occasions declared that his ultimate aim and desire is to have free trade within the Empire, which, as Messrs. McNaught and George both know, would prove most disastrous to Canadian manufacturing industries generally.

Canadian manufacturers understand that protection is absolutely necessary to the prosperity of their industries, and that it should be maintained against Great Britain as well as against the United States. If a low tariff is to be observed against Great Britain, it must be high enough nevertheless to protect Canadian industries; and if a high tariff is to be observed against the United States except for retaliatory purposes, Canadian consumers would very naturally and properly object, and it would be found unworkable. Of course Mr. Chamberlain hopes that any tariff preference which Canada may extend to the Mother Country would ultimately lead to free trade within the Empire, but what difference would there be to our manufacturers whether the throttling process was effected by British, German, French or American competition.

It is but cheap notoriety of questionable character that the Industrial League seeks in its cry of "Canada for Canadians." Of course, every Canadian is for Canada; but they are not unaware that the prosperity of the country depends upon intercourse with other countries; and the manager of the League's educational campaign blunders badly when he suggests that the people of Canada would consent to any tariff arrangement, immediate or otherwise, by which the business now being done with the United States would be transferred to Great Britain. What kind of an arrangement could be effected with

Great Britain by which that result could be realized? We already have free trade, which would be the acme of Mr. Chamberlain's ambition even if a duty were imposed upon foreign grain, which is not likely to occur. How and why did it happen that Canada purchases so much more largely of American than of British goods? Would a British duty on foreign grain induce British manufacturers to adopt American methods of supplying Canadian wants? Why don't British manufacturers adopt American methods? American goods are more saleable in Canada than British goods; and they are better adapted to Canadian wants. The inflow of British capital into Canada for investment in manufacturing enterprises is infinitesimal as compared with the millions that are flowing in constantly from the United States. The American capitalist brings his wealth, invests it in workshops, factories and other industrial enterprises for supplying the wants of the Canadian people; and we most heartily offer him the glad and welcoming hand. The British capitalist is not built that way. The American is like Mahomet and the mountain—the Britisher stays at home.

It will be a cold and far distant day when Mr. Chamberlain finds Canada inclined to sacrifice her industrial interest on the altar of Imperialism and free trade, a chimera in which Canadian manufacturers take no stock.

#### NEWFOUNDLAND TRADE.

United States Special Agent C. M. Pepper, who has been investigating trade conditions in Newfoundland, furnishes facts and figures which he says should be studied by American manufacturers and merchants who are interested in trade with our northern neighbors. Newfoundland is an independent colony, being entirely outside the jurisdiction of the Dominion of Canada. There seems to be a lively competition between the Dominion and the United States for Newfoundland trade. For the year ending June 30, the aggregate commerce between the Dominion and the colony was, in round numbers, \$4,000,000, of which \$3,000,000 was made up of imports from Canada, the remainder being exports from Newfoundland to the Dominion. The exports from the United States to Newfoundland are about \$150,000, but the trade is growing. The total exports of the colony is placed at \$10,400,000, the bulk of which is made up of the products of the fisheries and the mines. Mr. Pepper's letter follows:

The chief competitors for the trade of this colony are the United States and Canada. Great efforts are made by Canada not only to hold but also to increase its share in the commerce of the colony. The nature of the interchange of products between the Dominion and Newfoundland appears from the statistics for the fiscal year ending June 30, 1905, which I have obtained from Ottawa. These statistics show that the total commerce between the Dominion and Newfoundland for that year amounted to \$3,975,000, of which \$2,899,000 was imported from Canada, while Newfoundland exported to the Dominion products to the value of \$1,076,000.

The leading articles of export from Canada to Newfoundland were these:

Animals .....	\$133,000
Oats.....	112,000
Butter.....	88,000
Cheese.....	21,000
Oatmeal and other grain products.....	37,000
Hay.....	50,000
Pease.....	20,000
Green apples.....	45,000
Meats.....	94,000
Wheat flour.....	931,000
Drugs, dyes and chemicals.....	41,000
Coal.....	413,000
Minerals, metals, and manufactures of..	162,000
Cotton manufactures.....	39,000
Wool and manufactures of.....	34,000
Leather, sole and uppers .....	78,000
Boots and shoes.....	77,000
Wood and manufactures of.....	68,000
Gunpowder.....	33,000

The leading articles of export from Newfoundland to the Dominion were:

Fish and products of fisheries.....	\$687,000
Oils.....	115,000
Iron ore.....	207,000

Concerning the trade between Newfoundland and the Dominion, it is to be noted that coal, which is the output of the Nova Scotia mines, is the leading natural product. Coal veins have been discovered in Newfoundland, but the coal lies in pockets, and its exploitation up to this time has not given encouraging prospects that Newfoundland will be able to supply herself with fuel. On the other hand, the iron and steel works at Sydney and other points in Nova Scotia are dependent on the iron ore from Newfoundland.

It can not escape attention that Canada in the last fiscal year exported wheat flour to the amount of nearly \$1,000,000 to Newfoundland. This trade has a direct interest for the millers of the United States. It is a most profitable one, but during periods of unusual demand in the United States it has been allowed to lapse, with resulting advantage to Canada. As regards shipment in the geographical sense, the Dominion millers have no marked advantage over the United States. Minor agricultural products can be handled with greater profit by Canadian shippers, since the small schooners take the produce from Prince Edward Island and the other near-by agricultural regions; but in respect to beef, bacon and hams, and canned meats, the United States can compete on even terms.

When it comes to manufactured articles, the United States also occupies a good position. Canada now has a trade in leather and in boots and shoes which, with proper effort, could be diverted, as the manufactured product from the United States usually gives greater satisfaction. The shoe factory in St. John's gets most of its leather from Brooklyn. Between the competition of Canada and the United States the trade of England

with Newfoundland is readily losing ground, in the relative sense. That is, it remains about stationary, while the colony from year to year has increased imports. The largest aggregate of any one class of articles imported from England comes under the heading of dry goods, and amounts to about \$650,000 per annum. The United States only exports \$130,000 to \$150,000 worth of dry goods to Newfoundland, but the trade is a growing one, and Newfoundland merchants are now visiting New York, Philadelphia, and Boston en route to England to make their purchases. In ready-made clothing and hats and caps the United Kingdom has the advantage, as also in cordage and fishermen's outfits, but the United States is gaining some of this trade. In household hardware, and in tools of all kinds, the United States is ahead, but there is an opportunity for gaining more of these imports.

The development of the lumber industry and the systematic exploitation of the pulp wood, which recently has been undertaken by large combinations of capital, offer further inducements for the importation of machinery from the United States, which always has had the preference. The copper deposits also are being worked chiefly by American citizens, and the mining machinery used for this purpose will be imported from the United States.

Outside of the products of the fisheries, the chief exports from Newfoundland to the United States are minerals, the copper ore ranging in value from \$200,000 to \$250,000, and the iron ore from \$60,000 to \$70,000. The colony now is also building up an export trade in whale fertilizers and seal products, for which there is a good demand in the United States.

The growth in the prosperity of Newfoundland during the last few years, which has resulted in placing the colony in a very strong financial position with a balance of trade in her favor, has been due chiefly to the improved condition of the fishing industry, though the development of the pulp wood and other forest products and some increase in the output of the mines have had an appreciable effect. The position as respects exports will be better understood from the statement that during the last year for which revised statistics are available, the total amount was \$10,400,000, of which products of the fisheries represented \$8,276,000; mines, \$1,289,000; furs and skins, \$350,000; forests, \$325,000. For the same year the total of the imports reached \$9,450,000.

The character of the Newfoundland market and the articles which find the readiest sale may be understood from a summary of the value of leading imports during that year. They were as follows:

Beef.....	\$213,000
Pork.....	395,000
Butter.....	118,000
Salt.....	103,000
Sugar.....	139,000
Tea.....	178,000
Molasses.....	297,000
Tobacco.....	90,000
Wines and spirits.....	75,000

Flour (392,000 barrels).....	1,614,000
Leather and leatherware.....	303,000
Hardware (iron and steel, railway materials, etc.) .....	939,000
Cottons, woolens, silks, linen, and apparel	1,338,000
Coal (164,000 tons) .....	512,000

The United States has shared more than any other country in the increased buying power which has been developed by the inhabitants of Newfoundland. In the period from 1888 to 1892 England's share of the total trade was 33 per cent., Canada's 20 per cent., and that of the United States 14.5 per cent. In the period from 1900 to 1904 England's proportion had dropped to 24.5 per cent., Canada's had grown to 21.3 per cent., and that of the United States had increased to 21 per cent.; but at the present time Canada is making a persistent, systematic, and well-directed effort by every means at the command of the Dominion Government to secure a larger proportion of this trade at the expense of the United States. For that reason I beg again to direct attention to the movement in the flour trade and to the leather, hardware, and other manufactures, which, with a full knowledge of the circumstances may be held by the United States. But this can not be done unless the Canadian competition is met at all points and the Newfoundland market closely studied.

#### EDITORIAL NOTES

A resolution which Alderman Jones had before the Legislative and Reception Committee of the Toronto City Council a few days ago, gave rise to an interesting discussion. He proposed that the city should appoint a Commissioner of Industries and Information, whose duty it would be to look after sites for factories, etc., for new industries, to get into communication with parties desirous of starting new industries and enterprises, to advertise the city's advantages as a manufacturing and business centre, etc. Controller Ward was not sure that the necessity for a new civic official existed, and thought the Property Commissioner could do the work. Controller Spence thought the question should be carefully and even favorably considered. Aldermen Hay, Chisholm and Geary considered the proposal deserving of friendly consideration. The Mayor said that in some United States cities the plan had been very successfully carried out. Clubs or associations had been formed for the purpose of putting the claims of cities before intending promoters of industries and businesses, and as much as \$20,000 had been spent in such work. It might be advisable for Toronto to undertake similar work and to place a first-class man at the head of such a scheme, so that it could be successfully carried out. The proposal was referred to the Board of Control. It is evident that while Toronto is sleeping over its advantages, the City Council does not appreciate the fact that Hamilton and other Canadian towns long since adopted the idea and are reaping good benefits from it.

Toronto City Engineer Rust reports the receipt of a

new weed-cutter purchased in England at a cost of \$1,200. Where, where, is the "Made in Canada" spirit that Toronto must send across the ocean for a weed-cutter that should have been made in a Canadian factory. The only excuse for the action of the City Engineer would be that no such article is advertised in any Canadian trade paper.

The tariff committee of the Canadian Manufacturers' Association sent out a circular a few days ago notifying members that the Tariff Commission would begin sittings in Toronto on November 13; but members were requested to note that the Commission would sit later at other points when opportunity would be given to present any cases not yet ready. Cases completely prepared may be submitted to the Commission at any time, but the tariff committee strongly urge that in sections of the Association, such as iron and steel, brass and copper, where investigations are not yet complete, the members should not present their views until differences of opinion have been harmonized.

The Trade and Commerce Department is understood to have reported some time ago in favor of disallowing both the Quebec and the British Columbia Travelers' Tax laws on the score of interference with trade. The Minister of Justice, however, to whom the subject was referred, is of the opinion that the British North America Act would afford the Dominion no justification for vetoing the legislation. There the matter stands for the present. The Federal authorities have some time yet within which they may be disallowed, but in the meantime no final action has been taken. It is, of course, quite open to anyone to test the constitutionality of these bills before the courts, and if, as stated, action has already been taken in Quebec, the Government can easily facilitate a speedy decision of the case before the Judicial Committee of the Privy Council. The Ministers at Ottawa would probably prefer that the point should be dealt with in this way.

In granting an injunction against Typographical Union No. 16 at Chicago the Court said: "The foundation of the strike in this case is the union contract demanding a closed shop and an eight-hour day. Both the closed shop and the eight-hour day are unlawful when it is attempted to coerce the employer to agree to them." The injunction restrains the union and its members from interfering with the business or employes of the complainant firms, either by attempting to dissuade the employes from working or by sending out circulars to the customers of the firms asking them to join in a boycott. In another case at Chicago growing out of the printers strike Judge F. A. Smith of the Appellate Court sentenced three union press feeders for violating an injunction prohibiting interference with Chicago Typographical employes. Judge Smith said:—"There is no such thing as peaceful, polite and gentlemanly picketing any more than there can be chaste and polite and gentlemanly vulgarity, peaceful mobbing or lawful lynching."

# MACHINERY AND ENGINEERING.

## THE NEW MANUFACTURING PLANT OF THE B. F. STURTEVANT CO., HYDE PARK, MASS.

As the growth and development of the B. F. Sturtevant Co. continued in their plant at Jamaica Plain, Mass., the conclusion was gradually reached that the available facilities in connection with the old location could never meet the requirements of a thoroughly up-to-date manufacturing establishment as regards size, arrangement of buildings, and railroad facilities.

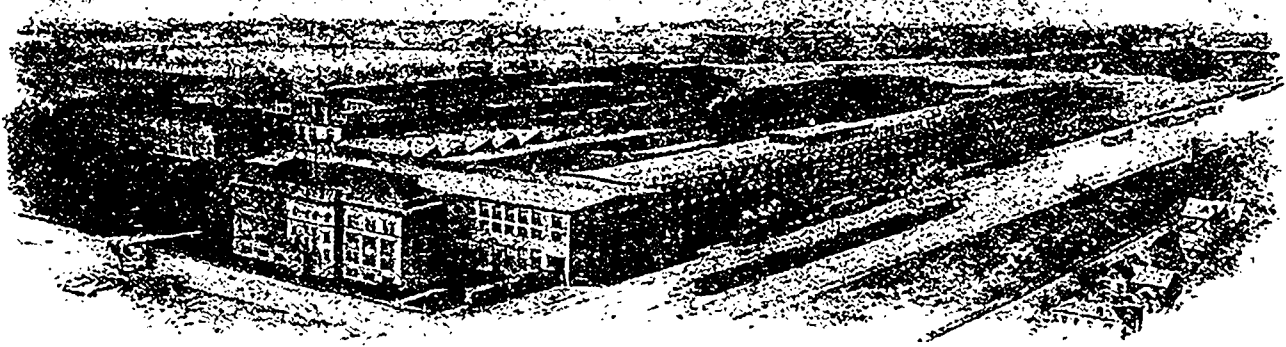
While negotiations were in progress for the purchase of a new location near Boston the works at Jamaica Plain were on April 11, 1901, visited by a serious fire, which destroyed a large amount of valuable machinery and threatened to severely cripple the business. But with restless energy and enterprise the business was practically placed upon its feet again within thirty days. When it is considered that within this period a nearly complete equipment of new machine tools had to be secured and put in operation

workmen which could readily be supplemented by present employees of the company; the new location being only six miles from the old plant. The lot selected has a frontage of about 1,300 feet at Readville station, the distributing point for all freight passing over either the Midland or Providence divisions of the N.Y., N.H. & H.R.

