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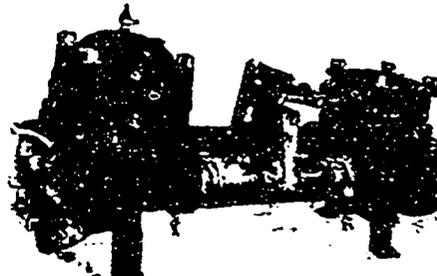
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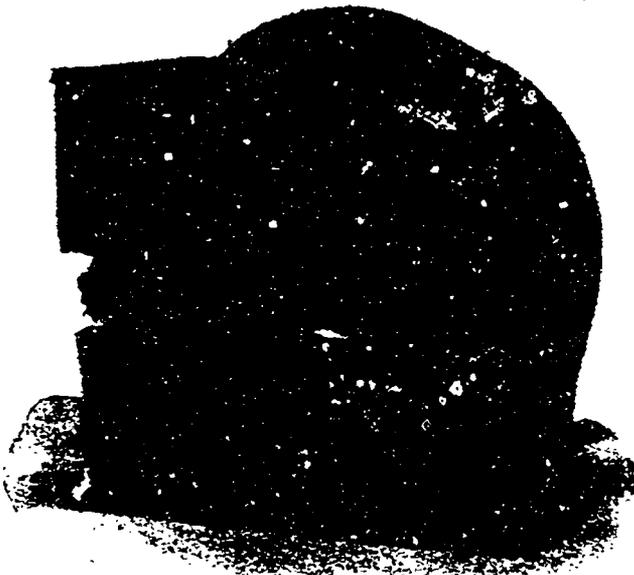
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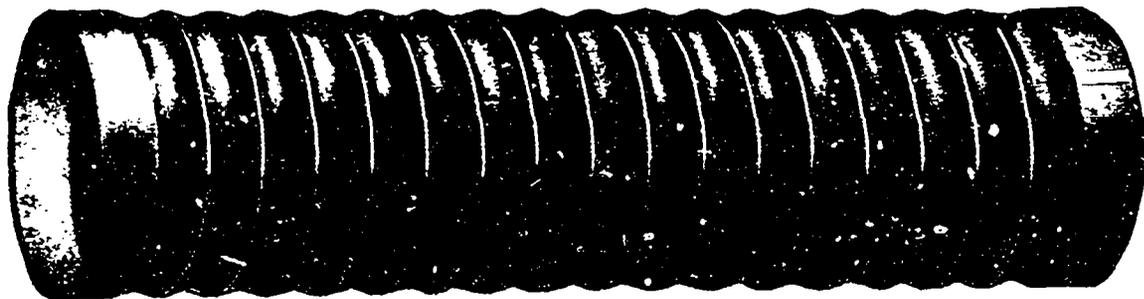


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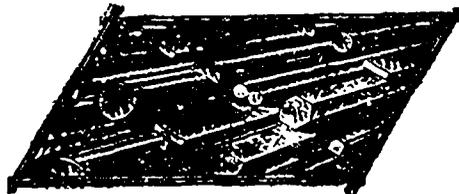
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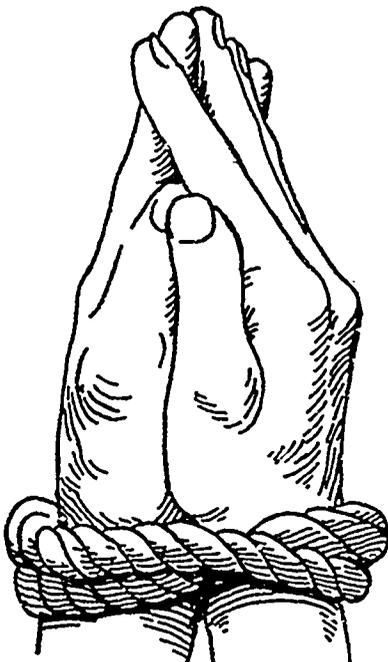
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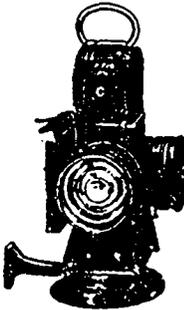
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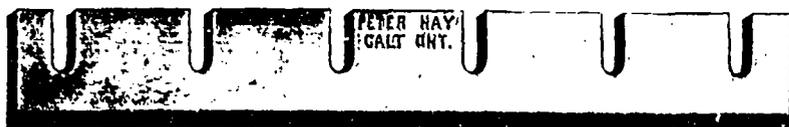
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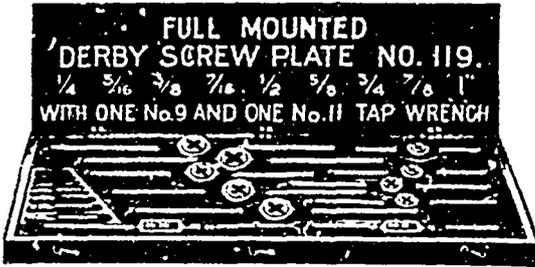
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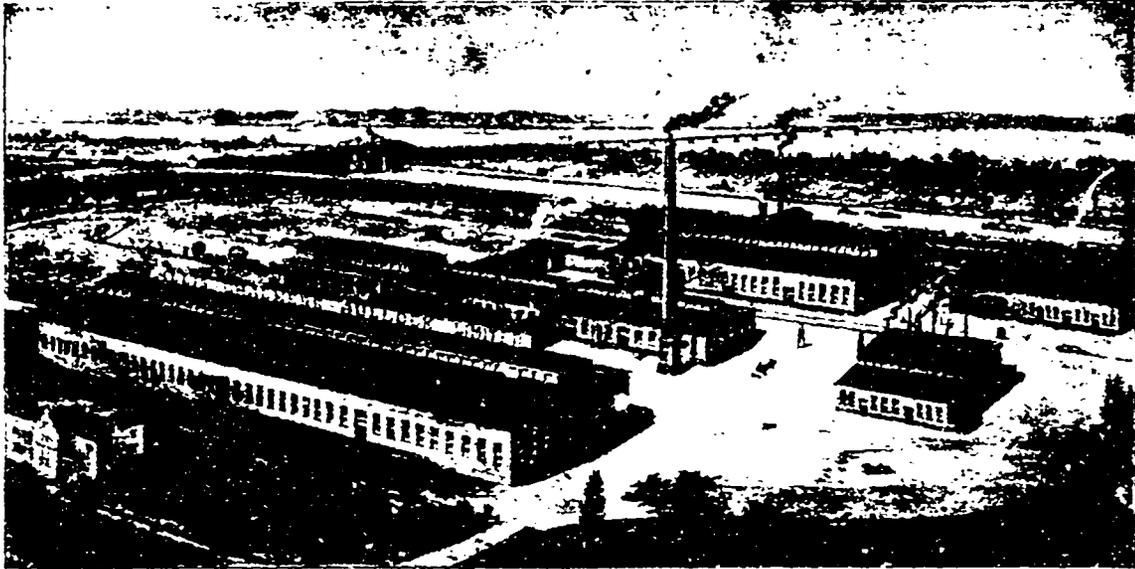
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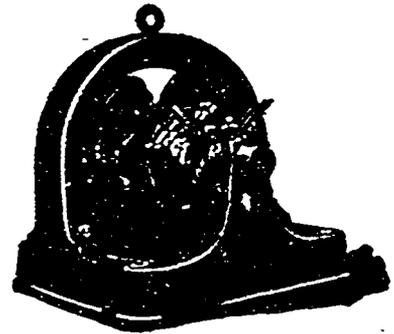
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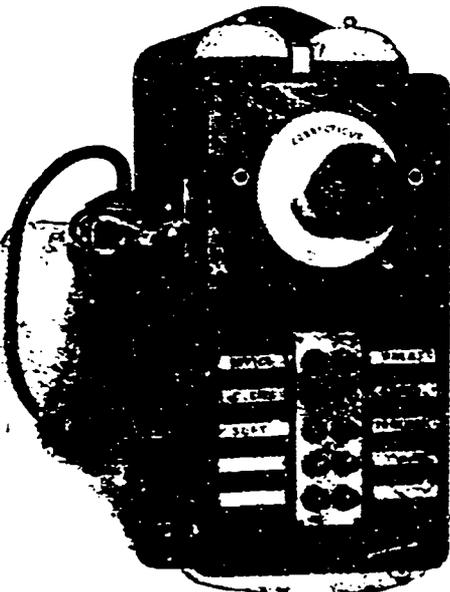
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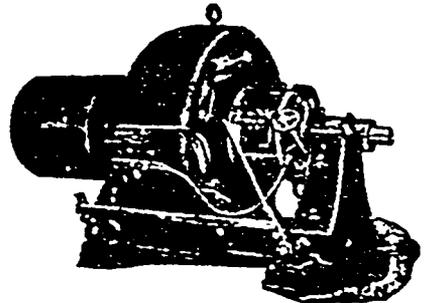
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TABLES

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	7	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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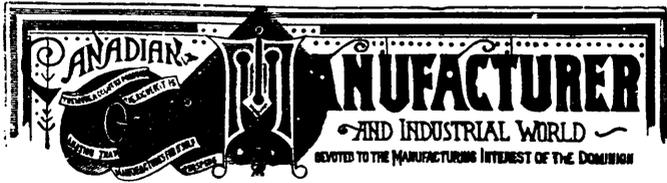
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J. J. CASSIDEY, Editor and Manager

Classified IndexPage 37

Index to AdvertisersPage 45

THE NEED OF THE IRON INDUSTRY.

A few years ago both political parties of Canada came to the conclusion that the establishment of a great iron and steel industry would be so advantageous to the Canadian people that it would be worth while to pay liberally for it. Both parties were agreed that the encouragement given to the industry should be partly in the form of tariff protection, and partly in the form of bounties. There were some differences of opinion as to whether there should be a high tariff and small bounties, or a low tariff and large bounties. The view that prevailed was that bounties should be largely substituted for tariff protection, and when the liberal Minister of Finance reduced the tariff protection and proposed generous bounties, the conservative leaders, while not favoring the tariff reduction, fully endorsed the proposal for increased bounties. It thus became the settled policy irrespective of party to build up a great iron and steel industry. This decision was largely influenced by the following facts: (1) Iron and steel are used as materials in a great variety of industries, and it was realized that so long as our manufacturers were entirely dependent upon foreign sources for their supplies they must pay excessive prices at times, and run the risk of not securing sufficient supplies during any period of scarcity. The leading men of both political parties believed that the establishment of a home iron and steel industry would eventually have the effect of decreasing prices to Canadian consumers while ensuring a more certain supply of materials to manufacturers.

(2) It was recognized that the development of an iron and steel industry would, by creating a demand for iron ore, limestone, charcoal, coke, etc., give value to natural resources that must otherwise lie dormant.

(3) That it would give employment to a large number of men in taking the materials out of the ground as well as in turning them into finished products, and that these workmen and their families would all require to eat Canadian farm products.

(4) That it would keep in circulation within the Dominion a vast amount of money that would otherwise

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 during the present 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.

go to foreign countries, thus benefitting every branch of Canadian trade.

(5) That the initial difficulties of starting an iron industry were so great, owing to the great cost of the plant and the necessity for prolonged experiments with raw materials, that the industry had never been established in any country without Government assistance.

The bounties offered attracted many millions of capital for investment in the industry, but it requires very much longer time to construct large iron and steel works than the Government calculated, and consequently, as the bounties decreased from year to year, by the time the new works were in operation the Government's share of the cost of manufacturing was greatly reduced, and the national outlay was thus considerably less than was anticipated when the policy was adopted. The Government immediately received great additions to its revenues as a result of the establishment of these new works. Long before the government was called upon to pay a cent in bounties it derived a very large revenue directly from imports of machinery and various materials required in the construction of the works. The large number of men employed in construction work were all consumers of imported products upon which customs duties were paid. It is no exaggeration to say that the new iron and steel works, during the course of construction, added to the government revenues far more than sufficient to pay the bounties due for the output of the works that were already in operation before the bounties were increased. Since the completion of the works the government have derived a very large annual revenue from the towns that have grown up around them. The government practically became partners in this industry, and if the increased national revenues be regarded as interest on the amount invested, it must be admitted that up to the present time the country has received a larger return for its investment than the capitalists who put their money into the works, for it is a well known fact that most of the investors in Canadian iron and steel works have received absolutely no profits as yet.