The site having been selected, most careful consideration was given to the size and character of the buildings; the head of each department was consulted, his recommendations reduced to writing and frequent conferences held as to the requirements of the individual departments. With these data at hand the individual and aggregate areas were determined and the plans started with the idea of providing a total floor space slightly more than double that of the old plant. The aggregate floor area of the finished buildings is actually over nine acres or nearly two and a half times that of the Jamaica Plain plant. Employment is already given to about 1,300 hands, although

shops are of tar concrete, upon which 3-inch hemlock is bedded in liquid pitch and toenailed together. The upper floors are carried upon hard pine beams on 4-foot centres spanning the spaces between the steel girders, which follow a unit system of 20 feet on centres throughout the buildings. The machine shop gallery floors, which are designed for 250 pounds load per square foot, are of 2½ inch plank; other upper floors are 2-inch plank for 200 pounds per square foot. Maple top flooring is used in all cases. All roofs are of 3-inch plank with tar and gravel top.

The machinery of the entire plant is electrically driven and the buildings are lighted at 220 volts from a central power-house containing at present one 100-k.w. and one 250-k.w. Sturtevant generating set; the power plant engines run condensing the exhaust steam derived from engines under test upon the plate in the testing building is utilized for heating; supplementary live steam being admitted at reduced pressure as may



BIRDSEYE VIEW OF THE PLANT.

in place of those destroyed, the progressive spirit of the concern was made evident. This disaster naturally hastened the final acquirement and development of a site for the new plant.

Apart from the general character of the lot itself the principal factors considered in reaching a decision were proximity to raw materials, and to an abundance of skilled labor, adequate shipping facilities, ample water supply, and space for ready disposal of waste material.

The best combination of advantages was presented by a lot of nearly 20 acres in the town of Hyde Park, Mass., already well-known as the home of such industries as the Burr-Brainard Milling Machine Co. and the American Tool & Machine Co., and of the new shops of the New York, New Haven & Hudson River Railroad. Here was present a population of particularly skilled

the plant will accommodate nearly 2,000. A special train which runs directly into the yard naturally assists in transportation.

The disposition of the buildings was determined by the provision to be made for growth. The adopted arrangement provides for a group of buildings parallel to the railroad tracks with accommodations for spur tracks between buildings, their entrance at the ends of certain buildings and an opportunity for growth of all important structures by extension in length. The type of construction is somewhat composite in its character consisting of steel interior columns and main steel girders, with heavy brick walls, wood timbered floors and plank roofs. In the case of the one story foundry, the roof is supported by steel trusses; in the other buildings open timbering with wooden columns in the upper floor is employed. The main floors in the machine, fan and erecting

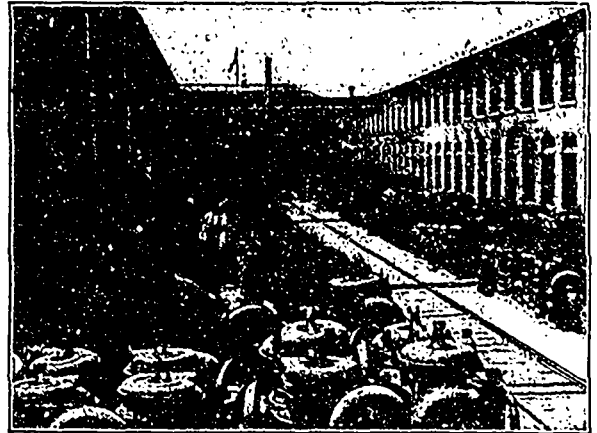
be required. Waste exhaust is discharged through a Sturtevant exhaust head. The boilers are equipped with Sturtevant fuel economizer for heating the feed water. The power-house is placed sufficiently far from the ends of the buildings to permit of ample extension of each, and near enough to the water supply to reduce to a minimum the expense of conveying condensing and other water. Steam, electricity and compressed air are transmitted to the individual buildings through a concrete tunnel and a supplementary system of covered trenches.

Foundations for many of the buildings were put in during the fall of 1901. Actual work of construction upon the foundry and pattern buildings began in July, 1902, and the first heat was poured on December 29, 1902.

The pattern building provides at one end a two story portion 80 feet square for car



TESTING PLATE IN TESTING BUILDING.



CASTINGS STORAGE BETWEEN BUILDINGS.

penters, flask makers and metal makers on the first floor, and for regular pattern makers upon the second floor. The balance of the building which is devoted to pattern storage is of about the same ground area and is provided with intermediate floors, making four in all separated from the other portion of the building by double fire walls and automatic fire-closing doors. The close proximity of this building to the foundry facilitates rapid intercourse.

The foundry, 350x170 feet in dimensions, is designed for the distribution of molten iron upon a floor track system, and is equipped with narrow gauge railways of 24-inch gauge bedded in concrete which form runways between the moulding floors. Two crane-ways run lengthwise of the building through the greater part of its length and the tracks extend beneath the crosswise traveling crane in the cleaning room at the end of the building. The brass foundry is located in one corner, a wash and locker room in the adjacent corner and the core room between the two. Storage for supplies is provided adjacent to the railroad switch. From the bins thus provided, the iron and fuel charges already weighed are carried directly to the charging floor.

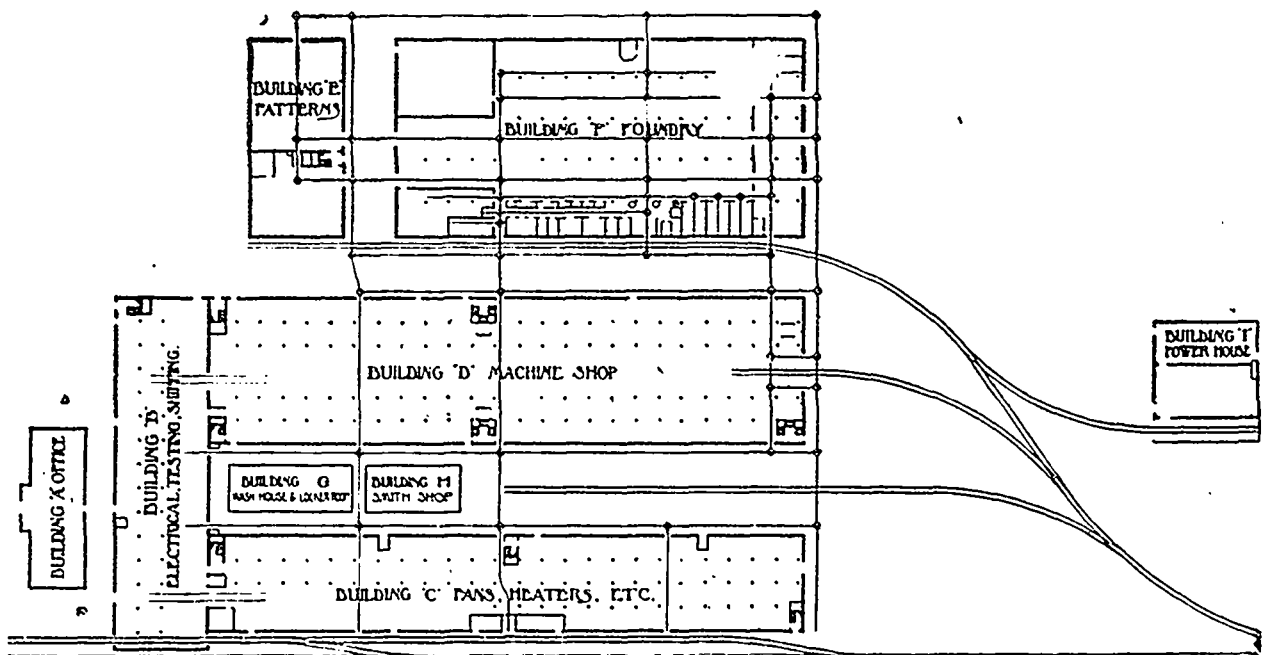
From the foundry the castings pass to the rear of either the machine shop or the fan shop. The former is of the familiar gallery type, 500 feet long, with wings 40 feet wide, and central crane-way of the same width designed for crane of 20 ton capacity; making a total width of 120 feet. The lighting, which is remarkably effective, is secured principally by a series of sawtooth skylights running crosswise of the roof with glass facing due north. The present crane of only 10 tons capacity serves the entire floor and finally deposits the substantially complete engine or generator upon a transfer car which passes through to the testing building where a 15-ton crane picks up the machine, drops it upon the testing plate and subsequently carries it forward to the steam railway track which passes through the end of the building and which provides space for the loading of two cars at a time. The upper floor of this building (which measures 240 x 80 feet) and is three stories high) together with portions of the adjoining buildings, which is devoted to the electrical department, and is provided with individual small traveling cranes.

Both steam and industrial railway tracks

enter the machine shop at the end farthest removed from the erecting shop. Generally speaking large castings and forgings pass in at this end and are transported by the crane, while smaller articles are brought in through numerous side entrances and are handled by hoists or by manual labor. Industrial tracks cross the building at the centre and both ends. The centre cross track is in the direct line of transit from foundry to forge and fan shops.

Upon the ground floor in the corner nearest the erecting shop is located the general stores room and the office of the stores keeper. This room, measuring 100x40 feet, contains all general stores, brass and malleable castings and the like, and is the repository for completed parts of engines between the time of their completion and their requisition for assembling.

Tools are arranged for the progress of the work from the open end of the shop toward the finished stores and erecting shop. Until such time as an independent department is provided for the manufacture of economizers, equipment for this work is provided near the entrance to the machine shop. Otherwise the grouping of machines is in accord-



GENERAL PLAN OF THE PLANT.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER

ance with the general scheme. In the open craneway are already located two Detrick & Harvey open side planers—one a 60-inch and the other a 72-inch; a 6-foot and a 7-foot Baush radial drill; a Beaman & Smith horizontal boring mill with 60-inch swing, and a 48-inch Johnson lathe. Immediately beneath one of the side galleries is a line of planers, including a Cincinnati 60 inch by 46 inches high; a group of radial drills, and several horizontal boring mills; all served by traveling cranes on a continuous runway. Beyond these are the large vertical and planer type milling machines.

Under the opposite gallery are arranged the large vertical boring mills, including a 76-inch Bullard, the large upright drills and a complement of chucking crank shaft and shafting lathes.

The second floor is served by four elevators and an equal number of stairways, one at each end and two at the centre. The galleries are connected at the ends by bridges; the grinding and polishing room, (equipped with a Sturtevant exhaust fan, hoods and piping), being located at the end adjacent to the erecting shop. Close beside it on the same floor is the brass finishing department and the office of the superintendent of the machine department. In the opposite gallery are the tool making and tool storage rooms. An enclosed bridge connects with the second floor of the fan shop.

Machine tools are grouped by types, and so far as possible arranged for progressive operations. Space is left for additions in supplementary parallel rows. Large machines are driven by direct attached Sturtevant motors. Twenty h.p. motors suspended overhead are so located as to drive the small tools in groups of suitable size through individual lengths of line shaft.

The building devoted to the manufacturing of fans, heaters, etc., is 80 feet in width, the same length as the machine shop, and three stories in height, of typical mill construction, provided with all conveniences for handling material and arranged so that goods can be received at, and shipments made from numerous points along one side, while other supplies are brought in from the court between it and the machine shop.

One half of the length of the fan shop is served by a 5-ton traveling crane, the floor to floor height throughout the area being 32 feet to provide for the construction of large steel plate fans for ventilation, mechanical draft and the like. Here also are built the heater jackets, some of them large enough for a summer cottage. In the adjoining space on the first floor are installed large shears and brakes for cutting and folding plates up to 120 inches in length and rolls for one-half inch plates 120 inches wide. Pneumatic punches, riveters and chippers are extensively used in this building. Plate iron is completely stored on edge in diagonal alcoves in the storage shed along side the fan shop, which has capacity for nearly a thousand tons.

Immediately above in the gallery is a supplementary equipment of smaller plate working tools, punches, etc. Upon this floor are built all of the steel plate fan casings for planing mill exhausters, small steam, electric and pulley fans.

Midlength of the first floor is the packing and shipping department, near the large five-ton elevator which serves all floors.

The other end of this floor is devoted solely to the manufacturing of heater sections for the Sturtevant steam hot blast apparatus. Millions of feet of one-inch pipe are annually cut up by the numerous machines and made into sections by screwing into cast iron bases. The sections thus made are tested by hydraulic pressure to 180 pounds per square inch.

Immediately above, upon the second floor, the cast iron fans are built; here also are constructed forges, countershafts, etc. All fans are given a rigid inspection test. Nearly one-half of the third floor is devoted to galvanized iron work, the making of air distributing pipes and shapes, the manufacture of exhaust heads, etc. Upon the same floor are set up the fan wheels ranging all the way from 6 inches to 20 feet in diameter. The balance of this floor is devoted to the punching and commutator division of the electrical department, which is located upon the adjoining third floor of the erecting building. In one end of the latter space occupied by this department is the baking room for armatures, etc. This measures 40 feet square, is entirely fire-proof and contains two steam heated ovens. At the other end of the building is the special store-room for electrical supplies. The balance of this floor and of the intermediate floor below is devoted to winding, assembling, testing, etc. Fans are here equipped with motors and run under test conditions. Generators for direct connection are carried down to the first floor of the same building where they are attached to their respective engines and continuously run upon the test plate. The balance of the first floor is given to the assembling of engines and to the packing, storage and shipment of these machines. The testing plate, measuring about 60x30 feet, is completely equipped with steam and electrical connections; engines may be run condensing or non-condensing and efficiency tests conducted. This very complete equipment has proved invaluable in conducting the rigid tests demanded by the United States Navy Department upon the engines, generating sets, engine and motor driven fans, which this company have furnished to the government in large numbers.

The smith shop, 100x40 feet, serves both fan and machine shop buildings with equal facility, while the wash house and locker room, also measuring 100x40 feet and two stories in height, is so located as to reduce to a minimum the distance to be traversed by the individual workmen. A separate building with concreted basement is provided for a storage of oil, paint, naphtha and the like.

The smith shop is equipped with a full outfit of Sturtevant forges with blower for blast and exhaust for removing smoke. The equipment also includes a Dupont power hammer and an 1,100-pound Bement, Miles & Co.'s steam hammer, together with heavy shears for cutting angles and tees, of which thousands of tons are used annually in the construction of fans and heaters. In the open court room near the smith shop and between the fan and machine shops is stored, under lock and key, all of the high grade bar iron and steel, and upon a piling floor and in open racks are kept all of the structural shapes required.