The government have gone so far in the support of this industry that they cannot stop half way. They must complete their work. Various causes have served to keep the iron schedules of the tariff "a thing of shreds and patches" rather than a well thought out, scientific arrangement, permitting of the pig iron produced by Canadian furnaces being worked up into finished products used by the Canadian people.

The encouragement given up to the present time has brought about the establishment of blast furnaces that are producing on an average about 1675 ton of iron per day from the following furnaces:—

COKE FURNACES.	
	Tons.
Dominion Iron & Steel Co., four furnaces, capacity 1,000 tons, two furnaces running, producing per day about.....	500
Algoma Steel Co., Sault Ste. Marie, two furnaces producing per day about.....	450
North Sydney, one furnace producing per day about.....	250
Londonderry, N.S., one furnace, producing per day about.....	100
Hamilton, one furnace producing per day about.....	175
Midland, one furnace producing per day about.....	130
CHARCOAL FURNACES.	
Radnor Forges, Que., one furnace producing per day.....	25
Drummondville, Que., one furnace producing per day.....	10
Deseronto, one furnace producing per day about.....	35
Total.....	1,675

If the furnaces at present in blast (eleven in number) were run regularly throughout the year, say 325 days, they would produce about 540,000 tons. If the two additional furnaces at Sydney, now silent, were run, they would add a further 500 tons per day. We have in prospect the building of two new furnaces, one at the Soo and one at Midland, with combined capacity of say 500 tons per day. The product of these furnaces taken together with the output of those now in blast would give us about 865,000 tons per annum.

Now, to make it possible for these blast furnaces to continue in operation and find an outlet for their product, the government must extend their tariff logically to cover the lines of finished iron and steel that have not yet been manufactured in Canada. For that reason the tariff must be increased on steel billets, (for which there is an excellent and immediate market, as the blue books will show), on structural steel, boiler and tank plates, hoops, bands, sheets, boiler tubes and other forms of iron and steel. If the government cannot see its way to follow the American plan of immediately putting on the duty and thus bringing about at once the natural development of the industry, they should at least give to capital the assurance that the moment

plants are erected for the manufacture and supply of any of these staple articles in iron and steel, the same degree of encouragement, in the form of bounties and duties will be given to them as is already given to established lines. That such a policy would soon result in the establishment of new industries for the manufacture of these lines must be evident to the government in view of the result of the duty of seven dollars per ton they now impose on steel rails, and the bounty of six dollars per ton they grant to wire rods. Although steel rails and wire rods were not manufactured in Canada at the time the government announced its intention of giving such encouragement, capital was immediately forthcoming, works were rapidly pushed to completion, and already the combined tonnage of steel rails at the Soo and Sydney is from 900 to 1,000 tons per day, or an aggregate of from 260,000 to 300,000 tons per annum, while the Dominion Iron & Steel Co. is turning out about 7,000 tons of wire rods per month, for which they have an excellent market.

To show what effect the tariff has on the production of these mills, it is easy to see that the reason why the Dominion Iron & Steel Co. are not making steel billets for sale to the trade is that they find a much more profitable market in steel rails and wire rods, because a fair degree of protection and encouragement is given on the two latter lines, whereas the duty on steel billets is merely nominal, and will never bring about the manufacture in Canada of this special line for sale to the trade.

When the tariff is revised it should grant higher protection to the basic product, pig iron, than it now enjoys, and the bounty system should be extended for a reasonable period. A reference to the blue books will show that on account of the British preference, and the yearly reduction that has taken place in the bounties on pig iron, this branch of Canadian industry has suffered a greater reduction in government support since 1897 than any other line of business, whereas, as a matter of fact, it requires, to establish a Canadian iron industry, more consistent protection, and for a longer period than perhaps any other industry and enterprise in operation in the country. This is because it requires a larger investment of capital to establish the industry, and the risk to investors is greater in case of failure than in any other line, inasmuch as the blast furnace cannot be sold for any other purpose than that of the production of iron. Then there is the difficulty of securing and operating mines, testing ores, and so forth, which involve great expense and long continued experiments.

With respect to the statement regarding the reduction in tariff and bounty encouragement since 1897, it may be pointed out that previous to the bounty act of 1897 Canadian manufacturers of pig iron were given a protection by Customs duty of four dollars per net ton, and a bounty of two dollars per net ton, a total encouragement of six dollars per ton. The Act of 1897 cancelled this and gave instead a Customs duty of \$2.50 per ton, and a bounty of three dollars per ton, when Canadian ore was used, or one-third less when foreign ore was used, a total encouragement of \$5.50 per ton when Canadian

ore alone was used. This was subject to a reduction of $12\frac{1}{2}$ per cent. by the British preference, which did not go into effect until sometime afterward, and this preference was subsequently increased to 25 per cent., and then to $33\frac{1}{3}$ per cent., bringing down the minimum tariff protection to \$1.67 per ton. The reduction of course applied to other lines of industry as well, but there was this difference. The maximum tariff protection on pig iron had been reduced by $37\frac{1}{2}$ per cent. with the understanding that increased bounties should offset the reduction, but the bounties decreased ten per cent. per annum at the same time that the tariff protection was being also reduced. In some lines of manufacture the government carefully increased the general tariff in order to partially offset the preferential rate, but the opposite course was pursued regarding the iron industry. The preference was seemingly not taken into consideration when the government fixed the duty at \$2.50 per ton, which was a reduction on what they themselves designed to be the minimum duty they intended to impose. Since 1897 the bounty has gradually been reduced, and the position to-day is that Canadian makers only enjoy a minimum tariff of \$1.67 per ton, and a bounty of \$1.65 per ton, or a total encouragement of \$3.32 per ton, as against \$6 per ton before the tariff revision of 1897, and \$5.50 per ton immediately after the tariff revision. Unless the bounties are revised and extended this will be further reduced on the thirtieth of next June, the expiration of the current fiscal year. It must be plain to anyone who looks into the question that it is impossible for the Canadian furnaces to go ahead to a successful development on the present rate of duty and bounty. These should be revised and made to approximate more closely to the encouragement given in 1897 before the British preference went into effect, and then the duties should be logically arranged on the higher finished articles so as to give an equivalent protection to labor employed all along the line, and ensure a home market for the output of Canadian blast furnaces.

We do not wish to be understood as advocating a reduction in the rate of the British preference. We are in favor of continuing to give British products a preference over foreign products, but the general tariff rate should be so increased that when this preference is granted the minimum encouragement to Canadian industry will be adequate.

The iron industry employs more labor in proportion to the value of the product than any other industrial enterprise. It is as much a natural industry, taking its wealth from the ground, as agriculture, but owing to the great cost of the plant and the difficulty in finding suitable ores during the early stages of development, it cannot get a foothold without special encouragement.

SHOULD CANADA PROMOTE A TIN PLATE INDUSTRY?

One of the most remarkable features of the investigations of the Tariff Commission in their peregrinations throughout the country was the appearance in all places where investigations and hearing were held of manu-

facturers who, while asking that adequate tariff protection be guaranteed to their own particular industries, in the strongest terms possible demanded that nothing whatever be done in the way of encouragement to the manufacture of tin plates in Canada. A great diversity of opinion was developed among manufacturers as to the amount of duty that should be placed upon particular lines of merchandise, depending always upon whether the article under discussion was the raw material or finished product of the manufacturer, but in all instances where tin plate was the subject of discussion, there was unanimity of opinion that that article should remain in the free list.

Coincident with these discussions a brochure appeared in which the tin plate question was very fully discussed, from the standpoint of those who objected to any duty being imposed upon the article; and it was to be noticed that the views of the manufacturers who addressed the Commission coincided very closely with the arguments and language of the pamphlet, which they had evidently studied.

The gist of the objections to the establishment of a tin plate industry in Canada by adequate tariff protection was summarized in the pamphlet as follows. It says:

"There are probably used in Canada to-day every known grade and character of the tin plate mill product that is being produced either in the mills of England or the United States. The users of this class of materials are as far advanced as are those of any other country in the art of turning out such articles as cans for vegetables, fruits, paints, tomatoes, oysters, lard, lobsters and fish of all kinds; and tins and cans of the numerous descriptions used by various manufacturers for putting up preparatory articles; building materials, roofing material such as metal shingles, metal ceilings, metal sidings, etc.; dairy supplies of all kinds used by farmers; household tinware of all kinds and descriptions, and a thousand and one articles which are in daily use in every home in the Dominion. * * * *

"In the starting of a tin mill * * * there must follow the production of charcoal plates of a high finish and in a quality that will stand the most severe tests in stamping and drawing dies.

"There must also be produced what is known as 'dairy sheets,' running in sizes as high as 48 inches in width by 96 inches in length, in the very heavy gauges, and of a quality the very best, suitable for making dairy utensils.

"Then comes the taggers tin in both common and charcoal quality, 36 and 38 gauges, which is more difficult to make entirely satisfactory on account of the thinness of the sheets.

"Lead coated roofing plates are also required, as are also black sheets of special finish.

"It is evident that a single plant with limited capacity could not hope to enter the field with more than a chance of securing a share of the trade in the common grades of coke tin plates.

"So far as producing many of the lines of thin black sheets is concerned, which are now used in Canada, requiring special formulas in order to suit the work for which they are required, it is altogether out of the question, because this is an industry which has only recently been developed in Great Britain, and there are not more than two or three mills at the present time whose product can be thoroughly relied upon.

"When the population in Canada reaches a point

where the consumption is sufficient to warrant the establishment of such an industry, and a heavy protective tariff is justifiable, it is reasonable to suppose that works will be operated in close proximity to the then developed steel works, and at points which would have advantages in respect to transportation. * * * *

"If a step should be taken in the direction of putting a sufficient tariff on tin plates which might reasonably be expected under existing conditions, to guarantee their manufacture in Canada, it would revolutionize the trade in general. It would increase the cost of innumerable products, seriously crippling many industries. It is likely that more items in the tariff would be affected by such a step than could possibly be affected by any other change."

To give backbone and strength to its argument, the pamphlet, from a manufacturer's standpoint, publishes a diagram of some campaign literature which was printed upon a piece of tin plate and generously distributed in the interests of Grover Cleveland when he was last a candidate for president of the United States. Its shape and size was similar to an ordinary letter envelope, upon which was stated that "This is the kind of tin plate in which the farmers' tomatoes, peaches, peas, etc., and the fisherman's lobsters, oysters, fish, etc., are packed and preserved. The workingman's dinner pail, his cups, plates, dishes, wash bowls, saucepans and other household utensils are increased in cost by the McKinley tariff. This card is made of imported tin plate. It weighs 100 pounds per box, and sells in New York City for \$5.20. Out of this amount the United States Government receives \$2.20 by virtue of the McKinley tariff. Therefore without duty it is sold for \$3 per box. The consumer pays \$5.20 per box."

The quotations seem to exhaust the arguments of protected Canadian manufacturers against the establishment, by means of protection, of the much to be desired tin plate industry in Canada. It is surprising that protectionists should have advanced such arguments, well knowing that they are two-edged swords that can cut both ways; and it is also surprising that, being protectionists, they should have habilitated themselves in the worn out and rejected garments of the free-traders of the Cleveland stripe in the United States. Their arguments are neither new nor fresh, and are very misleading and unfair.

The objection to placing a duty on tin plate is that in some form or other they enter into the every day use of every man, woman and child in Canada, and that tin plates are not made in Canada, therefore it would be imposing an unjust burden on the people to tax tin plate. These free trade protectionists find their strong point in showing the slow and painful growth of the industry in the United States, and the improbability of an equally ultimately favorable result in Canada.

The population of the United States at the time of the going into effect of the McKinley tariff was, in round numbers, about 72,000,000. At this time the population of Canada is in round numbers, about 6,000,000, a difference of twelve to one.