The standard first floor height in the main buildings is 17 feet, that of the second and

third stories is 15 feet. The windows are large and numerous, and ribbed glass is used in all but the lower sashes.

All of the buildings are heated and ventilated by the Sturtevant system. In the machine shop the hot air pipes are hidden beneath the second floor wall benches and deliver most of the air downward to the first floor. The fan and erecting shops are supplied through an underground duct which delivers the hot air to external vertical flues upon one side of the building which, in the case of the fan shop, are located 40 feet on centres and discharge the air across the building above head level.

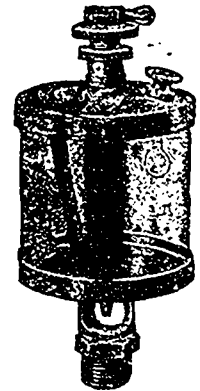
The office is a model structure of its kind and serves as headquarters for the entire business. It contains the corresponder e, accounting, designing and drafting offices, the production department, the advertising bureau, and a printing office and lunch room in the basement. It is four stories in height.



BRASS SPECIALTIES FOR GAS ENGINE AND AUTOMOBILE MANUFACTURERS.

The Penberthy Injector Co., Limited, Windsor, Ont., are making a specialty of brass fittings such as back pressure oilers, stationary oilers, plain grease cups, automatic grease cups, unions, air cocks, etc., for gas and oil engines.

Their "Sultan" gas engine cylinder oiler is made in sizes varying from 2 to 3½ inches in diameter. One of the best features of this cup is the simple method employed in regulating the ball valve in the sight feed shank. All gas engine manufacturers know that the piston action in gas engine cylinders differ very materially. In small motor engines the piston moves very rapidly, where in large stationary machines the stroke is slow, and this variation occurs as the innumerable styles and sizes of gas engines increase.



After the female end of the shank has been threaded its whole length, a steel ball is dropped in and a regulating plug screwed from the bottom, thus holding the ball in the chamber. The play that the ball has depends on the rapidity of the piston. The faster the explosions occur the smaller space should the ball occupy, and this regulating is simply done by taking a screw driver and giving the plug, which is slotted for that purpose, a turn or more as the case may be, thus lessening the play of the ball.

The top of the regulating plug is slotted in four sections so that when the ball drops on it there is ample space around for the oil to pass down. The sight feed glass is packed both top and bottom, and when the shank is screwed on the cup the glass is held secure, thus avoiding any possible chance of leakage.

## 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.

From the body of the cup a pressure tube passes down along the centre through the base of the cup and directly into the sight feed chamber. This tube is so arranged as to take up any gas that may have escaped through the oil passage, and conveys it to the top of the cup thus creating more or less pressure, for unlike most other oiling devices this chamber must be perfectly tight. In the case of the "Sultan" the filler plug is fitted with a leather washer which absolutely prevents any leakage of oil when properly screwed down. Another good feature in connection with the filler plug is the means taken to prevent its getting lost. A small wire, a couple of inches long, is looped at the one end, the other passing through the oil hole in the cover from the under side where it is fastened to the filler plug. Instead of fumbling with a loose plug and nine times out of ten losing it, one simply unscrews this and lets it hang suspended by the wire until the cup is filled when it is put back without any delay whatever. The "Sultan" is fitted with a snap lever top which tells by its position in an instant if the cup is feeding or not. As it stands vertically it shows the oil feeding, and when turned horizontally the feed is shut off.

The metal used in making these oilers is the best red brass that can be made. It is claimed that the workmanship and finish is not surpassed by any other makers, and the careful engineer will find that the outcome of his experience with a Penberthy "Sultan" cup will be a perfect cylinder oiler.



Their "Salute" or stationary oiler is made exactly after the pattern of the "Sultan" excepting that it has no ball valve or pressure tube. It is so constructed that by putting the snap lever at an angle of 45 degrees the cup flushes, thus enabling the engineer to give a bearing an extra amount of oil at any time without disturbing the regular feed.

Their "Silix" automatic grease cup will be found to give less trouble and better satisfaction than other cups of its kind on the market. Made of red metal, highly finished, and the working parts carefully formed and assembled, the "Silix" grease cup will be found to be most economical and satisfactory for use by engine builders.

In making the particular styles of air cocks used by different gas engine builders, special care is taken in the grinding of those that are to be used for gasoline connection. These air cocks are also made from the best red metal and finished either brass or nickel-plated.

All concerns who are manufacturing gas engines or automobiles should write for the Penberthy catalogue, which fully describes all the above lines. Just a postal will do it.

There are many rough places in business that you can help smooth.



Geo. Mason, Esq., Ottawa, has recently completed the equipment of his new planing mill with Chapman Double Ball Bearings.

The International Mfg. & Supply Co., Windsor, Ont., have been incorporated with a capital of \$40,000, to manufacture Ashley gravity hinge for doors and gates, Ashley safety side and over-check hook, etc. The provisional directors include Walter Ashley, Walter Bong and S. K. Peck, Windsor.

The Cobalt Development 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 T. H. Hamilton, Ewan Mackenzie, Toronto, P. L. Hobbs, Cleveland, Ohio, and Charles Magee, Ottawa.

The Cobalt-Canadian Mining & Milling Co., Kingsville, Ont., have been incorporated with a capital of \$500,000, to carry on a mining, milling and reduction business. The provisional directors include S. L. McKay, W. A. Smith, and H. J. Cooper, Kingsville.

The Liszt Piano Co., Toronto, have been incorporated with a capital of \$300,000, to manufacture pianos, etc. The provisional directors include G. R. Burt, F. S. Jackson and Joseph Barrett, Toronto.

The Canada Piano Action & Key Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture piano actions, piano and organ keys, etc. The provisional directors include G. T. Clarkson, J. F. Dawson and W. R. Gibson, Toronto.

The Fleming Aerial Ladder Co., Toronto, have been incorporated with a capital of \$100,000, to manufacture aerial ladders, hoists, etc. The provisional directors include G. H. Townsley, Toronto Junction; Dr. Thomas Wylie, and Robert Fleming, Toronto.

J. J. McLaughlin, Limited, Toronto, have been incorporated with a capital of \$250,000, to carry on a business of manufacturing chemists, etc. The provisional directors include J. J. McLaughlin, N. A. Howie and J. B. Wright, Toronto.

The Banwell-Hoxie Wire Fence Co., Hamilton, Ont., have been incorporated with a capital of \$100,000, to manufacture woven wire and other fencing, etc. The provisional directors include Henry Banwell, Walkerville, Ont.; A. R. Bartlett, and J. E. Banwell, Windsor, Ont.

The Toronto Motor Boat Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture boats, launches, gasoline engines, etc. The provisional directors include J. C. McLachlan, W. H. Cox and J. G. Robinson, Toronto.

The St. Catharines Building & Paving Co., St. Catharines, Ont., have been incorporated with a capital of \$50,000, to manufacture brick, stone, girders, joists, etc. The provisional directors include J. T. Petrie, F. A. Henry and J. A. Keyes, St. Catharines.

The Clinton Thresher Co., Clinton, Ont.,

have been incorporated with a capital of \$50,000, to manufacture threshing machines, traction engines, etc. The provisional directors include W. W. Farran, William Jackson and C. E. Hovey, Clinton.

The Ontario Minnesota Mining Co., Port Arthur, Ont., have been incorporated with a capital of \$60,000, to carry on a mining, milling and reduction business. The provisional directors include J. D. Ensign, Duluth, Minn.; W. W. Blackshaw, West Superior, Wis., and G. F. Piper, Minneapolis, Minn.

The Gordon Cobalt-Silver Mining Co., Toronto, have been incorporated with a capital of \$200,000, to carry on a mining, milling and reduction business. The provisional directors include J. F. Lennox, J. D. Lamont, W. N. Irwin, Toronto, and T. H. Lennox, Aurora, Ont.

The Canadian District Heating Co., Hamilton, Ont., have been incorporated with a capital of \$250,000, to produce gas, electricity, etc., for the purposes of light, heat and power. The provisional directors include W. W. Stewart, W. P. Witton, Hamilton, and J. H. Williamson, Toronto.

The Calder Grain Shocker Co., Hamilton, Ont., have been incorporated with a capital of \$30,000, to manufacture grain shockers, etc. The provisional directors include James Calder, G. S. Bingham, Hamilton, and A. R. Wardell, Dundas, Ont.

The Adjustable Axle Nut Co., London, Ont., have been incorporated with a capital of \$31,000, to manufacture adjustable axle nuts. The provisional directors include R. C. Williams, A. R. Simpson and W. E. Davis, London.

McLaughlin, Gourley, Limited, Toronto, have been incorporated with a capital of \$25,000, to manufacture cabinets, etc. The provisional directors include J. J. McLaughlin, A. L. Gourley and N. A. Howie, Toronto.

The premises of the Gold Medal Mfg. Co., Toronto, were damaged by fire November 12. Loss about \$2,000.

The Norton Mfg. Co., Hamilton, Ont., will erect a three story brick addition to their factory, to cost about \$10,000.

A number of prominent residents of Niagara Falls, Ont., have formed a Good Roads Association, the object of the organization being to improve the system of street building and maintenance. They will also urge the early carrying out of the plan to build a boulevard along the Niagara River from Lake Erie to Lake Ontario.

The City Engineer, Toronto, has recommended to the Board of Control, the construction of either a swing bridge or a rolling lift bridge over the western channel, at the Queen's Wharf. The former would cost about \$200,000.

Messrs. E. C. Atkins & Co., Indianapolis, Ind., have been licensed to manufacture repair saws, tools, machinery, etc., in Ontario, with a capital of \$40,000. They will



erect a large factory for the purpose in Toronto.

The Cataract Power Co., Hamilton, Ont., will shortly increase their supply of electrical power by 13,000 h.p.

The City Engineer of Toronto is contemplating putting in modern coal handling machinery at the main pumping station, to cost about \$12,000.

It is stated that S. Frank Wilson has purchased property on Adelaide Street West, Toronto, whereon he will erect a modern ten-story office building, composed entirely of steel and concrete, and so constructed that there will be scarcely any solid outside walls, the facade and side walls being composed of concrete, with very large glass screens, so that the maximum of light will be obtained. The building, it is said, will cost over \$50,000.

The Vining Machine Co., manufacturers of concrete block machines, have established a factory at Niagara Falls, Ont.

The Canadian Pacific Railway Co. announce that they have taken over the Tilsonburg, Lake Erie & Pacific Railway, which they have leased, and will operate it as district No. 2 of the Ontario division. The road is 35 miles long, running from Port Burwell to Tilsonburg.

The Department of Public Works, Ottawa, have awarded the contract for the laying of 18,000 lineal feet of pipe for the postal pneumatic system in Toronto to the Canadian Pneumatic Tube Co., Montreal, the amount of the contract being \$120,000.

The City Architect, Toronto, has issued a permit for the construction of a two-story addition to the Western Hospital, to be used as an infection ward. It will cost about \$10,000.

The opera house at Brockville, Ont., will be improved. The plans provide for a main auditorium on the ground floor and two galleries. The estimated cost is \$12,000.

The Baptists of Toronto Junction, Ont., will erect a church building, to cost about \$16,000.

The Department of Marine and Fisheries, Ottawa, will have a steamboat built for the use of officers of the Department on Lake Winnipeg. The boat will cost about \$10,000.

The Goldie & McCulloch Co., Galt, Ont., have been awarded the contract for supplying three cross-compound engines of 800 h.p. each for Dominion Coal Co., Sydney, N.S.

The Waterous Engine Works Co., Brantford, Ont., will build an addition to their plant 215x45 feet, three stories high, to cost about \$8,000.

The Alexandra Oil & Development Co., Havelock, Ont., have been incorporated with a capital of \$100,000. J. A. McDonnell, Mariora, Ont., is one of the shareholders.

A leak in the hydraulic lift lock at Peterborough, Ont., will entail an expenditure of about \$20,000 for repairs.

The planing mill of E. Larvedeere, Esq., Ottawa, has been equipped throughout with Chapman Double Ball Bearings.

Messrs. McKenzie & Mann have purchased a quarter interest in the Moose Mountain Mining Co., north of Sudbury, Ont., for \$1,000,000. They will build a line of road

to Georgian Bay, where a big ore dock is to be erected. The line eventually will reach James Bay. Tentative plans also have been drawn for a plant for the manufacture of rails and structural steel on the bay.

The furniture establishment of Richard Gregory, Kingsville, Ont., was destroyed by fire November 8. Loss about \$17,000.

The Standard Bolt & Screw Co., Limited, recently incorporated, and who are rapidly getting their special automatic screw and nut-making machinery installed in their handsome new factory adjoining the Dundas Street bridge, Toronto, have issued a catalogue and price list of the lines they will manufacture including bolts and nuts of all descriptions, set screws, cap screws, studs, boiler patch bolts, stay bolts, machine screws, coach screws and steel taper pins. The catalogue illustrates in their various sizes and modifications the standard lines, but the company are prepared to make all classes of small parts that enter into the construction of instruments of precision, such as printing presses, engines, electrical appliances, guns, optical work, typewriters and machine shop supplies in iron, brass, steel, German silver, silver or gold. Mr. Frank Jackson, formerly identified with the Diamond Machine & Screw Co., Limited, Toronto, is factory superintendent in charge.

The James Morrison Brass Mfg. Co., Toronto, have negotiated a lease for a number of years for property at Adelaide and York Streets.

W. F. Lawrence & Sons, Sarnia, Ont., will erect a planing mill 156x80 feet.

The Wolverine Cedar Lumber Co., Menominee, Mich., will erect mills at Spanish Mills, Ont.

Messrs. Joseph Simpsons' Sons, Toronto, will erect an additional story to their building, at a cost of about \$9,000.

The Dominion Realty Co., Toronto, will erect a two-story brick and stone bank building, to cost about \$25,000.

The Toronto Hardware Co., Toronto, will erect a one-story brick addition to their foundry, to cost about \$9,000.

Messrs. Reinhardt & Co., Toronto, have taken out a permit for a brick and stone wash house, two stories high, to cost \$2,800.

The Wampole Co. are equipping their large factory at Perth, Ont., with Chapman Double Ball Bearings.

A two-story brick and stone dwelling will be erected by Mrs. George Gooderham at a cost of about \$20,000.

Moses Hunter, Esq., Toronto, will build a grain elevator, 80 feet high, 36x30 feet, to cost about \$4,000.

C. A. Brink, Esq., Toronto, will erect a brick and stone factory, two stories high, at a cost of about \$12,000.

The Sovereign Bank, Toronto, will make alterations to their bank offices at a cost of about \$11,000.