In 1905 the imports of tin plates into Canada were 30,000 gross or 33,600 net tons, valued at \$1,751,507,

or 2.6 cents per pound. This amount distributed equally among the population of 6,000,000 would average a little less than 30 cents to each. If the imports had paid the McKinley duty of 2.2 cents per pound there would have been collected \$1,478,400, or 24 cents to each person, or 54 cents total. Would an additional tax of 24 cents per year to each person be a serious handicap to the prosperity of the country when it would mean the establishment of a tin plate industry which would make us independent of the world for the article?

We are also told that at the time the McKinley tariff came into effect, in 1891, there were no tin plates made in the United States, although the population at that time was 62,622,250, the importations of tin plate in foreign valuation amounting to \$25,909,305. This means that it cost each man, woman and child in the United States an average of 40 cents each for the tin plate used. This was 10 cents more per capita than it now costs Canadians.

After the going into effect of the McKinley tariff in 1891 the growth of the tin plate industry in the United States was phenomenal. Previous to that time census statistics regarding it were not separately collected, the production in 1890 being quite inconsequential. During the following decade, however, the development was remarkable, and in 1900 the United States had assumed a leading position in the production of tin plates, consuming over three-eighths of the world's estimated production of pig tin in that year. Mr. William G. Gray, of Philadelphia, was appointed expert special agent for collecting statistics for the census of 1900, and we are under obligations to him for many of the facts here stated. In his report he presented a series of tables relating to the subject, which show that in 1900 there was a capital of \$6,790,044 invested in the tin plate industry by the 57 active establishments reported for the United States. This sum represented the value of land, buildings, machinery, tools and implements, and the live capital utilized, but not the capital stock of any of the manufacturing corporations engaged in the industry. The value of the products was \$31,892,011, to produce which involved an outlay of \$291,323 for salaries of officials, clerks, etc.; \$1,889,917 for wages; \$236,456 for miscellaneous expenses, including rent, taxes, etc.; and \$26,728,150 for materials used, mill supplies, freight and fuel. That was the result achieved in eight and a half years after the going into effect of the McKinley tariff. In 1890 there was not one establishment in the United States that was engaged in the manufacture of tin plates. In 1891 the imports of tin plates into the United States from Great Britain was 327,882 gross tons with foreign value of \$25,900,305. The total quantity of the article imported into the United States in the twenty-four years from 1872 to 1895 was 4,823,992 gross tons, the foreign value of which was \$379,492,793. This immense quantity represented an aggregate of more than 100,000,000 boxes of 108 pounds each, or an average of more than 4,000,000 boxes per year. According to the Bulletin of the American Iron and Steel Association, the New York price of British tin plates declined rapidly after the ad-

vent of the McKinley tariff. It gives the prices actually paid at New York per box of 108 pounds for an average grade of Melyn charcoal tin plates for a series of years. In 1880, \$8; in 1890, \$6.05; in 1896, \$4.45. The Bulletin also publishes a table giving the average wholesale yearly prices per box of 108 pounds for imported Bessemer tin plates I.C., 14x20 at New York, freight and duty paid, also the average yearly prices of domestic tin plates per box of 100 pounds, at New York for the same years, as follows:—1886, foreign, \$3.80, domestic, \$3.63; 1897, foreign, \$3.90, domestic, \$3.26; 1898, foreign, \$4.00, domestic, \$2.99.

The battle was long continued and hotly contested, but protection won the day, in that in 1880 American consumers had to pay \$8 per box for British tin plates, while in 1899 the price for the same article, through the force of protected competition, was reduced to \$4 per box, American made plates selling at less than \$3.

According to the Iron and Coal Trades Review, of London, the total exports of tin plates from Great Britain to Canada in 1904 were more than 6,000 tons less than the exports of the previous year. This is indeed a big shrinkage of this particular trade with the Mother Country. The total value of all tin plates and sheets imported into Canada in 1904 was \$1,461,811 against \$1,751,507 in 1905, an increase of \$286,696. Our imports from Great Britain in 1904 were valued at \$1,215,700 against \$1,206,906 in 1905, a decrease of \$8,794. Our imports from the United States in 1904 were valued at \$246,111 and in 1905 at \$544,601, an increase of considerably more than 100 per cent., a fair conclusion from the facts being that no tariff preference or other fortuitous circumstances can, in a few years, prevent all our imports of tin plates from coming from the United States.

Why not adopt the same policy as the United States, and build up an industry at home, that will, in a few years, supply all our needs for the article? If the tin plates consumed in Canada were made here it would give employment to several thousand additional Canadian workmen, most of whom would be paid very high wages. The sum representing wages only would not be retained in one industry, but would be distributed among many others. The iron ore miners would be called upon to produce more iron ore, the limestone quarrymen would be required to produce more limestone, the coal miners and coke producers would be asked for additional thousands of tons of coal and coke. The blast furnacemen would be required to smelt additional thousands of tons of pig iron. The lead smelters would have a home market for thousands of pounds more of lead. The cattle raisers and abattoirs would be called upon to supply additional thousands of pounds of tallow and oil. The chemical works would be called on to supply additional thousands of pounds of sulphuric acid, and Canadian lumbermen would be called on to supply additional millions of feet of lumber for boxes, etc. There would also be an active demand for fire clay and bricks, oils, lubricants, etc., and there would be additional thousands of mouths of hungry working people whom Canadian farmers would be called upon to feed.

Why not have a Canadian tin-plate industry?

CANADIAN TRADE.

The total exports of Canada for the five months ending November 30 of the current fiscal year were greater by five millions than the total exports for the whole of the fiscal year 1895. The increase in domestic exports for the five months over the same period of last year was in round figures \$18,000,000, and the gain in the aggregate trade for the five months was \$26,000,000. These figures denote the remarkable expansion that has taken place in the trade of Canada in the last decade. Taking the several items in the exports, it will be seen that during the five months agricultural products increased by ten millions, manufactured articles by one million, animals and their products by four millions and a half, and fisheries by about two millions. Exports of products of the mine and of the forest remained stationary. The gain in the importation of free goods is only about half a million, whereas dutiable goods show a betterment of about seven and a half millions. In the statement appended it must be borne in mind that the exports given are those of domestic produce only:

IMPORTS.

Article—	Nov., 1904.	Nov., 1905.
Dutiable goods.....	\$11,284,965	\$13,746,974
Free goods.....	10,174,270	9,739,518
Total.....	\$21,459,235	\$23,486,492
Coin and bullion.....	321,136	149,595
Grand total.....	\$21,780,371	\$23,635,887
Duty collected.....	3,383,577	3,722,392
	5 mos., '04	5 mos., '05.
Dutiable goods.....	\$62,430,244	\$69,863,976
Free goods.....	42,172,945	42,633,145
Total.....	\$104,603,189	\$112,497,121
Coin and bullion.....	4,554,586	4,038,427
Grand total.....	\$109,157,775	\$116,535,548
Duty collected.....	17,704,705	18,928,144

DOMESTIC EXPORTS.

	Nov., 1904.	Nov., 1905:
The mine.....	\$2,131,921	\$2,812,522
The fisheries.....	1,912,044	1,976,080
The forest.....	2,952,903	3,139,811
Animals and produce....	3,346,760	9,366,126
Agriculture.....	3,471,290	9,669,428
Manufactures.....	1,606,497	2,100,933
Miscellaneous.....	5,471	7,894
Total.....	\$18,426,886	\$29,072,794
	5 mos., '04.	5 mos., '05.
The mine.....	\$15,179,926	\$15,282,328
The fisheries.....	5,564,269	7,340,767
The forest.....	17,840,010	18,034,634
Animals and produce....	34,501,279	39,135,464
Agriculture.....	12,641,023	22,744,436
Manufactures.....	8,350,952	9,222,702
Miscellaneous.....	21,688	30,751
Total.....	\$94,099,147	\$111,791,082

AS VARIABLE AS THE SHADE BY THE LIGHT TREMBLING ASPEN MADE

According to the Canadian Gazette of London, information received there, and reports of Ministerial statements in other papers, are taken to indicate that the Canadian Government have decided to outline the new tariff proposals as far as relates to preferential trade with Great Britain. The Gazette summarizes them as follows:

"Firstly—The abolition of the all-round rate of preference and the substitution for it of a fixed preference in each class of British goods, ranging from 10 to 75 per cent. off the general list. This would give an opportunity for all reasonable safeguards to Canadian manufacturers.

"Secondly—Duties for revenue only on many lines of British manufacture which have not been developed in Canada.

"Thirdly—Rearrangement of the free list so as to give new advantages to British exports, especially encouraging Canadians to import raw material or partly finished material from Britain rather than from the United States.

"Fourthly—A stricter enforcement of the provision calling for 25 per cent. of British labor in all goods securing the British preference, so as to meet the fraud whereby German and other foreign goods now enter Canada on preferential terms.

"Fifthly—The amendment of the Canadian anti-dumping law so as to make it more difficult for the United States manufacturers to dump their surplus in Canada, to the detriment of Canadian and British manufacturers."

Seeing by the Colonial Conference resolution, and also Hon. Mr. Fielding's statement in the 1904 budget speech that the preference might be withdrawn if not reciprocated, it is assumed that the foregoing proposals will be made conditional upon some measure of British reciprocity.

EDITORIAL NOTES.

The Canadian Tariff Commission has found in the Grocers' Guild what is alleged to be an organization in restraint of trade, prejudicial particularly to the interests of dealers in and consumers of sugar and canned goods. An appeal is made for the repeal of the tariff on these articles. The operations of the Guild have been very successful, though its members, who profit by the maintenance of high prices, through the instrumentality of the tariff, take the negative position and declare that their action has been purely on the defensive. However, the commission is investigating the combine and it may be proved to the advantage of Canadian consumers that the restrictions of the guild were unwarrantably severe.

There was a "sympathetic strike" of Chicago teamsters that lasted for fifteen weeks.

Cost in loss of business.....	\$12,000,000
Cost to employers in wages.....	2,100,000
Cost of strike to the unions.....	300,000
Wages lost by strikers.....	750,000
Cost to City of Chicago.....	175,000
Cost to county.....	100,000
Men thrown out of work.....	4,250
Persons injured during strike.....	450
Persons killed.....	21

The strike started over an attempt to hold sixteen tailors who went out on a strike. There was at no time any question of wages or hours among the teamsters, but they went out on a sympathetic strike which failed.

Figures just compiled by the Department of Trade and Commerce at Ottawa show that for the fiscal year ending June 30 last the Canadian Government expended over \$1,000,000 in mail and steamship subsidies. The larger amounts are given roundly as follows:

Canada and Great Britain.....	\$328,000
Canada and Australia.....	194,000
Canada and South Africa.....	146,000
Canada, China and Japan.....	73,000
Canada, British West Indies and De- merara'.....	65,700

The balance, or about \$209,100, has been made up by interprovincial services. The British Government pays the same amount as Canada toward maintaining the services to China and Japan and the British West Indies.

Next combine on the line of attack should be the combine of free trade newspapers.

Other combines only take the country's money, which is bad enough—the combines, not the money.

Free trade combineers would take the very life of the nation by depriving Canadian labor of its wages for the benefit of the United States and United States manufacturers.

Free trade is the suicide cure for the disease of combine.

Canada had better try the milder remedies of Canadian law before the country kills off its industries in the attempt to apply the free trade cure to its diseases.

The remedies suggested by the tub-thumpers of the Cobdenite press is Free Trade as Uncle Sam Wants It.

A trial of this remedy would be more serviceable to the United States than helpful to Canada.—Toronto Telegram.

It will be interesting to see how the Canadian Tariff Commission will regard the peculiar operations which have been carried on with respect to the Canadian wire trade. The facts have been well known in the American iron trade, but the Canadian Government is probably hearing of these operations for the first time. The general point is that Canadian wire producers are given immunity from competition in their finished products if they buy their rods from American producers. It will surely not look well to the Canadian Government that the market in that country has been so open and exposed that a producer in the United States could elect just what business be preferred to take, and then enforce his terms on it. The Canadian wire producers find it necessary to accede to the terms laid down. If the bounty system, which applies in particular to the production of pig iron and crude steel, had been a real success, it would by this time have afforded the Canadian wire makers a source of supply for their rods independent of the mills of the United States.—The Iron Trade Review.