Messrs. Gowans Kent & Co., Limited, Toronto, have been incorporated with a capital of \$500,000, to manufacture crockery, earthenware, glassware, chinaware, etc., and to acquire business of Gowans Kent & Co. The charter members include J. G. Kent, S. C.

Smoke, Toronto, and Douglas Armour, Montreal.

The Great Northern Oil & Gas Co., Manitowaning, Ont., struck recently what is regarded as being the best well yet drilled there. When the drill had reached a depth of 450 feet the oil filled the hole and gushed fully 15 feet in the air. It was entirely free from water. When the pump was placed and started, it pumped 14 barrels of pure oil in 20 minutes. The oil is of very superior quality, being equal to the best grade of Ohio oil.

One of the most unique dams ever erected was placed in the Niagara River November 10, at the joint intake of the Niagara Falls, Ont., waterworks and the Niagara Falls Park & River Railway. The dam was in the shape of a mammoth concrete column, 70 feet high, seven feet four inches square and weighing 200 tons. The lower twenty feet were of timber, the rest of solid concrete in six sections. Through the centre was run a great chain, weighing 800 pounds, designed to hold the broken sections from rolling out of place should the fierce current of the upper rapids threaten to carry them over the Horseshoe Falls. Three lifting jacks were placed under the timbers, at the base of the trestle, and gradually the high perpendicular column was lifted and dumped into the river. The water in the intake was increased 10½ inches in depth, which was about all that the new dam was expected to increase it. This depth is believed to be sufficient to give water enough for a first-class supply for the city and the electric railway.

The contribution to the Toronto treasury from the Toronto Street Railway system last month was \$18,803.01. The total receipts of the company during October was \$235,037.63, nearly \$30,000 greater than the receipts of October last year. The earnings of the railroad have almost doubled since 1900, when the city received less than \$10,000 as its share. The earnings and the city's percentage for the month of October for the last six years were as follows:

	Receipts.	City's P.C.
1905 . . . . .	\$235,037 63	\$18,803 01
1904 . . . . .	205,792 62	16,463 41
1903 . . . . .	184,354 98	14,748 40
1902 . . . . .	154,631 00	12,370 48
1901 . . . . .	152,453 37	12,196 27
1900 . . . . .	124,866 00	9,989 28

Messrs. Backus & Brooks, Fort Francis, Ont., will erect a saw mill in the Rainy River district.

The Central Canada Loan & Savings Co., Toronto, will erect a business block at a cost of about \$1,000,000.

A branch of the Bank of Toronto will be erected on Yonge Street, Toronto, at a cost of about \$130,000. The building will be of stone and steel, four stories high.

As the result of a conference held a few days ago in Toronto, between Hon. Messrs. Cochrane and Hanna, representing the Ontario Government, and Messrs. William Wainwright and W. H. Biggar, representing the Grand Trunk Pacific, permits will be issued by the Government to contractors for ties, telegraph poles and other railway timber, allowing them to cut the same on the territory withdrawn from settlement from

which the Grand Trunk Pacific is to select their land grant of 2,000 acres to the mile. This area, which furnishes much material for railway building, runs 200 miles north from Port Arthur to the main line of the Grand Trunk Pacific, and is 36 miles in width.

The Chapman Double Ball Bearing Co., Toronto, are installing the complete transmission equipment in the Ottawa Lumber Co.'s mill, including their double ball bearings, shafting, hangers, etc.

The Minister of Marine and Fisheries has decided to enlarge the King's Wharf, Quebec City, erect new buildings and fill the same with modern machinery for repair purposes. New storehouses will be added to the present store accommodations for the safe housing of large quantities of material used to supply the lighthouse stations, Government steamers, etc.

A wrecking schooner belonging to Messrs. G. T. Davie & Sons, was destroyed by fire November 11, near Wye Rock, where she has been assisting in the work on the steamer Bavarian. The loss will amount to several thousand dollars.

A portion of the Government dock at Sorel, Que., gave way November 11, entailing a loss of about \$200,000.

Messrs. Jinchereau & Lamonde, Quebec City, have received the contract for the erection of a detention building for immigrants at that place, to cost about \$50,000.

The Richelieu & Ontario Navigation Co., Montreal, will build a steamer for the rapids section of the St. Lawrence and also a steamer for the Montreal-Quebec route.

The Catholic School Commissioners, Montreal, have taken out a permit for a new \$40,000 school, which will be four stories high.

The premises of the Major Mfg. Co., Montreal, were destroyed by fire November 4. Loss about \$75,000.

The Water Supply Co., Montreal, have been incorporated with a capital of \$40,000, to carry on a business of suppliers of gas, water, electric light, etc. The charter members include Maurice Rosseau, Montmagny, Que.; W. J. White and A. W. P. Buchanan, Montreal.

The National Drug Chemical Co., Montreal, have been incorporated with a capital of \$6,000,000, to manufacture drugs, chemicals, medicines, surgical apparatus, paints, oils, dyestuffs, etc. The incorporators include A. P. Evans, F. G. Lyman, Montreal; J. B. Hattie, Halifax, N.S.; C. W. Turpling, Hamilton, Ont.; C. T. Nevins, St. John, N.B.; T. M. Henderson, Vancouver, B.C.; Peter Lamont, Nelson, B.C.; W. W. Bole, Winnipeg, Man.; and W. S. Elliot, Toronto.

The Canadian Pneumatic Tool Co., Montreal, have been awarded the contract by the Department of Public Works, Ottawa, for 4,000 feet of pipe for the postal pneumatic service in Montreal, at a cost of about \$55,000.

The Beach Calculating Machine Co., Montreal, have been incorporated with a capital of \$50,000, to manufacture office supplies, specialties, etc. The charter members include J. A. Laurin, P. E. Lamarche and Henri Sauriol, Montreal.

The Robitaille Eureka Distillery, Limited, Beauport, Que., have been incorporated to carry on a business of brewers and malsters. The charter members include Alfred Robitaille, Lorenzo Robitaille and Wilfrid Robitaille, Beauport.

The Montreal Carriage Leather Co., Montreal have recently changed their transmission equipment from self-oiling bearings to Chapman Double Ball Bearings.

The Nova Scotia Steel & Coal Co., Sydney, N.S., are steadily increasing their output. Sydney No. 3, which last year produced 1,000 tons per day, has this year reached the 1,700 tons per day mark. It is expected that next spring the output will be 2,000 tons daily.

The Robb Engineering Co., Amherst, N.S., are building two 25-h.p. boilers for McGill University, Montreal.

A Marconi wireless telegraph station will be erected at Cape Bear, P.E.I.

The Dominion Iron & Steel Co., Sydney, N.S., recently made a large shipment of steel, aggregating about 2,000 tons.

The premises of the Enterprise Printing Co., Sydney, N.S., were destroyed by fire November 6.

Messrs. S. A. Marshall & Son, Halifax, N.S., have been awarded the contract to erect a detention building for immigrants in that city to cost about \$52,000.

The William Richards Co., Campbellton, N.B., have ordered from the Robb Engineering Co., Amherst, N.S., two 150-h.p. boilers for their mill at Campbellton.

The Dominion Coal Co., Sydney, N.S., have placed an order with the Canadian Westinghouse Co., Hamilton, Ont., for three generators of 500 k.w. each, twelve motors and eighty-nine transformers. The contract amounts to \$100,000. The machinery is for the Coal Co.'s works at Glace Bay, N.S.

The Nova Scotia Collieries Co., who have acquired extensive coal areas at St. Rose, N.S., are making a preliminary survey for a line of railroad from its holdings to Port Malcolm on Caribou Cove.

The Newville Lumber Co. are rebuilding their mill near Parrsboro, N.S., which was destroyed by fire a short time ago. A large engine and two boilers, manufactured by the Robb Engineering Co., Amherst, N.S., will be installed.

The Land, Log & Lumber Co., Winnipeg, Man., have been incorporated with a capital of \$300,000, to manufacture timber, lumber, etc. The charter members include J. S. Lovell, E. W. McNeill and W. F. Ralph, Toronto.

The Canada Carb-ox Co., Winnipeg, Man., have been incorporated with a capital of \$30,000, to manufacture the carb-ox system of smoke consuming apparatus, engines, boilers, etc. The charter members include James Stuart, J. N. Yeomans, Winnipeg, and J. W. Hays, Chicago, Ill.

General Manager Morse, of the Grand Trunk Pacific, announced recently that 100 miles of the section between Portage la Prairie, Man., and Harwood Hills would be ready for the rails this year, and he confirmed the report that branches will be built to Calgary, Alta., Brandon, Man., Prince

Albert, Sask., and elsewhere. The Government will call for tenders for the section between Lake Superior Junction and Winnipeg, Man.

The plant and buildings of the Brandon Biuder Twine Co., Brandon, Man., have been purchased by R. M. Matheson for \$15,700.

The Manitoba Iron Works, Winnipeg, Man., have been awarded the contract for the machinery for the elevator of the Anchor Cereal Co., Winnipeg.

The Goldie & McCulloch Co., Galt, Ont., will establish a branch office and warehouse in Winnipeg, Man.

The Empire Wall Paper Co., Toronto, will open up a branch of their business in Winnipeg, Man.

The Manitoba Pressed Brick Co., Beaujour, Man., who have a plant capable of turning out 20,000 bricks per day, also have a large plant at Ottawa. The brick is of a light grey color, similar in shade to the Ohio sandstone, and, it is said, dampness has no effect on it.

The Canadian Pacific Railway Co. will forward 2,000,000 bushels of western wheat from Fort William, Ont., to St. John, N.B., by all-rail route. It is unusual at this season to take wheat by the all-rail route, but it is being done now to furnish ballast for the company's trans-Atlantic boats on their first winter sailings from St. John. Instead of securing cargoes from Chicago, as has been done in the past, the company will forward the wheat over its line from Fort William at a low rate, and thus keep the business for Canadians.

The Melita Roller Mills Co., Melita, Man., are adding a new bolting system to their flour mill equipment.

The Manitoba & Midland Railroad will build a single track steel bridge across the Assiniboine River at Portage la Prairie, Man.

The roundhouse of the Canadian Pacific Railway Co., at Estevan, Man., was recently destroyed by fire.

Mr. Bullock will build an elevator with a capacity of 50,000 bushels at Crystal City, Man.

The Red Deer Mill & Elevator Co., Red Deer, Alta., have purchased the holdings of the Blackfalds Mill & Elevator Co.

Turner & Michael, Melfort, Sask., are installing the machinery in their new 100 barrel flour mill.

Messrs. F. Burns & Co., Calgary, Alta., will build an abattoir at Edmonton, Alta.

The Big Bend Lumber Co. will double the capacity of their mill at Arrowhead, B.C.

The Dominion Copper Co. are considering the erection of a large smelter at Boundary Falls, B.C.

Mr. Calori, proprietor of the Europe Hotel, Vancouver, B.C., will erect a new hotel building to cost about \$75,000.

The Kootenay Light & Power Co., Phoenix, B.C., will build a new line into the Boundary districts, at a cost of about \$1,000,000.

The sawmill of the Upper Yukon Consolidated Co., at Caribou, Y.T., was recently destroyed by fire. Loss about \$50,000.

The Vancouver Fire Clay Co., Vancouver, B.C., will erect a factory at Matsquie, B.C., for the manufacture of all kinds of brick, tiles, etc.

It is stated that the Ogilvie Flour Mills Co., Winnipeg, Man., will build a mill at Vancouver, B.C., to compete for the flour trade of the Orient.

G. W. Newman, New Westminster, B.C., will erect a ship building and repairing plant there.

The Providence Mining Co., Phoenix, B.C., will install a complete electric plant to cost about \$30,000.

The Hall Mining & Milling Co., Nelson, B.C., are considering the installation of a new plant.

The plant of the British Columbia Wire & Nail Co., Vancouver, B.C., which was recently destroyed by fire, will be rebuilt.

The Chapman Double Ball Bearing Co., Toronto, are equipping the new plant of the J Leckie Co., Limited, Vancouver, B.C., with their double ball bearings.

When the large Union Station at the Washington terminal of the Pennsylvania Railroad is completed, it will be one of the finest and best equipped railroad stations in the world, serving all incoming and outgoing trains of Washington. In conformity with the rest of the station the power plant will be equipped with the most up-to-date and best machinery obtainable, steam turbines being selected as prime movers partially on account of the limited amount of space devoted to that purpose. Four 500 k.w. steam turbines have been ordered from the Westinghouse Machine Co., East Pittsburg, Pa., adapted for driving alternating current 60 cycle generators running at 3,600 r.p.m. Dry saturated steam will be used at 150 pounds pressure and 25 inches vacuum, and the turbines will be capable of developing 670 electrical h.p. each. The alternating current generators will be of the turbo rotating field type with two poles and a frequency of 7,200 alternations per minute at a normal speed of 3,600 r.p.m. They will deliver three-phase current at 2,300 volts, and, being of the enclosed type, will operate practically without noise.

A new automatic stoker has just been placed on the German market and is giving satisfaction, gaining favorable comment from engineers and the users of steam engines. The apparatus is designed to overcome the wide fluctuations in distribution common in other automatic stokers. On other apparatus the steam pressure regulators are not sensitive enough to properly distribute fuel for varying degrees of hardness evenly, thereby causing irregular steam pressure. The new automatic stoker overcomes this evil. In fact it is so far superior, say those who have seen several, to others now in use on the continent, that one is warranted in calling the careful attention of all interested parties to the report and drawings. These latter are exceedingly well done, and are in sufficient detail to help an engineer or a mechanic to understand the method by which the machine works.

## ELECTRICITY.

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

The Paris correspondent of the London Daily Mail says Mr. Neill, the president of the Lorimer Automatic Telephone Co. of Canada, is about to offer to the French Government to provide husbands for two thousand young Frenchwomen now engaged in the Paris telephone exchange. "You see," said Mr. Neill to the correspondent, "the Lorimer system is bound to supersede the present. If the Government adopt the system, I shall open a special bureau and offer to send two thousand young women to Canada. We are prepared to pay all expenses out, board, lodging and pocket money for six months, and do our utmost to provide them with suitable husbands." Of course a marriageable girl goes with each telephone; and this is an opportunity that unmarried business men will not neglect, to have a telephone and a French telephone girl in his office in addition to or a part of his typewriter department.

The United States Census Bureau has issued a bulletin showing that there were in that country on June 30 last, 3,620 electric light and power stations, with a cost of construction and equipment of \$504,740,352. There were employed 6,996 salaried officials and clerks, with salaries amounting to \$5,663,580, and 23,330 wage-earners, with wages amounting to \$14,983,112. The gross income was \$85,700,605, comprising \$84,186,605 from sale of current and \$1,514,000 from other sources. Total expenses were \$68,081,375. The total output of stations for the year, in kilowatt hours, was 2,507,051,115. The number of arc lamps was 385,698, and of incandescent lamps 18,194,044. Private stations form by far the largest portion of the industry, constituting over 77 per cent. of the total number of stations in operation during 1902.

The Department of Marine and Fisheries will begin at once the erection at Cape Bear, P.E.I., a high promontory south-east of King's County and half way between Georgetown and Pictou Island, of a Marconi tower to send and receive wireless messages from the winter steamers crossing between Georgetown and Pictou. Mr. Leary, a Marconi expert, is on the Island, and will superintend the work, which will be pushed to completion to be ready for the opening of the winter service. The winter steamers are already supplied with the Marconi apparatus, which has been found very serviceable.

A series of experiments were conducted at Bilbao, Spain, by an electrical engineer named Torres, with a "telekino engine," an invention with which he proposes to manage ships and war balloons from the land by means of wireless telegraphy. A ship was maneuvered in the bay under the direction of the inventor, who flashed signals to the vessel. The test is reported to have been very satisfactory and it is believed that the invention is capable of further development.

A ton of oil has been obtained from the tongue of a single whale.

## ELECTRICAL SUPPLIES.

John Forman, manufacturer of and dealer in electrical supplies of all kinds, 708-710 Craig Street, Montreal, has sent us several illustrated catalogues descriptive of some of the goods he handles.

Empire miniature lamps, for decorative purposes, are made in all sizes, shapes, styles, etc., plain, frosted, and in all colors; any of the candelabra styles made for burning in series of two, three or four on 100 to 120 volts, or 200 to 240 volts. A very handsome and convenient device is shown for obtaining the candle effect on fixtures fitted with standard sockets, by simply screwing it into the socket of the ordinary 16-candle power lamp. Any of the many styles of colored silk shades made for candles can be used.

Regarding illuminated signs, the purposes to which this style sign can be put are without number, and the advantages are many.

Do your water pipes ever become frozen up and unserviceable in cold weather? To meet the general demand during the winter season for thawing out water and gas pipes, the maker has designed a transformer adapted for this class of work and which can also be used as a regular lighting transformer. The outfit has been designed to withstand hard outdoor service and is simple and easy to operate.

## BIG RETAINING WALL.

One of the most remarkable concrete constructions has just been completed by the Niagara Falls Hydraulic Power & Mfg. Co., to protect the pulp mill of the Cliff Paper Co., and its own power house, both of which are located at the water's edge in the Niagara gorge. This concrete work is a wall built as a facing to the Niagara cliff. It stands 200 feet high and is 200 feet wide, the object of it being to protect the shale of the cliff from deterioration through the action of rain and frost. It is a well established fact that the Horseshoe Fall is the engine that plowed the Niagara gorge for its seven miles of length. The process of erosion is continually going on back of the falling water, and the gorge is lengthening out as the fall eats the shale away, leaving the heavy limestone projecting shelf-like at the top. In time this limestone ledge, from 50 to 80 feet thick, breaks away and tumbles into the lower river, where the great blocks are rolled back against the shale, breaking it away.

When the power station of the Niagara Falls Hydraulic Power & Mfg. Co. was built at the water's edge in the gorge, the debris slope or apron at the base of the cliff was removed, leaving the shale unprotected. Chief Engineer Harper saw that under the action of the weather this shale would deteriorate, and in order to protect it, the power house and the pulp mill from any possibility of danger, he designed a facing wall, the greatest of its kind in the world. It is evident that should the shale be left to deteriorate and break away, in time the limestone ledge at the top would be endangered, and this would mean danger to the forebays of the company, and possibly to the mill of the Cliff Paper Co., at the edge of the high bank.

The company decided to build this facing wall, which varies in thickness from 2 to 12

feet. Its base drops to the level of the tail water under the power station, and it rises 150 feet above the eaves of the power house. The concrete mixture of which it is made is composed of one part cement, three parts sand and five parts of stone. The cliff had previously been faced up to the shale, at which time no thought of extending it had been considered. For this reason Engineer Harper decided to erect three giant pilasters to give a more stable support to the upper and heavier sections of the wall. These pilasters are 5 feet wide and 80 feet high. Between two of the pilasters an arch was sprung over a natural grotto, in which there is a noted spring. Thus, the grotto and spring are protected without in any way detracting from the strength and usefulness of the facing wall. A series of experiments told that the water seepage from the bank never attained a lower temperature than 39 degrees Fahrenheit in the most severe weather, and for this reason no danger of the water freezing behind the wall is feared. However, ample provision is made for the removal of the water by weepers.

#### FAVORS ELECTRIC SYSTEM.

Mr. C. B. Smith, chairman of the Temiskaming & Northern Ontario Railway Commission, and expert engineer to the Hydro-Power Commission, has returned to Toronto from a trip to Europe and Great Britain, made for the purpose of studying long-distance electrical railway systems operating with high voltage alternating currents. As a result of his investigations the commission's recommendation to the Government that the first section of the Temiskaming Railway—the 100 miles from North Bay to New Liskeard—be operated by electricity, will be strengthened by an additional report from Mr. Smith. The opinion of the commission is that there is less need of electricity as a motive power on the second section of the line, which runs through a rocky country with little timber, but where the grades are not heavy. It is felt, however, that the first section should be electrified as quickly as possible, particularly as it runs through valuable forest reserves, which are in constant danger of fire from engine sparks. There are good water-powers along the whole line from which motive power could be obtained at a comparatively small cost. Mountain Falls, on the Montreal River, is most favored by the commission. Specifications and plans, with carefully detailed estimates of the cost of the work of electrifying the first section, will shortly be laid before the Government.

During his trip Mr. Smith visited Belgium, Germany, Austria, Italy, Switzerland, France and England. On the continent, where all the railroads, electrical and steam, but not street railways, are Government owned, he found that they had carried electricity in regard to railways much further than on this side of the water. The questions of maintenance, operation in varied kinds of weather, and like problems connected with long-distance electrical railways had been solved satisfactorily and profitably.

Italy had, Mr. Smith thought, made the greatest advances. That country, Switzerland and Norway had the advantage of extensive water-powers from which electricity

was developed. In England there were few water-powers that could be used for the purpose, and most of the electricity used there is developed by steam. Mr. Smith obtained many valuable pointers there, however. It is not likely that he will definitely recommend for the Temiskaming Railway any one of the several operating systems used by European roads. There is little to choose between them, and all are satisfactory

### FUEL.

For names of fuel dealers see "Coal and Coke" in Classified Index.

**The fuel supply question is a most important one to Canadian manufacturers. The information published in this department will keep the readers posted on sources of production.**

The manufacture of coal briquettes is to become an important industry in Japan in the near future, according to Kuhlow's German Review. The coals of Japan are, for the most part, of a very bituminous nature, and therefore not very suitable for the actual operations of naval war, and it is both very expensive and very difficult to get a supply from England under present conditions. Necessity, however, is always the mother of invention, and the Japanese have set themselves to solve the problems involved. Some time ago the Japanese admiralty purchased the Omine mine, in Yamaguchi prefecture, for the purpose of manufacturing coal briquettes for naval use. Chief Engineer Takeda, of the navy, now reports that the machinery recently imported from England has been placed in position and the other necessary arrangements made, and that it is now possible to carry on the manufacture. Under normal circumstances the factory will turn out 150,000 tons of briquettes per month, but if work be carried on night and day the figure may be raised to 250,000 tons. The navy has hitherto had to rely almost entirely on imported coal, costing at least 20 yen per ton, but the briquettes will cost only nine yen, so that a very great saving will be effected, to say nothing of the obvious advantage of the country being self-supplying in such a vital matter.

It is estimated that the Dominion Coal Co., Sydney, N.S., will have to mine about 800,000 tons of coal during the months of January, February and March in order to meet the requirements of the consumers of their product. The steel company are now consuming 60,000 tons per month, and the large pockets nearing completion at Halifax, N.S., and St. John, N.B., will expedite business and develop their volume in the provinces. The Maine Central Railroad will take 75,000 tons of coal from the Dominion Co. the coming winter.

Slack is one of the most-wanted coals at present, and the change in the situation, as against the time it was given away, is an important one. Slack is selling at from 60 to 70 cents per ton at Pittsburg, Pa. district mines, with little available at the first figure named. A new price list issued quotes run-of-mine at 75 cents, three-quarter screened at \$1 and one-half inch screened

at \$1.40 at the mines. The majority of consumers of slack do not buy it because of its cheapness, but because it is exactly the size they require and must have. If there was no slack to be had they would be compelled to go to the extra expense to prepare run-of-mine by crushing it to slack before it could be used.

Welsh coal exporters, according to Trade Agent McKinnon at Bristol, England, are looking for new markets, and are anxious to give eastern Canada a fair trial with their best grades of anthracite. Several firms have expressed their intention of endeavoring to supplement previous occasional shipments by regular cargoes of from one to three thousand tons.

The total output of the Dominion Coal Co., Sydney, N.S., for October was 333,317 tons. Shipments amounted to 323,884 tons. The total output of the collieries for September was 322,288 tons, and shipments were 299,403 tons. The total output for October shows an increase over that of last year of 11,029 tons, and increase in shipments of 24,461.

The Dominion Coal Co., Sydney, N.S., have received a contract from the Boston & Maine Railway Co., for 75,000 tons of coal. There is some talk of the company sending several cargoes to the Mexican Heat, Light & Power Co., Vera Cruz, Mexico. The company have an order from Messrs. A. Johnson & Co., Stockholm, Sweden, for a 5,000 ton cargo of Cape Breton coal.

#### THE CANADIAN COAL MARKET

The Coal Trade Review, speaking of the prevailing conditions in the coal market in Canada, says:

It has now been some little time since enough of a change transpired in the Canadian market to warrant any comment in regard to the existing conditions. Within the past two weeks, however, this market has experienced a very material change. A change rather delinquent as compared to markets more adjacent to the mines, but Canada, as a rule, is slow to respond to a fluctuation in the market, and generally a period of about two weeks is past after the equilibrium of the Pittsburg district is disturbed before it is felt here. But when this territory wakes up to the fact, and realizes that an advance has been made at the other end of the line, a general rush is made to get under cover by purchasing all the coal offered for immediate delivery, also making belated purchases that should have been consummated months before. This responding of the Canadian market so strongly always has a beneficial effect on the entire border district, particularly in the vicinity of Buffalo and the bridges.

While the price of screened and run-of-mine coal has been advanced 15 to 20 cents per ton for Canadian delivery, a good many orders are being booked, and shipment are made with reasonable promptness at this figure, no shortage being experienced in these sizes. It is up to a prospective purchaser, nevertheless, to meet this figure or be informed that no coal is forthcoming as there is no trouble in getting the above price on all coal to offer.

Slack coal remains a very scarce article, and many in this district have already turned to the purchasing of mine-run in preference to buying slack at the price asked, which is strong at from \$2.00 to \$2.05 net at the Bridge. Most of the shippers are extremely conservative in making any quotations whatever on slack even for present shipment, and will positively take on no new business on this size for future delivery.

Two events of extreme interest to the Canadian coal market have just occurred, both of which should very materially facilitate coal shipments in this district. One, and the one most likely to be felt in the immediate future, is the completion and placing in commission of the new ferry steamer for the Conneaut-Port Stanley route. This boat, of the twin-screw type, was built for the Marquette & Bessemer Dock & Navigation Co., and was launched on September 12, but just placed in commission. She has a capacity sufficient to carry 30 loaded cars. This will be an immense benefit to both shippers and consumers of coal entering Canada via this route. It has, ever since this port of entry became popular, been a serious question to cope with the increasing tonnage, and even in the summer months it has always been necessary to embargo shipments from time to time to prevent a dangerous congestion at the ferry. About this season of the year, in the past, it would become an utter impossibility to figure on any definite shipment, owing to the fact that embargoes would be alternately placed and raised until there was no telling when it would be forwarded across the lake. In fact, many consignments would be delayed by embargoes until too late to go forward before the ferry closed for the season, leaving consumers with empty bins and compelling them to purchase their winter stock at a late date, paying not only a premium in price, but also the 20 cents per ton extra freight necessitated on shipments routed via the Bridge. With a new boat in operation they should work later in the season, and also transport a much larger tonnage during the summer.

The Pennsylvania Railroad Co. have very recently placed an order with the Westinghouse Machine Co., Pittsburg, Pa., for six 132x26-inch grate and four 100x20-inch grate Roney mechanical stokers to extend their already large equipment at Altoona, Pa. Two new boiler plants were erected at Altoona only a few years ago for supplying steam power at the Altoona shops. These plants were both equipped throughout with Roney mechanical stokers.

The Canada Chemical Mfg. Co., whose head office is at London, Ont., have opened a branch sales office for Toronto and district in McKinnon Building, Toronto, in charge of Mr. Albert Nieghorn. This is, of course, in addition to the company's distributing warehouse in Toronto, which, as announced heretofore in these pages, has been in operation for some time. The company inform us that they have found that the rapid and active growth of sales of their acids and chemicals has necessitated dividing the territory into sales districts, hence the establishment of the Toronto sales office. The products of the company will, of course, be manufactured as heretofore at the London works.

## OPPORTUNITIES.

Manufacturers and others in need of machinery, supplies, etc., of any kind are requested to consult our advertising columns, and if they cannot find just what they want, if they will send us particulars we will make their wants known free of cost, and in this way secure the attention of those who may be able to supply them. No charge for publishing what is wanted nor for giving information. When writing to enquirers kindly mention The Canadian Manufacturer.

The Nichi Nichi Shimbun, the oldest newspaper in Tokio, outlines the plans of the Japanese Government in regard to the commercial development of that country. The Nichi Nichi states that as a first instalment of the postbellum enterprises, the Government have decided to establish during the next fiscal year a Japanese-Chinese bank, erect a number of museums at various important foreign marts, enlarge the Kobe and Yokohama customs-houses, establish a commercial and industrial commissioners' office, and complete the elevated railway in Tokio. The expenditure required for these enterprises will be included in the budget for the next fiscal year. It is also stated that the Government intend to appoint several commercial agents in Europe and America.

The chairman of the fire, water and light committee of Winnipeg, Man., will receive tenders until December 18, for a gas producer plant of capacity of 2,500 continuous brake horsepower.