MACHINERY AND ENGINEERING.

THE YOUNGSTOWN STEAM TRAP.

The accompanying illustrations and description relate to the Youngstown steam trap, manufactured by the Youngstown Steam Trap Co., Pittsburg, Pa.

Figure 1 shows all the different parts of the trap. There are no floats, levers, pins, valves or buckets to get out of order or cause trouble, and in use they practically need but the minimum of care or attention.

Figure 2 is a cross-sectional view.

A—Pipe in which the counterweight is placed for operation. B—Body of trap. C—Discharge pipe. D—Cylinder head on steam end of trap. E—Head on balance end of trap. F—Ball counterweight. G—Supporting bracket, on which the trap rests while filling. H—Supporting stand, on which the trunnion is fastened. I—Supporting bracket, on which the trap rests while discharging.

The operation of the trap is as follows:—The condensation passes into the pivot pipe at U (see Figure 3), from thence into the receiving vessel through the ports R and P. When the receiving vessel is filled with water the trap rocks from the arm G, on which it rests while filling, to the arm I, and the water is discharged from the trap through the discharge pipe C and J, the discharging end of the pivot pipe. While the trap is rocking from the arm G to the arm I it moves the ball valve L off the port M, an operation which allows the water to pass from the discharge pipe C into the pivot pipe and to discharge at J, the end of the pipe.

In discharging, before the trap reaches a horizontal position, the ball F rolls from its position in the balance end of the trap at E to the middle of the trap which gives the water end the aid of the counterweight to enable it to discharge. When the water has all been discharged from the trap, the balance end being heavier than the water end causes the trap to rock back to its original position for filling, the ball F rolling back to its position at E, in the balance end of the trap. In case of a gush of water, the trap remains in a discharging position, thereby taking care of the sudden accumulation of water.

Figure 3 is an end-sectional view of trap. J—End of the trunnion through which water is discharged. K & T—caps for stand H. M—Discharge port. N & Q—Side flanges and stuffing box. O—Front view of stand H. P—Intake port in cylinder. R—Intake port in trunnion. S—Stuffing

box nut. U—Intake end of trunnion, through which the water passes to receiving vessel. The trunnion or valve spindle is made of best grade of steam metal, and is very rigid and strong. L—The ball valve—the most simple valve in use. This valve is not lifted off the seat against the steam pressure as in other traps, but is forced to roll off the seat automatically, and returned by the same action.

By placing the trap slightly above the water line it will return the water to the boilers.

These traps are tested to 300 pounds steam pressure, and are guaranteed to work successfully under any pressure from 100 to 250 pounds, and do not require special construction for different pressures.

The two stuffing boxes on side flanges N and Q (see Fig. 3) are the only parts which require packing, and to do this takes very little time.

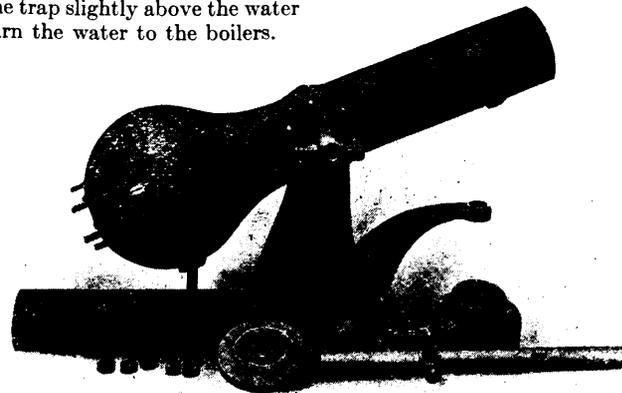


FIG. 1.

By the construction of this trap the ball valve is moved entirely off its seat when the trap swings on the trunnion into the dumping or discharging position, thus allowing all mud, scale, or any foreign matter which may be passing through with the water, to be blown through the large discharge opening, and in this way cleans the seat to receive the ball, as the trap returns to its filling position.

Each time this operation is performed the ball valve changes its position and returns to its seat at a different point on its circumference; thus it is apparent that it cannot become flat, cut or grooved, but retains its perfectly spherical form. The ball must return to its seat when the trap returns to its filling position, owing to the special construction of the chamber in which it is confined. It cannot go to any other place. The ball valve can be easily taken out by removing flange N (see Fig. 3). This type of discharge valve eliminates the trouble of packing valve stems, and does not leak.

This trap is governed by the laws of gravity. It has no pins to wear out, no float to leak, sink or collapse, no small levers to become disarranged or broken, no valve discs or seats to cut out and leak; but it has a hardened bronze ball for a discharge valve, resting on a counter-sunk seat in the trunnion, and makes an absolutely tight discharge arrangement. Another good feature—one can see it work, as it has to move to discharge the water.

One of the greatest points of superiority in it is the changeable counterweight in cylinder. When the trap dumps, this weight moves to a position near the axis, thereby changing the center of gravity and causing the trap to discharge a greater quantity of water.

These traps are made in the following sizes:— $\frac{3}{4}$ inch, 1 inch, $1\frac{1}{2}$ inch, 2 inch. Prices and further information furnished upon application as above.

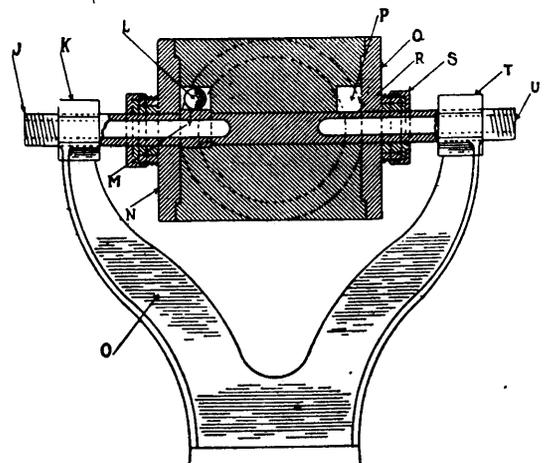


FIG. 3.

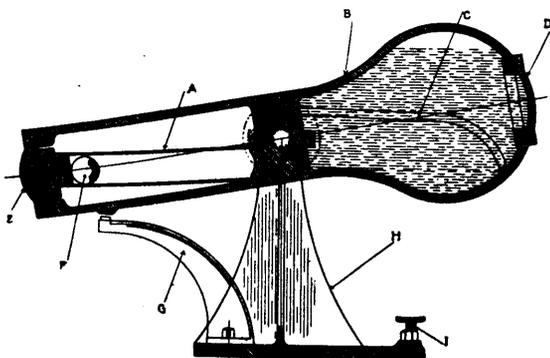


FIG. 2.

AN AUTOMATIC FURNACE.

In the Murphy automatic smokeless furnace, special attention has been paid to the development of an apparatus for the use of cheap slack coal. The construction of the furnace is shown in the transverse section, Figure 1, and in the halftone, Figure 2. Coal is introduced, either mechanically or by hand, into the magazines at each side, and from these descends by gravity upon the inclined grate bars at either side of the furnace.

Stoker boxes, moving crosswise of the furnace, push the coal from the magazines out upon the grate bars, and half the bars, which are pinioned at their upper ends, are moved by a rocker bar at the lower ends alternately above and below the surface of the stationary grate bars, thus breaking up the clinker and sifting it and the ash through into the pit below. The furnace is installed under the boiler proper and a fire-brick arch serves to keep up the temperature of the burning gases so that the combustion will be complete before the gases leave the furnace chamber. Back of the grate is a continuation of the furnace arch and a brick wall, which acts as a further combustion chamber to complete the burning of the gases.

Grate bearers are cast hollow and receive from the exhaust of the stoker engine steam which escapes through small openings on either side of the clinker grinder so as to soften the clinker. The clinker grinder, which is shown on the bottom of the furnace in Figure 1, is hollow and connected by a 2-inch pipe with the smoke flue, so that the cold air passing through will prevent destruction by heat.

For operating the furnace, a small engine is placed on either side of the battery of the boilers, and geared to a reciprocating bar, which passes across the entire front, as

shown in Figure 2. Heated air is supplied through ducts, which pass under the coking plate, as seen in Figure 1. The speed of the stoker boxes and grate bars can be regulated to conform to any rate of combustion required.

By the automatic action of the furnace, the removal of ash and clinker is made continuous, so that the fire is always kept clean. Coking surface is supplied so that the volatile gases are driven off before the coal is thrown upon the hot part of the grate; temperature is maintained in the combustion chamber so that the gases are fully burned, and heated air is supplied so that there are left, when the gases pass to the chimney, no unburned hydrocarbons to form smoke. Designs have been fully perfected for installing the Murphy

furnace under any type of fire-tube or water-tube boiler, and ample capacity is always allowed to run the boiler at 50 per cent. or more above its rating with cheap grades of soft coal.

The Murphy furnace has been on the market, commercially, 25 years; it is a matter of history that furnaces installed 21 and 22 years ago have been in continuous use under the same boilers.

Murphy furnaces are manufactured at Detroit, Mich., the home plant for the United States, and a branch factory has been established in Walkerville, Ont., for the Dominion of Canada, and with general administrative office, 510 Board of Trade Building, Toronto, Ont.