Chas. M. Kittson, Canadian commercial agent to South Africa, writes:—"Canadian exporters are advised that in most cases, shipping goods on consignment is a mode of doing business that is both dangerous and unsatisfactory to the shipper, who assumes all the risk of transportation and markets, and, as some recent cases have demonstrated, realizes at a loss of 50 per cent. or more. Among the many articles imported by the various South African colonies, the following are called to the notice of Canadian manufacturers as being suitable for their attention: Doors, windows and sashes, shutters, wood butter boats, chair seats (round and square), wood mantelpieces (ornamented hardwood), brooms (cheap quality), washboards (all wood), wagon spokes, wheelbarrows (all wood, and wood and iron), sole leather, horse and mule shoes (machine made), park seats (wood and iron), wire netting and fencing material.

Despite the recent announcement from Australia that the commonwealth government had practically doubled the import duty on agricultural machinery entering the country from Canada, one of the largest consignments of reapers, binders, threshers and harvesters ever shipped from Vancouver, B.C., left on the steamship Aorangi, which sailed recently for Sydney, N.S.W. According to recent advices from Australia, the import duty on agricultural machinery has been heavily increased because of alleged fraudulent valuations by manufacturers. Heretofore the average valuation of a piece of such machinery has been about £35—hereafter it will be arbitrarily fixed at £65. The steamship Aorangi took out 1,500 tons of agricultural machinery, all of it consigned to Australian points.

## 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.

L. D. Post, publisher of the Paper Mill, 21 Park Row, New York City, has just issued his Post's Paper Mill Directory for 1905-06, a 500-page book bound in cloth, the price of which is \$2. It contains not only a complete list of all the paper and pulp mills in the United States and Canada, but every mill in other countries. It gives a complete description of each mill, population of town where located, grades and sorts of paper made, capacity of mills, etc. The book is not only a most useful guide to the paper industry, but is also very ornamental.

The Business Magazine, the MacLean Publishing Co., Toronto, \$2 a year. This is a new Canadian candidate for literary recognition which will, without doubt, "catch on" with the Canadian business man and his family who wants, in condensed and pleasing form an epitome of what is going on in the world of thought. Unlike any other Canadian publication, it draws its pabulum from the leading publications of the world, and enables the reader, who has not time apart from his business to even cursorily glance over the multitude of worthy magazines that are now to be found in all the book-shops, to obtain this information. The Business Magazine endeavors to fill the bill; and the publishers are to be commended for their enterprise in this direction.

Bulletin No. 75 entitled "Mechanical Draft, What It Is, What It Does," has just been issued by B. F. Sturtevant Co., Boston, Mass. This booklet not only briefly presents the salient features of this system of draft production, but illustrates a variety of plants which clearly show "what it is." The suggested query in the words "what it does" is answered thus:—It does what an ordinary chimney is incapable of doing. Its cost is from 20 to 40 per cent. of that of a chimney; its intensity permits of the burning of finely divided or low grade fuel; it makes possible the utilization of the heat of the flue gases which a chimney wastes in producing draft; it is independent of the weather, is automatically regulated to maintain constant steam pressure, decreases smoke, increases the capacity of an existing plant, and serves as an auxiliary to a chimney already overburdened; saves space and is portable.

The Wm. Hamilton Mfg. Co., Peterborough, Ont., have just issued an illustrated catalogue descriptive of "Edgers," which are enumerated as follows:—"Garland" gang edger, a machine which can be furnished in all widths and with any number of saws, either movable or stationary; "Star" edger, made especially for semi-portable and medium sized mills; "Pacific Coast" edger No. 1, made particularly strong and substantial, to handle cants up to 8 inches in thickness; "Pacific Coast" edger, No. 3, for large mills, to handle cants up to 6 inches thick; combination gang edger, constructed and operated same as the Garland. The company also manufacture what they call the "Kendall

Patent Variable Gang Edger," which is intended for sawing cants from 6 to 12 inches in thickness.

### PERSONALS.

The Engineers' Club, of Toronto, will enjoy themselves at a business luncheon at Webb's Restaurant on November 29. The Club have instituted a system of frequent meetings at which scientific and other interesting topics are discussed. The officers for the current year include R. F. Tate, president; W. J. Bowers, treasurer, and Wilis Chipman, secretary.

The directors of the Grand Trunk Pacific Railway Co. held a meeting in Montreal a few days ago, to discuss the prospects of the National Transcontinental Railway. Those in attendance were: Hon. Geo. A. Cox, Mr. J. B. Booth, Mr. H. A. Allan, Mr. C. M. Hays, Mr. E. R. Wood, Mr. W. H. Biggar, Mr. William Wainwright, and Mr. E. H. Fitzhugh. It was announced that the company are making great progress financially, and now have \$30,000,000 to their credit in London, the proceeds of several bond issues. The directors are confident that the Grand Trunk Pacific will be a factor in moving the grain crop of 1907.

Mr. W. A. Burns, Assistant Exhibition Commissioner, has just returned from Pittsburg, Pa., where he had been in charge of the Canadian exhibit at the Western Pennsylvania State Exposition. The two representatives of the Immigration Branch, Mr. Gelley, of Winnipeg, Man., and Mr. J. C. Duncan,

of the Department of the Interior, Ottawa, report very gratifying results of their work.

### RICH IRON ORE DEPOSIT.

The Mining Journal of New York has an article relative to an important development in iron mining in Ontario, in which Messrs. Mackenzie and Mann of the Canadian Northern Railway are interested. In part the article says:

"What are known as the Moose Mountain iron ore deposits of Central Ontario are passing into the hands of those who will actively exploit them. A railroad is to be built at once from or near the little village of Killarney, on the north shore of the Georgian Bay, to these ore fields, a distance of about 70 miles. Ore-shipping piers are to be erected on the bay, and the distance from these piers to lower lake ore-receiving ports will be less than from any of the upper lake shipping ports on the American side of the lakes, even less than from Escanaba, on Lake Michigan. A minority interest in these ore lands has been sold by Messrs. J. C. Spry of Chicago and C. S. Osborne of Sault Ste. Marie for a sum that makes the entire property worth about \$2,500,000, and the buyers are negotiating for another small interest. These buyers are the great Canadian railway-building firm of Mackenzie & Mann, whose transcontinental line passes a few miles south of Moose Mountains, and by a slight deflection might be made to touch the new district. It has been stated by experts that there are now more than 10,000,000 tons of 60 per cent. and better ore exposed above the

250-foot level from the top of the bluffs, and that of lower merchantable grades there are many times as much."

The Moose Mountains are in the township of Hutton and unorganized territory in the district of Nipissing, along the west branch of the Vermillion River. The deposits extend for 30 or 40 miles, and besides Mackenzie & Mann the chief owners are Messrs. Joseph Sellwood, Duluth; J. T. Gates, J. L. Lambert, J. J. Mitchell, Chicago; Blair & Co., New York.

Mr. D. Mann, of Mackenzie & Mann, who was interviewed in regard to the above, said:—"The article is substantially correct. We will have the line of railway from the iron ore deposits to Killarney finished by September of next year. Construction is now going on."

To other questions Mr. Mann said that Mr. Mackenzie and himself held only a minority interest in the properties, and he could not therefore say exactly what were the plans of the company, which is known as the Moose Mountain, Limited. No doubt, however, the ore would be largely shipped to a number of American and Canadian smelters for some time. Mining would commence at once, in fact an expert was on his way to make preparations for beginning the work, and it was intended to take out large quantities of ore this winter, ready for shipment in the spring.

"By experts," added Mr. Mann, "the property is not considered as a mine, but as an iron range, and one that will compare favorably with the largest iron ranges uncovered in America."

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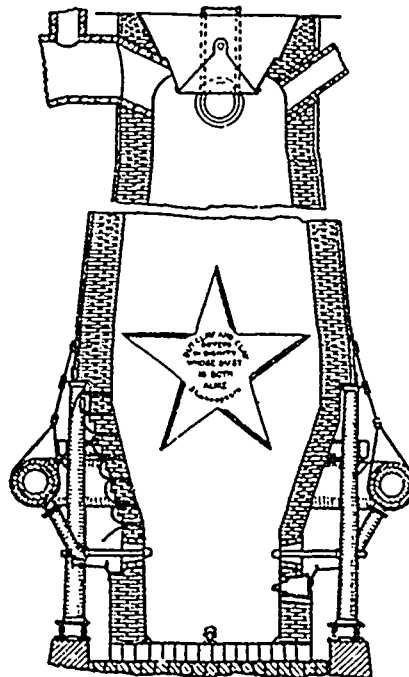
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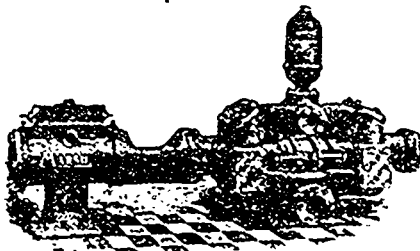
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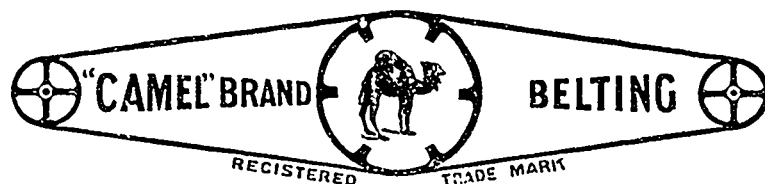
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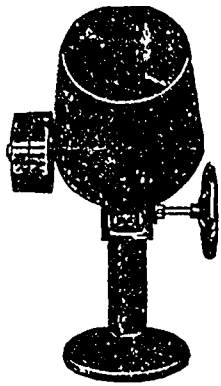
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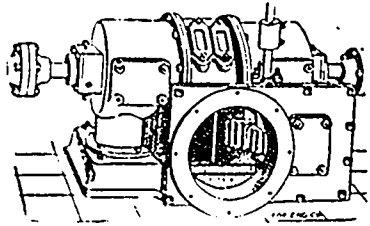
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- Hickford Radial Drills.
- Sebastian Lathe Co.
- B. F. Barnes & Co.
- Automatic Machine Co.
- Catlin Keyseater.
- Bremer Punch & Shears.
- The National Machinery Co.
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- American Grinding Machines.
- Morris Machine Works.
- C. H. Dutton Co.
- Taber Pump Co.
- Sturtevant and Buffalo Blowers and Fans.
- American Machinery Co.
- Fox Machine Co.
- West Side Band Saw.
- Dain Hay Presses.
- The Cleveland Automatic Machine Co., Cleveland, Ohio.
- The Laurie Engine Co., Montreal.
- Potter & Johnson.

Prices and Descriptions of NEW AND SECOND-HAND MACHINES on Application.

## CLASSIFIED INDEX.

### Abrasives

Williams, A. R. Machinery Co., Toronto

### Acids

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

### Air Compressors

Chalmers-Bullock, Limited, Montreal.  
American Steam Pump Co., Battle Creek, Mich.  
Canada Foundry Co., Toronto.  
Canadian Rand Drill Co., Sherbrooke, Quo.  
Corbett, R. B., Brooklyn, N.Y.  
Curling Bros., Montreal.

### 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.  
Epkins, 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.  
Cassella Color Co., New York City.  
Geary Aniline & Extract Co., New York City.  
McArthur, Cornelio & 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

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

### Architects

Edwards, R. J., Toronto.  
Pike, R. J., Toronto.  
Togel, C. H., Ottawa.

### Automatic Gear Cutting Machines

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

### Axles

Epkins, 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.  
Epkins, F. H. & Co., Montreal.  
Leslie, A. C. & Co., Montreal.  
London Rolling Mills, London, Ont.  
Noca Drawn Steel Co., Hamilton, Ont.

### Belt Dressing

McLaren, J. C. Belting Co., Montreal and Toronto.  
Pene, H. W., Toronto.  
Zeddaway, F. & Co., Montreal.  
Miller & Haworth, Montreal and Toronto.  
Williams, A. R. Machinery Co., Toronto.

### Belt Fasteners

Easton Co., Waterbury, Conn.  
McLaren, D. K., Montreal and Toronto.  
McLaren, J. C. Belting Co., Montreal and Toronto.  
Pene, H. W., Toronto.  
Zeddaway, F. & Co., Montreal.  
Miller & Haworth, Montreal and Toronto.  
Williams, A. R. Machinery Co., Toronto.

### Belting (Camel Hair)

Zeddaway, F. & Co., Montreal.

### Belting (Cotton)

Union Belting Co., Hamilton, Ont.  
McLaren, D. K., Montreal and Toronto.  
McLaren, J. C. Belting Co., Montreal and Toronto.  
Pene, H. W., Toronto.  
Zeddaway, F. & Co., Montreal.  
Miller & Haworth, Montreal and Toronto.

### Belting (Leather)

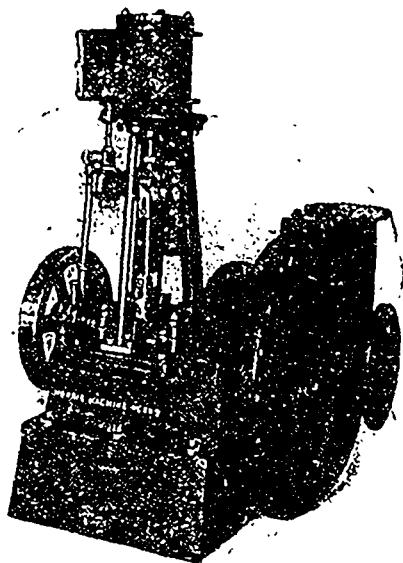
Central Belting Co., Montreal.  
McLaren, D. K., Montreal and Toronto.  
McLaren, J. C. Belting Co., Montreal and Toronto.  
Pene, H. W., Toronto.  
Zeddaway, F. & Co., Montreal.  
Miller & Haworth, Montreal and Toronto.  
Williams, A. R. Machinery Co., Toronto.

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The line at the bottom of our advertising pages requests you when writing to Advertisers, to mention THE CANADIAN MANUFACTURER. Compliance with the request costs nothing, but would mean a great deal to us. As the manufacturer usually grades the salary of his salesman according to the value of the orders he turns in, so the advertiser values space according to inquiries received. The only way for this journal to receive full credit for sales influenced is for our readers, when writing to advertisers, to kindly mention THE CANADIAN MANUFACTURER.

## 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.  
Sadler & Haworth, Montreal and 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.  
Redclaw, F. & Co., Montreal.  
Sadler & Haworth, Montreal and Toronto.  
Williams, A. R. Machinery Co., Toronto.

### Blast Furnace Brick

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

### Blowers

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

### Boiler Compounds

Canada Chemical Mfg. Co., London, Ont.

### Boiler Inspection

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

### BOILERS (See Engines and BOLLERS) Bolts and Nuts

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

### Brass Founders

Hamilton Brass Mfg. Co., Hamilton, Ont.  
Penberthy Injector Co., Windsor, Ont.

### Building and Faving Brick

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

### Building Iron and Steel

Bourne-Fuller Co., Cleveland, Ohio.  
Canada Foundry Co., Toronto.  
Expanded Metal & Fireproofing Co., Toronto.

### Builders' Materials

Albert Mfg. Co., Hillsboro, Ont.  
Canada Foundry Co., Toronto.  
Conduits Company, Limited, Toronto.  
Expanded Metal & Fireproofing Co., Toronto.  
Gartshore, John J., Toronto.  
Hopkins, F. H. & Co., Montreal.  
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-Dalsell 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.

### 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, Baldwinville, N.Y.

### Chain Making Machinery (Welded Coil 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.  
Nichols Chemical Co. of Canada, Montreal.

### Chemists

Archbold, Dr. Geo., Prescott, Ont.  
Heys, Thomas & Son, Toronto.

### Clay Working Machinery

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

### Coal and Coke

Bourne-Fuller Co., Cleveland, Ohio.  
Milne, James H. & Co., Toronto.  
Myles' Theo. Sons, Hamilton, Ont.  
Wick, H. K. & Co., Buffalo, N.Y.  
Wilson, H. T. Coal Co., Detroit, Mich.

### Coal Cutting Machines

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

### Coal Triples

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.

### Conduits (Interior)

Conduits Company, Limited, Toronto.

### Contractors' Machinery

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

### Contractors' Plants

Allis-Chalmers-Bullock, Limited, Montreal.  
Hopkins, F. H. & Co., Montreal.  
Jenckes Machine Co., Sherbrooke, Que.  
Petrie, H. W., Toronto.  
Von der Osten, E. & Co., Toronto.  
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.  
Ferrin, William R. & Co., Limited, Toronto.

### Copper Materials

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

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER

# CLASSIFIED INDEX.

(CONTINUED).

## Cotton Banding and Rope

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

## Covers

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

## Crayons

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

## Crucibles

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

## Crucible Caps

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.

## Deep Well Engines

American Steam Pump Co., Battle Creek, Mich.

## Detective Agency

Dewar Detective Agency, St. Louis, Mo.

## Dies (Socket, Sewer Pipe and Tile)

Turner, 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.  
Barnes, B. F. Co., Rockford, Ill.  
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.  
Casella Color Co., New York City.  
Geigy Aniline & Extract Co., New York City.  
McArthur, Corneille & Co., Montreal.  
Nichols Chemical Co. of Canada, Montreal.  
Winn & Holland, Montreal.

## DYNAMOS (See Motors and Dynamios)

### 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.  
Canadian Westinghouse Co., Ltd., Hamilton, Ont.  
Electrical Construction Co., London, Ont.

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Forman, John, Montreal.  
Jones & Moore Electric Co., Toronto.  
Keystone Engineering Co., Toronto.  
Packard Electric Co., St. Catharines, Ont.  
Toronto & Hamilton Electric Co., Hamilton, Ont.  
United Electric Co., Toronto.  
Worth & Marth, Toronto.

## Elevators and Conveyors

Allis-Chalmers-Bullock, Limited, Montreal.  
Darling Bros., Montreal.  
Jeffrey Mfg. Co., Columbus, Ohio.  
Jenckes Machine Co., Sherbrooke, Que.  
Link-Belt Engineering Co., Philadelphia, Pa.

## Elevator Insurance

Canadian Casualty & Boiler Insurance Co., Toronto.

## Emery and Emery Wheels

Forman, John, Montreal.  
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.  
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.  
Von der Osten, E. & Co., Toronto.

## 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.  
United Electric Co., Toronto.  
Worth & Martin, Toronto.

## 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.

## Engineers (Mill and Hydraulic)

Fensom, C. J., Toronto.  
Hawthornth, Alfred, & Sons Co., Montreal.  
Vogel, C. H., Ottawa.

## Engineers (Mining)

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

## Engineers (Municipal)

Von der Osten, E. & Co., Toronto.

## Engineers and Contractors

Canadian White Co., Montreal.  
Jeffrey Mfg. Co., Columbus, Ohio.  
Jenckes Machine Co., Sherbrooke, Que.

## Engines and Boilers

Allis-Chalmers-Bullock, Limited, Montreal.  
Babcock & Wilcox, Limited, Montreal.  
Canada Foundry Co., Toronto.  
Corbett, R. B., Brooklyn, N.Y.



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BELTING  
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MECHANICAL  
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SUBSTITUTE**

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TORONTO.

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will thank you if, when you write them, you will say that you saw their announcement in

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# CLASSIFIED INDEX.

(CONTINUED).

Goldie & McCulloch Co., Galt, Ont.  
Hamilton, Wm. Mfg. Co., Peterborough, Ont.  
Hopkins, F. H. & Co., Montreal.  
Jenckes Machine Co., Sherbrooke, Que.  
Morris Machine Works, Baldwinville, N. Y.  
McDougall, John, Caledonian Iron Works Co., Montreal.

Petrie, H. W., Toronto.  
Robb Engineering Co., Amherst, N.S.  
Sheldon & Sheldon, Galt, 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

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

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

### Explorer and Geologist

Evans, Horace F., Ashcroft, B.C.

### Factory Sites

(See Factory Locations, page 31.)  
Central Ontario Power Co., Peterboro, Ont.  
Hutchison, 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.

### Files

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

### Fillet (Pattern)

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.

### Fire Brick and Clay

Dunbar Fire Brick Co., Pittsburgh, Pa.  
Hamilton Facing Mill Co., Hamilton, Ont.  
Harrison-Walker Refractories Co., Pittsburgh, Pa.  
Pennsylvania Fire Brick Co., Lock Haven, Pa.  
Queen's Run Fire Brick Co., Lock Haven, Pa.  
Reese-Hammond Fire Brick Co., Boliver, Pa.  
Stowe-Fuller Co., Cleveland, Ohio.

### Fire Escapes

Darling Bros., Montreal.

### Fire Insurance

Inter-Insurers of America, New York City.

### Flour Mill Machinery

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

### Forges and Blowers

Canada Foundry Co., Toronto.  
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.

### 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

Goldie & McCulloch Co., Galt, Ont.  
Morrison, T. A. & Co., Montreal.

### 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.

### Glue Heaters

Advance Machinery Co., Toledo, Ohio.

### Glue Room Equipment

Advance Machinery Co., Toledo, Ohio.

### Government Notices

Factory Inspectors,  
Minister of Agriculture.

### Graphite

Dixon, Joe, Crucible Co., Jersey City, N.J.  
McCullough-Dalzell Crucible Co., Pittsburgh, Pa.  
Pittsburg Crucible Works, Pittsburg, Pa.

### Grease Cups

Penberthy Injector Co., Windsor, Ont.

### Hardware

Butterfield & Co., Rock Island, Que.  
Gartshore, 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-Chambers-Bullock, Limited, Montreal.  
Jenckes Machine Co., Sherbrooke, Que.

### Holsts (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.  
Reddaway, F. & Co., Montreal.  
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.

### 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.  
Wilson, J. C. & Co., Glenora, Ont.

### Industrial Plants

Von der Osten, E. & Co., Toronto.



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**Insulated Wires and Cables**

Phillips, Eugene F., Electrical Works, Montreal.

**Insurance**

Inter-Insurers of America, New York City.

**Iron and Steel Specialties**

Armstrong Mfg. Co., Bridgeport, Conn.  
 Borno-Fuller Co., Cleveland, Ohio.  
 Canada Foundry Co., Toronto.  
 Leslie, A. C. & Co., Montreal.  
 Lion-Long Rolling Mill Co., London, Ont.  
 Lytton, John, Limited, Bristol, England and Montreal.  
 Nova Scotia Steel & Coal Co., New Glasgow, N.S.  
 Petrie, H. W., Toronto.  
 Union Drawn Steel Co., Hamilton, Ont.

**Injectors**

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

**Iron and Steel Inspection**

Hunt, R. W. &amp; 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.  
 Subbeam Incandescent Lamp Co., Toronto and St. Catharines, Ont.

**Lathes**

Barnes, B. F. Co., Rockford, Ill.  
 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 Beeds**

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

**Lubricators**

Penberthy Injector Co., Windsor, Ont.

**Machinists**

Goldie & McCulloch Co., Galt, Ont.  
 Ebb Engineering Co., Amherst, N.S.  
 Worth & Martin, Toronto.

**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.  
 Worth & Martin, Toronto.

**Machine Tools**

Barnes, B. F. Co., Rockford, Ill.  
 Becker-Brainard Milling Machine Co., Hyde Park, Mass.  
 Darling Bros., Montreal.  
 Petrie, H. W., Toronto.

**Malleable Castings**

International Harvester Co., Hamilton, Ont.  
 Smith's Falls Malleable Castings Co., Smith's Falls, Ont.

**Marine and Stationary Engines and Boilers**

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

**Mechanical Draft**

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

**Metal Stamping**

Gobe Machine &amp; Stamping Co., Cleveland, Ohio.

**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.  
 Hawksworth, Alfred & Sons Co., Montreal.  
 Hay, Peter Knife Co., Galt, Ont.  
 Hopkins, F. H. & Co., Montreal.  
 Jeffrey Mfg. Co., Columbus, Ohio.  
 Jencks 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.  
 Penberthy Injector Co., Windsor, Ont.  
 Petrie, H. W., Toronto.  
 Reddaway, F. & Co., Montreal.  
 Robb Engineering Co., Amherst, N.S.  
 Spence, R. & Co., Hamilton, Ont.  
 Wilson, J. C. & Co., Glenora, 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 Hand Drill Co., Sherbrooke, Que.  
 Corbett, R. B., Brooklyn, N.Y.  
 Gartshore, John J., Toronto.  
 Hamilton, Wm. Mfg. Co., Peterborough, Ont.  
 Hopkins, F. H. & Co., Montreal.  
 Jeffrey Mfg. Co., Columbus, Ohio.  
 Jencks 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.  
 Corbett, R. B., Brooklyn, N.Y.  
 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.  
 United Electric Co., Toronto.

**Moulding Sand**

Hamilton Facing Mills Co., Hamilton, Ont.

**Nickel**

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

**Novelty Manufacturers**

Worth &amp; Martin, Toronto.

**Nozzles**

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

**Office and Bank Fittings**

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

**Oils and Lubricants**

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

**Oil Cloth**

Dominion Oil Cloth Co., Montreal.

**Oil Cups**

Penberthy Injector Co., Windsor, Ont.

**Paints and Colors**

Berry Bros., Walkerville, Ont.  
 Geigy Aniline & Extract Co., New York City.  
 McArthur, Cornelle & Co., Montreal.

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

**Patents**  
Budden, Hanbury A., Montreal.  
Fetherstonhaugh & Co., Toronto.  
Manon & Marion, Montreal.

**Perforated Metals**  
Globe Machine & Stamping Co., Cleveland, Ohio.  
Greening, B. Wire Co., Hamilton, Ont.

**Personal Accident**  
Canadian Casualty & Boiler Insurance Co., Toronto.

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

**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)**  
Babeock & 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.  
Corbett, R. B., Brooklyn, N.Y.  
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-Dalzell Crucible Co., Pittsburg, Pa.  
Pittsburg Crucible Works, Pittsburg, Pa.

**Pneumatic Tools**  
Allis-Chalmers-Bullock, Limited, Montreal.  
Canadian Rand Drill Co., Sherbrooke, Que.

**Pointer Rolls (For Rods and Wire)**  
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

**Power Plants - Equipments**  
Allis-Chalmers-Bullock, Limited, Montreal.  
Babeock & Wilcox, Limited, Montreal.  
Canadian General Electric Co., Toronto.  
Canadian Westinghouse Co., Ltd., Hamilton, Ont.  
Corbett, R. B., Brooklyn, N.Y.  
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.

**Presses (Tile, Sewer Pipe, Nozzles and Sleeves)**  
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.  
Sturtevant, B. F. Co., Boston, Mass.  
Toronto & Hamilton Electric Co., Hamilton, Ont.  
United Electric Co., Toronto.  
Wilson, J. C. & Co., Glenora, Ont.

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

**Presses (Tie, Sewer Pipe, Nozzles and Sleeves)**  
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.  
McLaren, J. C., Belting Co., Montreal and Toronto.  
Petrie, H. W., Toronto.  
Wilson, J. C. & Co., Glenora, Ont.

### Pumps and Pumping Machinery

Allis-Chalmers-Bullock, Limited, Montreal.  
American Steam Pump Co., Battle Creek, Mich.  
Canada Foundry Co., Toronto.  
Corbett, R. B., Brooklyn, N.Y.  
Darling Bros., Montreal.  
Downie Pump Co., Downsville, Pa.  
Goldie & McCulloch Co., Galt, Ont.  
Jeneke Machine Co., Sherbrooke, Que.  
Kerr Engine Co., Walkerville, Ont.  
Morris Machine Works, Baldwinville, N.Y.  
McDougall, John, Caledonian Iron Works Co., Montreal.  
Ontario Wind Engine & Pump Co., Toronto.  
Petrie, H. W., Toronto.

**Punches and Shears**  
Globe Machine & Stamping Co., Cleveland, Ohio.  
Petrie, H. W., Toronto.

**Purifiers**  
Babeock & Wilcox, Limited, Montreal.  
Goldie & McCulloch Co., Galt, Ont.  
McDougall, John, Caledonian Iron Works Co., Montreal.

**Purifying and Softening Systems (Water)**  
Babeock & Wilcox, Limited, Montreal.  
Darling Bros., Montreal.  
McDougall, John, Caledonian Iron Works Co., Montreal.

**Railroads**  
Chicago & North-Western Ry., Toronto and St. Paul, Minn.

**Railway Supplies**  
Alzema Steel Co., Sault Ste. Marie, Ont.  
Allis-Chalmers-Bullock, Limited, Montreal.  
Gartshore, John J., Toronto.  
Greening, B. Wire Co., Hamilton, Ont.  
Gutta Percha & Rubber Mfg. Co., Toronto.  
Hopkins, F. H. & Co., Montreal.  
Nova Scotia Steel & Coal Co., New Glasgow, N.S.  
Phillips, Eugene F., Electrical Works, Montreal.