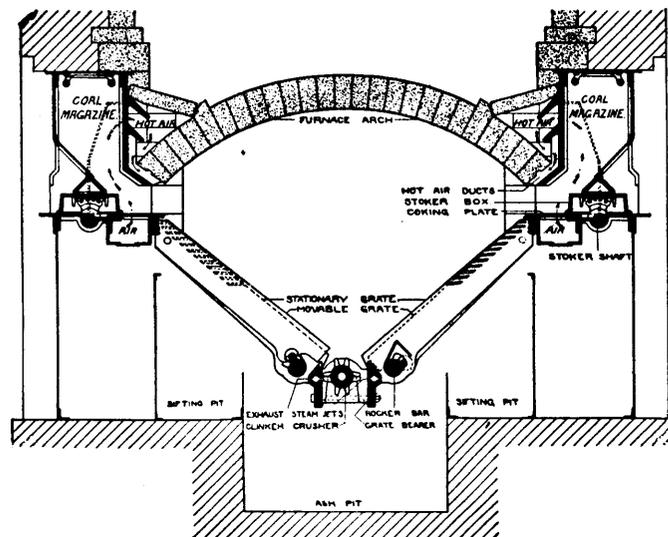


FIG. 1—CROSS SECTION OF MURPHY SMOKELESS FURNACE

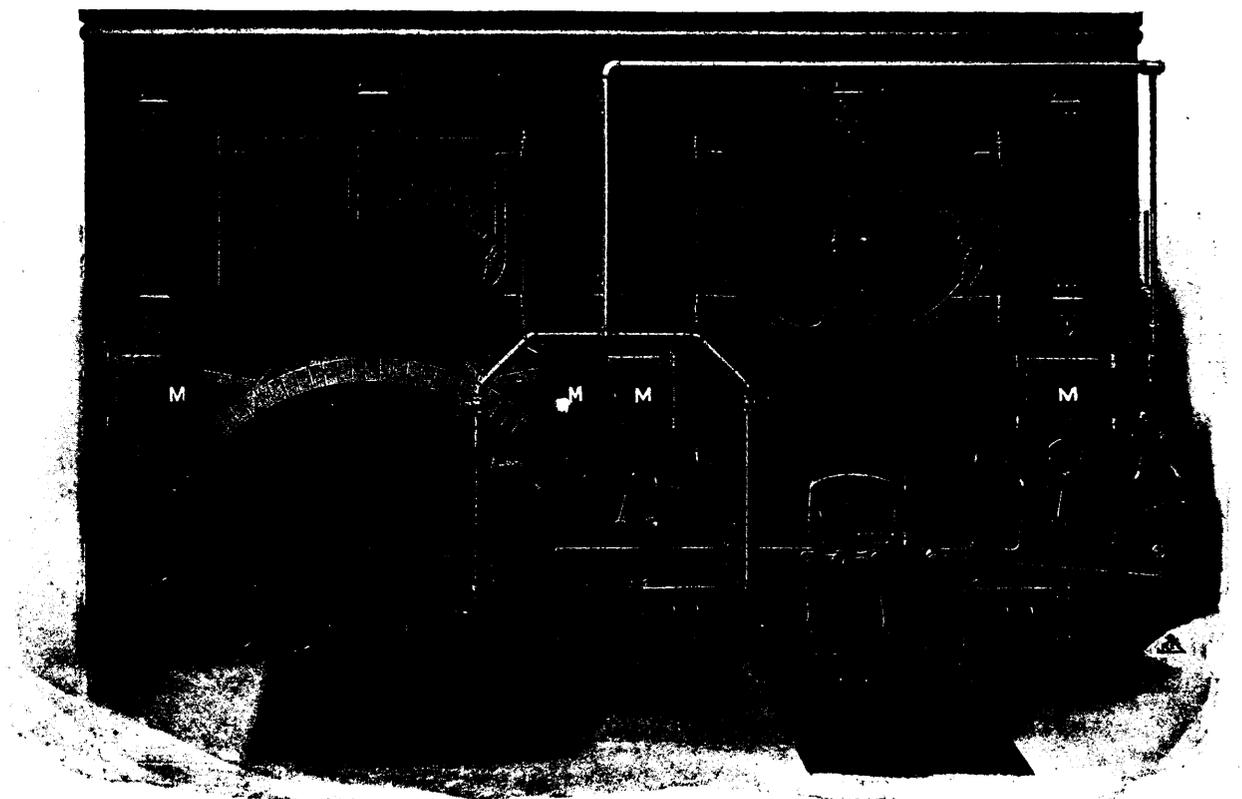


FIG. 2—VIEW OF MURPHY FURNACE IN PART SECTION.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

CAPTAINS OF INDUSTRY.

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

The Imrie Printing Co., Toronto, have been incorporated with a capital of \$40,000, to carry on a business of printers, publishers, etc. The provisional directors include John Imrie and William Brooks, Toronto.

The Mac Mining Co., Toronto, have been incorporated with a capital of \$350,000, to carry on a mining, milling and reduction business. The provisional directors include George Chapman, W. E. Buckingham, Guelph, Ont., and D. A. McPherson, Toronto.

Messrs. J. J. Zoek & Co., Toronto, have been incorporated with a capital of \$200,000, to manufacture jewelry, watches, clocks, optical goods, etc. The provisional directors include J. J. Zoek, Leopold Zoek, Toronto, and Nelson Reynolds, Port Hope, Ont.

The McCormack Cobalt Silver Mining Co., Toronto, have been incorporated with a capital of \$500,000, to carry on a mining, milling and reduction business. The provisional directors include R. L. McCormack, R. E. Gibson, Toronto, and S. S. Sharpe, Uxbridge.

The McMillan Co., of Canada, Toronto, have been incorporated with a capital of \$20,000, to carry on a business of publishers. The provisional directors include G. A. McMillan, Westminster, England; C. C. Nadal, New York City, and Frank Wise, Toronto.

The corporate name of the Sanford Furniture & Woodenware Co., Fenelon Falls, Ont., has been changed to the Fenelon Falls Furniture Co.

The Silver Bar Mining Co., Ottawa, have been incorporated with a capital of \$500,000, to carry on a mining, milling and reduction business. The provisional directors include W. D. Gregory, H. F. Gooderham, and H. N. Barry, Toronto.

The Wilson, Munro Co., Toronto, have been incorporated with a capital of \$100,000, to manufacture printers, book-binders and box-makers' supplies, etc. The provisional directors include T. G. Wilson and E. S. Munro, Toronto.

The Eagle Spinning Co., Hamilton, Ont., have been incorporated with a capital of \$250,000, to manufacture yarns, cotton, woolen, etc. The provisional directors include J. R. Moodie, James Moodie and R. R. Moodie, Hamilton.

The Economical Mfg. & Supply Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture engineers' and steam users' supplies, etc. The provisional directors include H. L. Brown, W. J. Boland, Toronto, and W. H. Crow, Welland, Ont.

The Massey-Harris Co.'s works at Statford, Ont., will be closed and the plant moved to Toronto. The object is to centralize the works.

The McGill Chair Co., Cornwall, Ont., have been incorporated with a capital of \$100,000, to manufacture chairs, furniture, etc. The provisional directors include Thomas McGill, P. E. Campbell and R. J. Pitts, Cornwall.

The Fred. Armstrong Co., Toronto, have

been incorporated with a capital of \$40,000, to carry on a business of plumbers and gas fitters, etc. The provisional directors include Fred. Armstrong, William Armstrong and J. R. Bailey, Toronto.

The G. T. Fulford Co., Toronto, have been incorporated with a capital of \$1,000,000, to manufacture drugs, patent medicines, etc. The charter members include J. W. Langmuir, Toronto; W. T. Hanson, Schenectady, N.Y. and A. C. Hardy, Brockville, Ont.

A West end branch of the Public Library will be built beside the postal station "C," Toronto.

The engine room of the Deseronto Iron Works, Deseronto, Ont., was destroyed by an explosion December 15.

The Dymont Hotel, Dymont, Ont., was destroyed by fire December 13. Loss about \$4,000.

It is stated that more aluminum is manufactured in Niagara Falls than in any other place in the world. The aluminum works at that place have been in operation just ten years and in that period the development of the aluminum industry has resulted in an enormous demand for the metal. In 1904, 8,600,000 pounds of aluminum were made in this country, an increase of 1,100,000 pounds over the preceding year. At the end of the first decade of manufacture in 1893 the total of the American product was only 339,629 pounds.

The Methodist church, Markdale, Ont., was destroyed by fire December 15. Loss about \$8,000.

A Jewish synagogue will be erected in Toronto at a cost of about \$40,000.

The Ontario Car Ferry Co., Montreal, have placed a contract with the Canadian Shipbuilding Co., Collingwood, Ont., for the construction of a car ferry 315 feet long, 56 feet beam and a draft of 15 feet when loaded with twenty-six steel cars. The machinery will be of the triple expansion twin screw type, with four Scotch boilers and Howden forced draft. The contract price is \$370,000.

A church building will be erected at the corner of Bloor Street and Ossington Ave., Toronto, by the Baptist congregation of that place. The building will be of brick and stone, in semi-Gothic style, to seat 400 people, and will cost about \$13,000.

The Canadian Shipbuilding Co., Toronto, have received the contract for the construction of a steamer for the Muskoka Lakes Navigation & Hotel Co. It will be a steel twin-screw propeller, 152 feet long, with an extreme beam of 30½ feet. The speed will be two miles an hour greater than any of the present boats used by the company on the Muskoka Lakes.

The new plant of the Ogilvie Flour Mills Co., which is nearing completion at Fort William, Ont., will be one of the greatest in the world. The mill building proper will have a daily capacity of 5,000 barrels of flour. In connection with the mill is the large steel

fireproof elevator, having a storage capacity of 600,000 bushels, and through which also all the wheat required for the large Montreal mills of the company is passed by loading into vessels. Many of these vessels go directly through to Montreal via the canal system, so that wheat can now be loaded into vessels from the company's own elevator at Fort William without transshipment through to Montreal, and unloaded into the company's big mills on the canals there. The total frontage on the Kaministiquia river is 650 feet, and has water accommodation for vessels to the depth of 22 feet. One of the largest flour warehouses in Canada is also built in connection with this plant, having a storage capacity of 125,000 barrels. There is also in course of erection a large cooper shop, having a capacity of 2,000 barrels per day, consequently the company will have practically three independent barrel factories, at Winnipeg, Man., Fort William, Ont., and Montreal.

The premises of the Consumers' Wall Paper Co., Singer Sewing Machine Co., and George Thomas, electric supplies, Windsor, Ont., were destroyed by fire, December 15. Loss, about \$15,000.

Mr. Anthony Blum, president of the Laurentian Gold Mining Co., whose mine is situated near Lake Manitou, was among recent callers at the Bureau of Mines. He brought with him some samples of ore from the recent strike at the mine. Mr. T. W. Gibson, Director of the Bureau, said that they were the richest samples of gold ore he had ever seen from this or any other country. Mr. Blum told him that there was a pay chute in sight at the mine of 100 feet in extent.

In the annual report of the Bureau of Forestry for 1904, Director Thomas Southworth, in a review of the progress of forestry in Ontario, says in part:—"The fire ranging system in operation on the public forest lands under license continues to be an increasingly useful institution in the protection of the standing timber, in which both the lumbermen and the Province have a direct and very large financial interest. The number of rangers applied for by the lumbermen has been greater than ever before, which indicates an appreciation of the value of the service to the lumbering interests, and a desire on their part to increase its efficiency. During the past season the department organized a fire protection service for the protection of the lands along the line of the Temiskaming & Northern Ontario Railway, the building of which, through a practically unbroken forest, presented unusual dangers. The expense of this service, which proved to be most efficient, was borne jointly by the department and the Railway Commission. A feature of this service was the use of railway velocipedes by the rangers, which enabled them, during dry seasons, to follow up the trains and extinguish at once any incipient fires."

The city council of Brantford, Ont., have granted a twenty-one year competitive franchise to the Canadian Machine Telephone Co. The company agree to have the system in working order within twelve months.

M. Shea, Esq., of Buffalo, N.Y., has purchased land at the corner of Richmond and Victoria Streets, Toronto, where he will erect a new theatre, at a cost of about \$200,000.

The location plans for the Western Ontario extension of the Toronto, Hamilton & Niagara Power Co. have been filed with the Minister of Railways at Ottawa for approval. The proposed extension does not at present go west of London. It touches Brantford, Galt, Paris, Woodstock, Ingersoll and other manufacturing centres between Hamilton and London.

The Canadian Military Institute, Toronto, have purchased property on Simcoe Street, and will erect a new club house at a cost of about \$15,000.

Owing to the magnitude of the works of the Westinghouse Electric & Mfg. Co., Pittsburg, Pa., a great many people have received an erroneous impression that the product of this company consisted principally of only the larger types of electrical apparatus, especially so with reference to electrical generating units. This wrong impression is largely due to the fact that many of the great power plants of the country, having large units, are equipped with Westinghouse generators and auxiliary apparatus. The aggregate business of this company, however, in the smaller units far exceeds that of the larger and special types. They manufacture every kind of electrical apparatus for either light or heavy work, and their instruments for measuring electrical energy equal in delicate construction the works of the better class of modern watches. These instruments are recognized standards in their field.

Within the past two months Allis-Chalmers-Bullock, Limited, have made contracts for the electrical equipment of the Keewatin Flour Mills Co., Keewatin, Ont.; the Ogilvie Flour Mills Co., Fort William, Ont.; and the Western Canada Flour Mills Co., St. Boniface, Man., aggregating 4,000 h.p. The motors range from 500 h.p. downwards. The entire equipments are under construction at the shops in Montreal.

The building of the Oxford University Press Co., Toronto, was damaged by fire, recently, to the extent of about \$40,000.

The Canadian Tap & Die Co., Galt, Ont., who recently purchased the building lately occupied by the Clark Demill Co., are installing thirteen new machines.

It is stated that Messrs. Sargent & Co., New Haven, Conn., are considering the establishment of a hardware manufactory in Ottawa. The plant will cost about \$2,000,000.

The Toronto Electric Light Co., Toronto, have been awarded the contract for the civic lighting for the next five years.

The Carbon Light & Power Co., Toronto, have been awarded the contract for the lighting of the gas lamps.

The Lake Superior Corporation, Sault Ste. Marie, Ont., will erect an open hearth steel plant at a cost of about \$200,000. The company will then be enabled to use ore from the Helen mine, and generally handle non-Bessemer ores in the manufacture of steel products.

The C. R. Somerville Co., London, Ont., will erect a paper box factory in Stratford, Ont. Work will be commenced in the spring.

The Canada Furniture Manufacturers, Wingham, Ont., will erect an addition to their factory.

The Keenan Woodenware Mfg. Co., Owen

Sound, Ont., have asked the town council for a loan of \$25,000, for which they will add a third story to their building and erect an addition two stories high, 70x40 feet, at a cost of about \$10,000.

Messrs. C. Lloyd & Sons, Wingham, Ont., are considering increasing their plant, installing new machinery, etc.

The water commissioners of Stratford, Ont., have commenced a third artesian well for domestic water supply.

The commissioners of the Temiskaming & Northern Ontario Railway, Messrs. C. B. Smith, Chairman; J. L. Englehart, Petrolia, Ont., and D. Murphy, Ottawa, have returned from a trip over the line. The steel is now laid forty miles beyond New Liskeard, Ont. The commissioners went to the rail end and then drove thirty miles beyond, the grading having been finished to that extent. This took them north of the height of land, in the great clay belt. They found that satisfactory progress is being made. Mr. Smith said that the work would be continued through the winter, and that the laying of steel would go on as rapidly as possible. The section north of New Liskeard will be about 100 miles in length. The announced intention of the Government is to connect the line with the Grand Trunk Pacific, which will mean, perhaps, another fifty miles extension, but that work will not be undertaken until it is definitely known at what point the junction can be made.

The Barrie Tanning Co., Barrie, Ont., have placed an order with the Smart-Turner Machine Co., Hamilton, Ont., for one of their duplex pumps.

Dr. Haanel, Superintendent of Mines, Ottawa, has received a sample of the first pig iron turned out at the Government experimental electric smelter at Sault Ste. Marie, Ont. It is of very superior quality. Operations have been suspended to permit of the instruments for measuring the electric current being adjusted by the Westinghouse Co., who installed the plant, and when this is done the furnace will be operated day and night. The objects of the experiments is to determine whether the electric process is applicable to the economical smelting of Canadian hematite ores.

The Smart-Turner Machine Co., Hamilton, Ont., have supplied the Beck Mfg. Co., Toronto, with one of their oil separators together with an automatic feed pump and receiver, pump being of the outside packed plunger pattern with pot valves.

The Department of Public Works, Ottawa, have awarded the contract for a breakwater at Port Burwell, Ont., to the Pacific Construction Co., Ottawa.

The Canadian Pacific Railway Co. have placed an order for 45,000 tons of steel rails with the Lake Superior Corporation, Sault Ste. Marie, Ont.

The London Machine Tool Co., London, Ont., have ordered from the Smart-Turner Machine Co., Hamilton, Ont., an automatic feed pump and receiver.

The Continental Life Assurance Co., Toronto, have purchased the medical council building and will remodel it, making the entrance level with the street, and will build it four or five stories higher.

The Toronto & York Radial Railway Co.,

Toronto, have taken out a permit for a one story frame building covered with iron, on Lake Shore Road, to cost about \$4,000.

The Wilson Scale Works, Toronto, have recently installed an automatic feed pump and receiver, together with an oil separator, built by the Smart-Turner Machine Co., Hamilton, Ont.

More aluminum is manufactured in Niagara Falls than in any other place in the world. It was on August 26, 1895, that the works at that place started operation, and in the ten years that have passed since then the development has been wonderful, greatly benefitting the steel interests, for in the modern method of making steel, aluminum is used in small quantities. Usually from two to five ounces of aluminum are put in each ton of open hearth steel made, and from six to eight ounces into a ton of Bessemer steel. In fact had every ton of steel made in the United States in 1904 been subjected to this treatment something like 5,000,000 pounds of aluminum would have been consumed by the steel industry alone. In 1904, 8,600,000 pounds of aluminum were made in the United States, an increase of 1,100,000 pounds over 1903. In 1902 the output in the United States was 7,300,000 pounds. The output in 1903 is of particular interest, because of the fact that 20 years before that the output was only 83 pounds and at the end of the first decade of manufacture, in 1893, only 339,629 pounds were made.

The Marlatt & Armstrong Co., Oakville, Ont., have placed an order with the Smart-Turner Machine Co., Hamilton, Ont., for a duplex pump.

The Toronto Laundry Machine Co., Toronto, have taken out a permit for a two story brick and stone factory, to cost about \$12,000.

The route of a new Canadian Pacific Railway Co.'s line, which will connect Ottawa directly with the Georgian Bay, has been submitted to the Minister of Railways and Canals, for approval. The proposed line is known as the Georgian Bay and the Seaboard Railway. The proposal of the Canadian Pacific Railway is to start from the south end of the Georgian Bay at a point between Point Severn and Penetanguishene, Ont., and run south easterly for a short distance in Simcoe county. Then it would pass through the counties of Victoria, Peterborough, Hastings, Lennox and Addington, Frontenac and part of Lanark. The Canadian Pacific Railway proposes to connect with their Ontario and Quebec branch between Cavan and Maberly in the county of Lanark. This would be the nearest approach to Ottawa. The rest of the route to the Capital would be over the present Canadian Pacific Railway line by way of Smith's Falls.

Messrs. John Bertram & Sons, Dundas, Ont., have ordered from the Smart-Turner Machine Co., Hamilton, Ont., an automatic feed pump and receiver, for their new factory.

Messrs. Sproatt & Rolph, Toronto, have been recommended by the sub-committee of the new General Hospital Board, to the appointment of architects for the new General Hospital.

It is stated that Messrs. Mackenzie & Mann, railway promoters, contemplate placing on Lake Superior a fleet of ice-breaking car ferries to keep navigation open during the

winter months between Port Arthur, Ont., and Batchawaning Bay. Thus the company would have an almost direct line from Edmonton, Alta., to Ottawa, for in connection with the proposition to place the car ferry service on Lake Superior is that of taking over the rights of the Manitoulin and North Shore Railway, which was one of the Clergue schemes. The Manitoulin and North Shore Railway right-of-way between Sudbury and Searchmont on the main line of the Algoma Central Railway, a short distance north of the Soo. From Searchmont a line would be built into Batchawaning Bay.

The Smart-Turner Machine Co., Hamilton, Ont., have installed one of their single outside packed plunger pumps with pot valves, in the Iron Mask Mine, British Columbia.

The Canadian Printers, Limited, St. Catharines, Ont., have been incorporated with a capital of \$40,000, to carry on a business of printers, engravers, etc., and to manufacture printers' supplies, etc. The provisional directors include W. D. Woodruff, H. F. Schaedel, and J. A. Keyes, St. Catharines.

The Rex Tailoring Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture clothing, etc. The provisional directors include A. H. Southby, M. H. Van Valkenburg and Richard Schofield, Toronto.

The Wilcox, Doolittle Quarry Co. have ordered from the Smart-Turner Machine Co., Hamilton, Ont., one of their standard duplex pumps.

The Spanish Mills Co., Spanish Mills, Ont., have been incorporated with a capital of \$100,000, to manufacture timber, etc. The provisional directors include B. W. Arnold, Albany, N.Y., W. J. Bell, Sudbury, Ont., and J. O. Smith, Bay City, Mich.

The Intensified Light & Supersoda Co., Toronto, have been incorporated with a capital of \$100,000, to carry on a business of mechanical engineers, etc. The provisional directors include C. E. Boyd, James Morrison and W. B. Russell, Toronto.

The Smart-Turner Machine Co., Hamilton, Ont., have supplied the Port Hope Electric Light & Power Co., Port Hope, Ont., with a standard duplex pump.

The Canada Jewelry Case Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture show cases, store fittings, etc. The provisional directors include Thomas Watson, Adolph Sues and John Duff, Toronto.

The Ontario Cobalt Developing Co., Toronto, have been incorporated with a capital of \$350,000, to carry on a mining, milling and reduction business. The provisional directors include J. W. Curry, Toronto; Joseph Bingeman, Berlin, Ont., and J. K. Paisley, Ottawa.

The Smart-Turner Machine Co., Hamilton, Ont., have supplied the H. K. Wampole Co., Toronto, with an automatic feed pump and receiver.

Manager Orr, of the Toronto Industrial Exhibition is sending out a large number of albums containing striking pictures of scenes on the Exhibition grounds and beauty spots in the city and they will be used to advertise Toronto and the Industrial Fair.

From the reports of the Provincial Crown lands agents, Toronto, it is estimated that the aggregate timber cut this season will be 800,000,000 feet board measure; that 125,000 cords of pulpwood will be taken out, and 2,500,000 railway ties. Last season 1,986,000 railway ties were actually cut. The great amount of railway construction now in progress has made the demand for ties very brisk. The estimate of the timber cut is larger than at the corresponding period of last season, the actual cut of which is not yet obtainable.

The Canadian Kodak Co., Toronto, have increased their capital stock from \$150,000 to \$300,000.

The Jenckes Machine Co., Sherbrooke, Que., have placed an order with the Smart-Turner Machine Co., Hamilton, Ont., for one of their standard duplex pumps.

The Pittsburg-Cobalt Co., Toronto, have been incorporated with a capital of \$75,000, to carry on a mining, milling and reduction business. The provisional directors include C. D. Robins, S. F. Heckert and H. D. Patch, Pittsburg, Pa.

Willis Chipman, Esq., Toronto, civil engineer, has prepared complete plans and estimates to develop water power situated twelve miles from Prince Albert, Ont., and to convey it to that town for light, heat and power purposes.

The Amherst Foundry Co., Amherst, N.S., have ordered from the Smart-Turner Machine Co., Hamilton, Ont., a single beam travelling crane.

The Queen City Flour Mills, Toronto Junction, Ont., owned by the Campbell Milling Co., were damaged by fire December 27, to the extent of about \$1,000.

The Niagara Navigation Co., Toronto, have named their new steamer the Cayuga. She will be launched about the middle of January and will be completed for the opening of navigation in 1906.

A permit has been issued for the new Knox Church and Sabbath School, Toronto, which will cost about \$170,000.

The Consumers' Gas Co., Toronto, have taken out a permit for a purifying house to cost about \$50,000.

The B. Greening Wire Co., Hamilton, Ont., have placed an order with the Smart-Turner Machine Co., Hamilton, Ont., for one of their single acting power pumps.

Fire at the Mimico Asylum, Mimico, Ont., a few days ago, caused a loss of about \$15,000.

The coal storage plant which the Mead-Morrison Mfg. Co. is constructing at Port Arthur, Ont., for the Canadian Northern Coal & Dock Co. is designed to accommodate 1,000,000 tons, and will therefore probably be the largest plant of its kind in existence. Another contract which the Mead-Morrison people have in hand is one from the Northern Coal & Dock Co. for equipping their new dock at Superior, Wis., with machinery, which will consist of three unloading towers and a Selleck patent transfer bridge for distributing and reclaiming purposes. Storage space will be provided for about 250,000 tons. A retail plant is being erected in Brooklyn for T. F. Taylor & Sons Co., and a contract for installing and equipping a coaling plant of considerable size has been secured from the Staten Island Ferry Co.

Mr. Russell A. Alger, jr., Detroit, Mich., has sold his auxiliary ketch Sitarah to Mr. Aemilius Jarvis, Toronto, through the office of Stanley M. Seaman, 220 Broadway, New York City. The Sitarah is a cruising yacht designed and built by George Lawley & Sons, Corp. 1903. Dimensions:—85 feet, o.a.; 25 feet w.l.; 17 feet beam; 5 feet 6 inches draught. Accommodations:—Four state-rooms, large saloon, interior finish butternut, outside teak. She was built by Mr. J. H. Cromwell, of New York, who sold her to Mr. Alger last spring. The latter fitted her with a gasoline motor. She has been delivered to Mr. Jarvis in Toronto, who will use her for cruising on the great lakes.

The Hamilton Mountain Park Co. have placed an order with the Smart-Turner Machine Co., Hamilton, Ont., for one of their standard duplex pumps.

Building permits issued in Montreal during the past year have amounted to about \$6,000,000.

Messrs. Butterfield & Co., Derby Line, Vt., and Rock Island, Que., manufacturers of taps and dies, have recently added to their line a stock of hand and bridge reamers, and are also prepared to furnish special reamers of any shape and up to 24 inches in length. This firm have also commenced the manufacture of an adjustable pipe die and stock of improved design, by which the cutting size can be varied to suit the irregularity in fittings. For some time the firm have been running 60 hours a week, and we are advised that during a recent week its shipments were to points all over the globe.