**Beamers**  
Butterfield & Co., Rock Island, Que.

**Rivets**  
Bourne-Fuller Co., Cleveland, Ohio.  
London Rolling Mills, London, Ont.

**Rock and Ore Crushers**  
Allis-Chalmers-Bullock, Limited, Montreal.  
Bradley Pulverizer Co., Boston, Mass.

**Rolling Mill Engineers**  
Bourne-Fuller Co., Cleveland, Ohio.

**Roofing**  
Bourne-Fuller Co., Cleveland, Ohio.

**Rubber Goods**  
Gutta Percha & Rubber Mfg. Co., Toronto.

**Rubber Packing**  
Gutta Percha & Rubber Mfg. Co., Toronto.

**Rubber Washing Tubs**  
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

**Rural Mail Boxes**  
Globe Machine & Stamping Co., Cleveland, Ohio.

**Safes and Vaults**  
Goldie & McCulloch Co., Galt, Ont.

**Saw Mill Machinery**  
Allis-Chalmers-Bullock, Limited, Montreal.

**Screws**  
Morrow, John, Machine Screw Co., Ingersoll, Ont.

**Screw Plates**  
Armstrong Mfg. Co., Bridgeport, Conn.  
Butterfield & Co., Rock Island, Que.

**Shafting**  
Allis-Chalmers-Bullock, Limited, Montreal.  
Bourne-Fuller Co., Cleveland, Ohio.  
Goldie & McCulloch Co., Galt, Ont.  
Jeffrey Mfg. Co., Columbus, Ohio.  
McDougall, John, Caledonian Iron Works Co., Montreal.  
Nova Scotia Steel & Coal Co., New Glasgow, N.S.  
Petrie, H. W., Toronto.

**Shapers and Carvers**  
Advance Machinery Co., Toledo, Ohio.

**Shear Knives**  
Hay, Peter Knife Co., Galt, Ont.

**Sheets (Iron and Steel)**  
Bourne-Fuller Co., Cleveland, Ohio.  
Leslie, A. C. & Co., Montreal.  
Lysaght, John Limited, Bristol, England.

**Sheet Metal Goods**  
Globe Machine & Stamping Co., Cleveland, Ohio.

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**Sheet Metal Stamping**  
 Machine & Stamping Co., Cleveland, Ohio.

**Smoke Stacks**  
 Hamilton, Wm. Mfg. Co., Peterborough, Ont.  
 Dougall, John, Caledonian Iron Works Co., Montreal.  
 Engineering Co., Amherst, N.S.

**Solder**  
 Machine & Stamping Co., Cleveland, Ohio.  
 Syracuse Smelting Co., Montreal.

**Special Machinery**  
 Chambers-Bullock, Limited, Montreal.  
 Machine & Stamping Co., Cleveland, Ohio.

**Speed Recorders**  
 Co., Waterbury, Conn.

**Sprinkler Insurance**  
 Canadian Casualty & Boiler Insurance Co., Toronto

**Stamps and Stencils**  
 Machine & Stamping Co., Cleveland, Ohio.

**Steam Pumps**  
 Chambers-Bullock, Limited, Montreal.  
 American Steam Pump Co., Battle Creek, Mich.  
 Foundry Co., Toronto.  
 Bros., Montreal.  
 & McCulloch Co., Galt, Ont.  
 Dougall, John, Caledonian Iron Works Co., Montreal.  
 H. W., Toronto.  
 Evans, A. R. Machinery Co., Toronto.

**Steam Separators**  
 Brock & Wilcox, Limited, Montreal.  
 Bros., Montreal.  
 Engineering Co., Amherst, N.S.  
 & Sheldon, Galt, Ont.

**Steam Shovels**  
 Chambers-Bullock, Limited, Montreal.

**Steam Specialties**  
 Bros., Montreal.  
 Berthy Injector Co., Windsor, Ont.  
 & Sheldon, Galt, Ont.  
 Grant, B. F. Co., Hyde Park, Mass.

**Steam Valves**  
 American Steam Pump Co., Battle Creek, Mich.  
 Brock & Wilcox, Limited, Montreal.  
 Bros., Montreal.  
 Engine Co., Walkerville, Ont.  
 H. W., Toronto.  
 Evans, A. R. Machinery Co., Toronto.

**Steel Rails**  
 Steel Co., Sault Ste. Marie, Ont.  
 & McCall & Co., Montreal and Toronto.  
 John J., Toronto.  
 F. H. & Co., Montreal.

**Steel Shafting**  
 Bros., Montreal.  
 & McCulloch Co., Galt, Ont.  
 Wm. Mfg. Co., Peterborough, Ont.  
 A. C. & Co., Montreal.  
 Dougall, John, Caledonian Iron Works Co., Montreal.  
 Inverna Steel & Coal Co., New Glasgow, N.S.  
 J. C. & Co., Glenora, Ont.

**Stocks and Dies**  
 Strong Mfg. Co., Bridgeport, Conn.  
 & Co., Rock Island, Que.  
 H. W., Toronto.  
 & Martin, Toronto.

**Stoppers**  
 Dalzell Crucible Co., Pittsburg, Pa.  
 Crucible Works, Pittsburg, Pa.

**Structural Steel**  
 Miller Co., Cleveland, Ohio.  
 Foundry Co., Toronto.  
 H. & Co., Montreal.

**Sulphate of Alumina**  
 Chemical Co. of Canada, Montreal.

**Suspension Furnaces**  
 Iron Works Co., New York City.

**Tanks (Oil and Water)**  
 Foundry Co., Toronto.  
 R. B., Brooklyn, N.Y.  
 & McCulloch Co., Galt, Ont.

Hamilton, Wm. Mfg. Co., Peterborough, Ont.  
 Jenckes Machine Co., Sherbrooke, Que.  
 McDougall, John, Caledonian Iron Works Co., Montreal.  
 Ontario Wind Engine & Pump Co., Toronto.

**Taps and Dies**  
 Butterfield & Co., Rock Island, Que.  
 Globe Machine & Stamping Co., Cleveland, Ohio.

**Tees**  
 Bourne-Fuller Co., Cleveland, Ohio.  
 Canada Foundry Co., Toronto.

**Textile Manufacturers**  
 Dominion Oil Cloth Co., Montreal.  
 Smith Mfg. Co., Toronto.  
 Storey, W. H. & Sons, Acton, Ont.

**Textile Supplies**  
 McLaren, J. C. Belting Co., Montreal and Toronto.

**Thermometers (Recording)**  
 Bristol Co., Waterbury, Conn.

**Tin**  
 Leslie, A. C. & Co., Montreal.  
 Syracuse Smelting Works, Montreal.

**Tool Grinders**  
 Barnes, B. F. Co., Rockford, Ill.

**Tool Steel**  
 Bourne-Fuller Co., Cleveland, Ohio.  
 Hopkins, F. H. & Co., Montreal.  
 Leslie, A. C. & Co., Montreal.

**Trucks**  
 Corbett, R. B., Brooklyn, N.Y.  
 Hopkins, F. H. & Co., Montreal.  
 McDougall, John, Caledonian Iron Works Co., Montreal.  
 Sheldon & Sheldon, Galt, Ont.

**Trucks (Railway)**  
 Canada Foundry Co., Toronto.

**Trucks (Wire Mill Supplies)**  
 Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

**Tubs (Cleaning and Coating Wire)**  
 Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

**Tumbling Barrels**  
 Globe Machine & Stamping Co., Cleveland, Ohio.

**Turbines**  
 Canada Foundry Co., Toronto.  
 Hamilton, Wm. Mfg. Co., Peterborough, Ont.  
 Jenckes Machine Co., Sherbrooke, Que.  
 Wilson, J. C. & Co., Glenora, Ont.

**Valves**  
 American Steam Pump Co., Battle Creek, Mich.  
 Babcock & Wilcox, Limited, Montreal.  
 Canada Foundry Co., Toronto.  
 Hamilton Brass Mfg. Co., Hamilton, Ont.  
 Kerr Engine Co., Walkerville, Ont.  
 Petrie, H. W., Toronto.  
 Williams, A. R. Machinery Co., Toronto.

**Valves (Rubber)**  
 Gutta Percha & Rubber Mfg. Co., Toronto.

**Varnishes**  
 Berry Bros., Walkerville, Ont.

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

**Wagon and Carriage Wood Work**  
 Hore, F. W. & Son, Hamilton, Ont.

**Washers or Hollinders (Cleaning Rubber)**  
 Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

**Watchman's Clocks**  
 Eco Magneto Clock Co., Boston, Mass.

**Water Power Development**  
 Vogel, C. H., Ottawa.

**Water Purifying Chemicals**  
 Canada Chemical Mfg. Co., London, Ont.

**Windmills**  
 Ontario Wind Engine & Pump Co., Toronto.

**Wire Mill Supplies**  
 Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

**Wire and Wire Rope**  
 Dominion Wire Rope Co., Montreal.  
 Greening, B. Wire Co., Hamilton, Ont.  
 Leslie, A. C. & Co., Montreal.  
 Phillips, Eugene F. Electrical Works, Montreal.

**Wire Rope Fittings**  
 Dominion Wire Rope Co., Montreal.

**Wire Cloth**  
 Greening, B. Wire Co., Hamilton, Ont.

**Wire Drawing Machinery**  
 Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio

**Wood-Working Machinery**  
 Advance Machinery Co., Toledo, Ohio.  
 Goldie & McCulloch Co., Galt, Ont.  
 Petrie, H. W., Toronto.  
 Sheldon & Sheldon, Galt, Ont.  
 Williams, A. R. Machinery Co., Toronto.

**Zinc**  
 Leslie, A. C. & Co., Montreal.  
 Syracuse Smelting Works, Montreal.

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J. J. CASSIDY, Manager.

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NAMES.	Place.	Fre- quency	Their Price	Com- bina- tion.	NAMES	Place.	Fre- quency	Their Price	Com- bina- tion
American Architect	New York	Weekly	\$6 00	\$6 25	Illustrated London News	London	Weekly	\$6 00	\$6 25
American Electrician	New York	Monthly	1 00	1 25	Inter-Ocean	Chicago	Weekly	1 00	1 25
American Federationist	Washington	Monthly	1 00	1 25	Iron Age	New York	Weekly	5 00	5 25
American Inventor	New York	Monthly	1 50	1 75	Ironmonger	London	Weekly	4 00	4 25
Architect and Builders Magazine	New York	Monthly	2 00	2 25	Ladies' Home Journal	Philadelphia	Monthly	1 25	1 50
Architectural Record	New York	Monthly	3 00	3 25	Leslies' Monthly Magazine	New York	Monthly	1 00	1 25
Architectural Review	London	Monthly	4 00	4 25	Literary Digest	New York	Weekly	3 00	3 25
Atlantic Monthly	Boston	Monthly	4 00	4 25	Machinery (Engineering Edition)	New York	Monthly	2 00	2 25
Boys' Own Paper	London	Weekly	1 75	2 00	McClure's Magazine	New York	Monthly	1 00	1 25
Brick-Builder	Boston	Monthly	5 00	5 25	Mines and Minerals	Scranton	Monthly	2 00	2 25
British Architect	London	Weekly	6 00	6 25	Modern Methods	Detroit	Monthly	50	1 50
Buffalo Express, Illustrated	Buffalo	Weekly	2 00	2 25	Montreal Herald	Montreal	Daily	3 00	3 25
Builders' Journal	London	Weekly	3 50	3 75	Montreal La Presse	Montreal	Daily	3 00	3 25
Camera	Philadelphia	Monthly	1 00	1 25	Montreal Witness	Montreal	Daily	3 00	3 25
Canada First	Toronto	Monthly	1 00	1 25	Motor Age	Chicago	Weekly	2 00	2 25
Canadian Magazine	Toronto	Monthly	2 50	2 75	Motoring, Illustrated	London	Weekly	2 25	2 50
Cassiers' Magazine	New York	Monthly	3 00	3 25	Municipal Journal	New York	Monthly	3 00	3 25
Chemical News	London	Weekly	5 25	5 50	National Builder	Chicago	Monthly	2 00	2 25
Colliers' Weekly	New York	Weekly	5 20	5 25	National Monthly	Toronto	Monthly	1 00	1 25
Commercial Intelligence	London	Weekly	5 00	5 25	New York Clipper	New York	Weekly	4 00	4 25
Compressed Air	New York	Monthly	1 00	1 25	New York Commercial	New York	Daily	6 00	6 25
Cooking School Magazine	Boston	Monthly	1 00	1 25	North American Review	New York	Monthly	5 00	5 25
Cornhill Magazine	London	Monthly	2 50	2 75	Our Dumb Animals	Boston	Monthly	50	75
Delmeator	New York	Monthly	1 00	1 25	Outing	New York	Monthly	3 00	3 25
Electrical Engineer	London	Weekly	4 50	4 75	Ottawa Citizen	Ottawa	Daily	3 00	3 25
Electrical Magazine	London	Monthly	2 25	2 50	Ottawa Free Press	Ottawa	Daily	3 00	3 25
Electrical Review	London	Weekly	5 75	6 00	Pearson's Magazine	New York	Monthly	1 00	1 25
Electrical World and Engineer	New York	Weekly	3 00	3 25	Photographic Journal	London	Monthly	2 00	2 25
Electrician	London	Weekly	7 30	7 50	Photographic Times	New York	Weekly	1 00	1 25
Electro-Chemical Industry	New York	Monthly	2 00	2 25	Photography	London	Weekly	2 25	2 50
Engineering and Mining Journal	New York	Weekly	5 00	5 25	Popular Science Monthly	New York	Monthly	3 00	3 25
Engineering Review	New York	Monthly	1 00	1 25	Power	New York	Monthly	1 00	1 25
Engineering Review (Fieldens)	London	Monthly	3 05	3 25	Queen, The	London	Weekly	10 00	10 25
Everybody's Magazine	New York	Monthly	1 00	1 25	Review of Reviews	London	Monthly	2 00	2 25
Field and Stream	New York	Monthly	1 50	1 75	Scientific American	New York	Weekly	3 00	3 25
Forest and Stream	New York	Weekly	4 00	4 25	Scribners' Magazine	New York	Monthly	3 00	3 25
Four Track News	New York	Monthly	1 00	1 25	Sporting Times	London	Weekly	3 00	3 25
Gentleman's Magazine	London	Monthly	4 00	4 25	Street Railway Journal	New York	Monthly	3 00	3 25
Girl's Own Paper	London	Weekly	1 75	2 00	Toronto Saturday Night	Toronto	Weekly	2 00	2 25
Good Housekeeping	Toronto	Monthly	1 00	1 25	Toronto Sunday World	Toronto	Weekly	2 00	2 25
Good Road's Magazine	New York	Monthly	1 00	1 25	Youth's Companion	Boston	Weekly	1 75	2 00
Hardware Dealers' Magazine	New York	Monthly	1 00	1 25	Weldon's Ladies' Journal	London	Monthly	1 25	1 50
Harpers' Magazine	New York	Monthly	4 00	4 25	Winnipeg Free Press	Winnipeg	Daily	3 00	3 25
Harpers' Weekly	New York	Weekly	4 00	4 25					

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