The warehouse of the Montreal Rolling Mills Co., Montreal, was destroyed by fire, December 20. Loss about \$5,000.

The Jamaica Light & Power Co., Montreal, have been incorporated with a capital of \$250,000, to carry on a business of an electric light, heat and power supply company. The charter members include C. J. Fleet, W. G. Brown and Henry Holgate, Montreal.

The premises of the Western Clothing Co., Montreal, were destroyed by fire, December 14. The fire spread to adjoining premises the following firms suffering losses:—W. H. Eaton & Son, printers; R. H. Buchanan & Co., machine manufacturers; Messrs. J. Burns & Co., and J. M. Smith, nickle plater; the total loss being about \$15,000.

At a meeting of the National Drug & Chemical Co., Canada's drug merger, held in Montreal a few days ago, a cash fund of \$250,000 was raised to be devoted to manufacturing chemicals in Canada. The importation of chemicals at present amounts to 90 per cent., and it is intended to manufacture 50 per cent. of that amount. A factory will be erected in Montreal for the purpose.

T. J. Leary, Limited, Montreal, have been incorporated with a capital of \$10,000, to manufacture cocoa, chocolate, confectionery, etc. The charter members include T. J. Leary, Louis Goldvogel and W. D. Garland, Montreal.

The Semi-Ready, Limited, Montreal, have been incorporated with a capital of \$250,000, to manufacture clothing, etc. The charter members include C. H. Nelson, H. A. Beatty, and Andrew Mercer, Montreal.

Bode's Gum Co., Limited, Montreal, have been incorporated with a capital of \$125,000, to manufacture gum, confectionery, etc.

The charter members include R. F. Heneker, A. H. Duff and W. D. Garland, Montreal.

The premises of Hector McKenzie, Montreal, wholesale plumber, were destroyed by fire, December 19. Loss about \$5,000.

The building of the British American Import Co., Montreal, was destroyed by fire, December 16. Loss about \$50,000.

The Meakins Brush Co., Montreal, have been incorporated with a capital of \$60,000, to manufacture brooms, brushes, woodenware, etc., and to acquire the business now carried on by Meakins, Sons & Co. The charter members include C. W. Meakins, Hamilton, Ont., F. A. Ritchie, Toronto, and C. W. Meakins, Montreal.

The Eastern Drug Co., Montreal, have been incorporated with a capital of \$75,000, to manufacture drugs, chemicals, surgical apparatus, etc. The charter members include Fabian Duffy, Louis Gosselin and T. J. Coulter, Montreal.

Messrs. J. Eveleigh & Co., Montreal, have been incorporated with a capital of \$275,000, to manufacture trunks, travelling bags, suit cases, etc. The charter members include F. J. Eveleigh, J. Eveleigh and J. W. Blair, Montreal.

The Dominion Steel Car Co., Montreal, have been incorporated with a capital of \$500,000, to manufacture cars, rolling stock of all kinds, etc. The charter members include E. F. Surveyer, A. C. Casgrain, and J. W. Weldon, Montreal.

The St. Lawrence Pressed Brick & Terra Cotta Co., Montreal, have been incorporated with a capital of \$299,000, to manufacture brick, terra cotta, artificial stone, etc. The charter members include A. W. Blouin, Onesime Frechette and Alfred Brunelle, Montreal.

The Terminal Warehouse & Cartage Co., Montreal, have been incorporated with a capital of \$1,250,000, to carry on a warehousing and cold storage business, etc. The charter members include W. L. Bond, C. L. Buchanan and E. C. Chamberland, Montreal.

The Grand Trunk Railway Co. are considering the erection of a new passenger depot in Montreal with elevated tracks leading thereto, at the cost of about \$6,000,000.

The Shawinigan Water & Power Co., Shawinigan Falls, Que., have purchased the plant and rights of the North Shore Power Co., Three Rivers, Que. The North Shore Power Co. had the contract for lighting the city for twenty years, dating from 1897. They brought their power from St. Narcisse, on the Batiscan River, a distance of twenty-one miles. The Shawinigan Water & Power Co. will bring their power from Shawinigan Falls, which is about the same distance. It is said they will transmit power to Thetford Mines, Que., passing their wires by way of Three Rivers.

The Royal Bank of Canada will erect a granite or marble bank building in Montreal. The Canadian Bank of Commerce will also erect a bank building there.

A syndicate of Montreal and Toronto capitalists, headed by Major G. N. Stephens, M.P.P., and D. Lorne McGibbon, have secured the controlling interest in the Canadian Rubber Co., Montreal. The capital of the company is \$1,500,000. Plans will be made

at once to greatly extend the business of the company by the addition of several plants.

The cold storage building of the International Portland Cement Works, Hull, Que., was destroyed by fire, December 27. Loss about \$7,000.

The fur establishment of Messrs. B. Silver & Co., Montreal, was destroyed by fire recently. Loss about \$20,000.

It is stated that a company headed by Senator Mason, New Haven, Conn., will establish a pulp industry in the Back River district, near Montreal. The capital will be \$2,000,000. The probable establishment of an industry of such magnitude as proposed by Senator Mason is regarded as an event of unusual importance in the industrial and lumber circles of Quebec province.

The Haskell Lumber Co., Fassett, Que., have secured about 10,000,000 feet of logs, including pine, spruce, cedar, hemlock, basswood and birch. Their sawmill is about completed and sawing operations will be commenced in the spring.

Messrs. Philip, Morris & Co., Montreal, have been incorporated with a capital of \$20,000, to manufacture tobacco, cigars, cigarettes, etc. The charter members include Henry Miles, T. J. Coulter and Louis Gosselin, Montreal.

The Tebbutt Shoe & Leather Co., Three Rivers, Que., have been incorporated with a capital of \$250,000, to manufacture boots, shoes, rubbers, etc. The charter members include J. S. Tebbutt, Three Rivers, Que.; H. A. Gardiner, Philadelphia, Pa., and George Robinson, Woodstock, Ont.

The Champion Gas Corporation, Montreal, have been incorporated with a capital of \$75,000, to manufacture gas from gasoline for lighting, heating and power purposes. The charter members include S. P. Leet, S. W. Tilden, and H. J. Allison, Montreal.

The Miller Mfg. Co., Florenceville, N.B., have applied for incorporation with a capital of \$24,000, to manufacture vehicles, mechanical devices, implements, etc. The applicants include O. N. Miller, A. D. McCain, and F. G. Turner, Simonds, N.B.

The Sheasgreen Drug Co., Woodstock, N.B., have applied for incorporation with a capital of \$14,000, to manufacture drugs, patent medicines, etc. The applicants include I. E. Sheasgreen, J. C. Hartley and Douglas Stevens, Woodstock.

Messrs. J. & T. Jardine, Limited, Rexton, N.B., will apply for incorporation with a capital of \$75,000, to manufacture lumber, etc. The applicants include James Jardine, John Jardine, Rexton, and W. E. Jardine, Riverside, N.B.

The Miramichi Lumber Co., Chatham, N.B., have taken over the valuable timber lands of the William Richards Co. The property includes 160,000 acres of finest lumber land, in addition to the milling privileges at Chatham and Boiestown. Preparations have been made to cut during the season 20,000,000 feet of lumber, consisting of spruce, pine, hemlock, and pulp wood.

The Phoenix Foundry & Locomotive Works, St. John, N.B., have within the last year taken up on a small scale the work of steel shipbuilding and recently completed a steel ferry boat for the city of St. John, 140 feet long over guards, 49 feet beam over guards,

and 7 feet 7 inches draught. The steamer is propelled by a compound engine, having three cylinders, the high pressure 14 inches diameter, the two low pressure 20 inches diameter by 18 inches stroke. There is a propeller about 5 feet 10 inches diameter at each end of the boat. The boat is finished in first-class style, all the seat and sashes in the cabins being mahogany, and the ferry boat is in fact a duplicate on a small scale of the five ferry boats recently built for New York harbor. The company is now engaged upon the construction of two steel barges 105 feet long with a capacity of 200 cubic yards.

St. Luke's Anglican Cathedral, Halifax, N.S., was destroyed by fire, December 14. Loss about \$50,000.

The new foundry of the Dominion Coal Co., Glace Bay, N.S., is nearing completion. The building is 100x90 feet, built of brick, with a steel frame. It will cost about \$25,000.

The fishing plant of Messrs. R. & T. Hendsbee, Half Island Cove, near Canso, N.S., was destroyed by fire December 30. Loss about \$18,000.

Messrs. D. Ackland & Son, Winnipeg, Man., have been incorporated with a capital of \$100,000, to manufacture carriages, wagons, sleighs, etc. The incorporators include Dudley Ackland, J. W. Ackland and R. D. Ackland, Winnipeg.

The Winnipeg Quarry Co., Winnipeg, Man., have been incorporated with a capital of \$50,000, to manufacture brick, cement, tile, etc. The incorporators include C. J. O'Toole, Daniel Murnahan and P. M. Thomson, Winnipeg.

The Railroad Patent Fuel Saving Device Co., Winnipeg, Man., have been incorporated with a capital of \$80,000. The charter members include A. W. Morley, H. P. Davidson and H. H. Burrell, Winnipeg.

Messrs. R. J. Reid & Co., Winnipeg, Man., have been incorporated with a capital of \$50,000, to manufacture paper and wooden boxes, envelopes, etc., and to carry on a business of printers, lithographers, engravers, etc. The provisional directors include R. J. Reid, J. R. Hitchings, Winnipeg, and Thomas Todhunter, Portage la Prairie, Man.

The Northern Commercial Travellers' Association, Winnipeg, Man., at their recent annual meeting, decided to erect an association building, having sample and club rooms.

The London Wire Fence & Machinery Co., London, Ont., will erect a factory in Portage la Prairie, Man., at a cost of about \$30,000, if the town will grant exemption from taxation for twenty years.

The warehouse of the Port Huron Threshing Machinery Co., Elmwood, Man., was destroyed by fire December 19. Loss about \$40,000.

The machine shop of the Stuart Machinery Co., Winnipeg, Man., was destroyed by fire recently. Loss about \$10,000.

The Brandon Harness Co., Brandon, Man., have been incorporated with a capital of \$20,000, to manufacture saddlery, harness, travelling trunks and bags, etc. The incorporators include F. W. Adams, Winnipeg, Man., J. H. Mathews and D. F. Creighton, Brandon, Man.

The brewery and plant of the Brandon

Brewery Co., Brandon, Man., were destroyed by fire December 25. Loss about \$120,000.

The Carman Hotel, Carman, Man., was destroyed by fire December 24. Loss about \$9,000.

The Northern Elevator Co., Aberdeen, Man., will erect an elevator at that place.

A new jail will be erected in Winnipeg, Man., by the Provincial Government, at a cost of about \$110,000.

The public school to be built in Calgary, Alta., will cost about \$60,650.

The Prince Albert Lumber Co., Prince Albert, Sask., have been incorporated with a capital of \$250,000, to carry on a sawmill business. The incorporators include Alvin Robertson, Grand Forks, B.C.; D. N. Winton, Thief River Falls, Minn., and John Telford, Prince Albert, Sask.

The warehouses of the Massey-Harris Co., and the Commercial Hotel, Whitewood, Sask., were destroyed by fire December 27. Loss about \$12,000.

The contract for the section of the Grand Trunk Pacific Railway between French Wood Hill and Edmonton, Alta., will be placed by the end of February. It is also understood that the commissioners who have charge of the construction of the government section of the work will ask for tenders within a few weeks for that part of the work between Lake Winnipeg Junction and the City of Winnipeg, Man.

The Government will build an immigration building at Edmonton, Alta., at a cost of about \$10,000. Thomas Page, Edmonton, has received the contract.

The iron mines at Kootenay, B.C., owned by G. B. McMillan and R. Robinson, of Nelson, B.C., have been sold to a syndicate of Cleveland and St. Paul capitalists, headed by Matthias Horsling, of Cleveland, Ohio. The purchase price is in the neighborhood of \$75,000. The new owners will begin active operations on June 1, next. Their plans include the construction of a mono-rail line from the mines to Crawford Bay. A plant will be installed for the manufacture of steel rails.

An order for a million shingles has been placed with a number of leading British Columbia coast mills by Mr. L. Schumaker, purchasing agent for the A. C. Dutton Lumber Co., Springfield, Mass., and according to the terms of the contract, an additional million may be supplied if prompt delivery is made. The order is about 20 car-loads. Mr. Schumaker is accompanied by A. J. Raymond, an extensive sash, door and window-blind manufacturer of Athol, Mass., and G. L. Miller, a well-known millman, of Bellingham. Prior to coming to Vancouver, Mr. Schumaker placed orders with various mills on Puget Sound for nearly 5,000,000 shingles. He states that there is a growing demand for British Columbia shingles in the eastern markets, and that many of the leading builders and architects now make it a point to specify British Columbia red cedar shingles when erecting new dwellings there.

An explosion of dynamite in the thaw house of the Centre Star Mine, Nelson, B.C., caused damage to the extent of about \$50,000.

The East Kootenay Power & Light Co. have been incorporated at Victoria, B.C., with a capital of \$250,000. The provisional directors include J. D. Kay, Moyie, B.C.;

J. A. Macdonald, Cranbrook, B.C. and F. C. Parkes, Nelson, B.C.

The Revelstoke Sawmill Co., recently incorporated with a capital of \$500,000, have purchased the entire holdings of the Revelstoke Lumber Co., and their mill site at the Big Eddy, B.C. They are erecting what is said to be one of the best mills in the interior at Big Eddy and are installing the most improved machinery.

An experimental shipment of ten tons of magnetic iron ore will shortly be made to the big reduction plant at Sault Ste. Marie, Ont., by the British Columbia Mills Timber & Trading Co., who own a veritable mountain of ore on Redonda Island, B.C., situated about eighty miles up the coast. It will be treated by the electrical process. The result of the test will be awaited with interest, for if it proves as successful as is anticipated, the establishment of an iron industry on the coast will follow. The conditions for the establishment of an iron industry in British Columbia are regarded as equally favorable as in Nova Scotia. Iron and coal are equally plentiful there, with the added advantage that a blast furnace on the coast would have the advantage of freights over other competitors in the Orient, where the demand for iron and steel products is assuming large proportions.

The Lightning Creek Gold, Gravels & Drainage Co. have struck some rich values at their property at Wing Dam, on the Cariboo, B.C., and will commence important development work. A new flume to develop 75 h.p. is being completed, and a new steam hoist, dynamo, pumps, turbine water wheels, etc., will be installed shortly.

The Westinghouse Electric & Mfg. Co., Pittsburg, Pa., are doing a large business in equipping mines with electric locomotives, to replace the older forms of haulage, whether animal or mechanical. Electric mine haulage considered from either the points of efficiency or economy, has so many advantages, as compared to the older practice, that the time is not far distant when any other method of mine haulage will be the exception. A recent contract closed by the Westinghouse Co. is one with the Newport Mining Co., who have decided to equip their mines at Ironton, Mich., with both surface and underground electric haulage. They will use electric locomotives the year around in the various levels underground for bringing the ore to the bottom of the shaft, and after the transportation season has closed will use electric locomotives on the surface for hauling ore from the top of the shaft to the various stock piles for storage. For these purposes they have ordered six four-ton Westinghouse mine locomotives. Electrical apparatus for the equipment of the necessary power station will also be provided by the Westinghouse Co., consisting of a 150 k.w., 250 volt generator, direct connected to a Corliss engine of 130 r.p.m., and a three-panel switchboard, besides other auxiliary apparatus.

The directors of the Pennsylvania Railroad Co., at a recent meeting, approved a joint agreement between that company, the Canadian Pacific Railway Co., and J. W. Ellsworth, Cleveland, Ohio, for the operation of a car ferry service between Ashtabula, Ohio, and Port Burwell, Ont., whereby the Canadian Pacific Railway Co. will be enabled to get their supply of coal for their locomotives and for other purposes.

ELECTRICITY.

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

Patents have been obtained in both Canada and the United States, by T. W. McKenzie, a station agent and telegraph operator, for the Canadian Pacific Railway, at Kenton, Man. It is to be used in connection with the telegraphic apparatus, and is very simple in construction, but will do the work of an operator so far as the calling of another office is concerned. It is so constructed that it will call any office the operator may desire, sign his own call, and do it perfectly, and as soon as the office called, or any other office, breaks in, the machine instantly stops, closes the key automatically, and allows the other operator to answer the call, or call whomsoever he desires. The machine, Mr. McKenzie claims, is a positive revolution in telegraphy, and will greatly hurry the work, and at the same time very much lessen the work of the operator, and especially in an office where the agent has to do the operating as well as other duties. Mr. McKenzie is making arrangements to have the machines manufactured and put on the market as soon as possible.

The report has been confirmed that the New York Central have contracted with the Niagara, Lockport & Ontario Power Co., for electricity to be used in the electrification of the New York Central lines in western New York.

Cooking by electricity has always been regarded as more or less possible, but it was not until recently that practical cooking utensils have been invented which could be used successfully. The installation of a complete electric kitchen outfit has just been made by the Ontario Power Co. at Niagara Falls. This outfit will provide meals for 100 persons at a time, and the maximum consumption of electricity is only about 26 kilowatts.

Among the latest uses to which electricity has been applied is that of thawing pipes, and a regular electric pipe-thawing apparatus is now made and sold by several of the large electrical manufacturers. One firm offers two outfits, one of which is a heavy duty apparatus, consisting of a choke-coil used in connection with the primaries of a standard transformer, and the other is for lighter service, consisting of a small portable transformer weighing complete in its case not more than 100 pounds. The latter is particularly adaptable for thawing house piping or short service connections, while the larger outfit could be used, if desired, on street mains.

The National Electric Co., Milwaukee, Wis., have put out two bulletins, one devoted to air compressors and the other to polyphase induction motors. The compressors are especially compact and more than 15,000 of them are now in daily use. The induction motor illustrated is a simple device for the conversion of electric energy into mechanical energy. The absence of parts requiring attention and the favorable structural conditions make this type of motor especially adapted to all conditions requiring constant and severe service.

PUBLICATIONS.

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

The Hamilton Facing Mill Co., Hamilton, Ont., have sent us their very beautiful calendar for 1906. It is a winner.

The Peter Hay Knife Co., Galt, Ont., manufacturers of machine knives, have sent us their very beautiful calendar for 1906. The subject is from a painting by H. Rondel, "Evelyn," and is a work of art.

Messrs. F. E. Meyers & Bro., Ashland, Ohio, have sent us their 1906 calendar, showing the different pumps, etc., manufactured by them.

The Maryland Casualty Co., Baltimore, Md., who have a Canadian office in Toronto, have sent us their calendar for the ensuing year.

The Canadian General Electric Co., Toronto, have sent us a copy of their descriptive booklet on the luminous electric radiator, with which they say, you can turn on the heat as you would turn on the light at an ordinary incandescent lamp.

Guernsey Camp, Esq., 317 Fidelity Building, Buffalo, N.Y., coal shipper, has sent us a cheque on the bank of Good Fortune, for three hundred and sixty-five happy days.

We are in receipt of a booklet from the Bourne-Fuller Co., Cleveland, Ohio, describ-

ing the Scott's crucible tool steels, manufactured by them.

Messrs. McFarlane & Douglas, of the Crown Cornice Works, Ottawa, have sent us their card of greeting and good wishes for 1906.

The Canadian General Electric Co., Toronto, have supplied us with a pamphlet illustrating and describing the Kinsman desk lamp. The eye shade, which serves as a reflector as well, may be moved by a touch to any desired angle, so that the desk alone may be illuminated, or an illumination may be obtained a short distance from the desk. The inner glass cylinder has one clear surface, and one of ground glass with which to soften the light by turning a knob at farther end, while a telescopic arm enables one to draw light forward or push it back at pleasure. All these changes may be readily made without rising from the chair; the fixture may be clamped to the desk without marring it.

The World Wide is a weekly reprint of articles from leading journals and reviews reflecting the current thought of both hemispheres. It is a marvel of interest and cheapness as a high class eclectic. For the sum of \$1.50 it brings every week for a year the best articles that appear in the leading British, American and other foreign publications. The publishers are John Dougall & Son, Montreal.

The Canadian Asbestos Co., 44 Youville Square, Montreal, have sent us a copy of their brochure entitled "Asbestology" in which are articles having reference to some of the many uses of asbestos. A table is given showing the loss of power that has

been found to take place from uncovered pipes filled with steam under pressure which could be avoided and prevented by a proper covering of the pipes with asbestos. Asbestos packing is spoken of as durable, reliable and economical. Asbestos when used as a filtering medium resists the action of alkalies and acids, and after use can be easily cleaned by hot water or steam, or it can be purified by throwing it into the fire, for it is indestructible, and may be used over and over again. The merits of asbestos roofing, asbestos mill board, asbestos plaster, asbestos cloth, asbestos paint, etc., are also alluded to.

The Harbison-Walker Refractories Co., Pittsburg, Pa., have issued a very instructive and attractive booklet on the usage of fire-brick for boiler settings and stokers. This booklet will be sent to any superintendent of power plants, engineer or any one interested in the boiler room. A postal request will bring a copy.

If you do not know Graphite you should become acquainted with it. It is a publication which is distributed every month to set forth to interested parties the different forms of graphite and their respective uses. Its December number tells about bad axles and good grease, retouching points and pencils, steam and return pipes for heating systems, lubricating air and steam cylinders, a graphite lubricating device, feeding flake graphite alone, etc. These and other important subjects in connection with the numerous uses of graphite are treated of in Graphite. The Joseph Dixon Crucible Co., Jersey City, N.J., send the publication gratis to inquirers.

Mr. F. B. Utley, advertising manager for

TO THE VARNISH BUYER

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

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

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

BERRY BROTHERS, Limited

VARNISH MANUFACTURERS

WALKERVILLE, ONT.

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

the Goldie & McCulloch Co., Galt, Ont., has sent us a particularly unique and handsome brochure entitled "The Season's Greetings—1905-6," in which is embodied the names of Mr. Utley, Mrs. Utley and Karl C. Utley, their son. All who are acquainted with Mr. Utley know that his genius is not of a single-sided character—that he is somewhat of a poet, and this talent is demonstrated in the introductory entitled "Keep a-Grinnin'," which imparts good advice which all should heed. The seasons are illustrated—spring being represented by a photo of the lad fondling his pet baby colt; summer by a photo of Mrs. Utley and her favorite riding mare; autumn by a photo of a group of the entire family, but the hey day of youth, life, health, strength, and attractive personal appearance shown in the picture, does not harmonize with the approaching decline of life. Winter is typified by a picture of the boy and the pet pony harnessed to a sled in front of the family residence ready for a sleigh ride.

The Watertown Engine Co., Watertown, N.Y., have sent us a descriptive booklet, illustrating the steam engines manufactured by them.

The Westinghouse Electric & Mfg. Co., Pittsburg, Pa., have sent us a circular illustrating and describing their automatic circuit breakers.

The Hancock Inspirator Co., 85 Liberty Street, New York City, have sent us their illustrated catalogue, having reference to the Hancock valves.

The Morris Machine Works, Baldwinsville, N.Y., have sent us their 1906 calendar having

to illustrate it a picture of President Roosevelt on horseback. The Capewell Horse Nail Co., Toronto, have sent us their calendar for 1906.

PERSONALS.

Messrs. Sadler & Haworth, Toronto, manufacturers of leather belting, have moved their office and factory from Jordan Street to 40-42 Melinda Street.

E. D. Arnaud, Esq., Canadian commercial agent at Chicago, Ill., has been transferred to St. John's, Newfoundland, to act in a similar capacity.

L. R. Johnson, Esq., superintendent of the motive power of the Canadian Pacific Railway Co., Montreal, has been appointed assistant mechanical superintendent in charge of the Angus locomotive shops, the former office having been abolished.

J. B. Elliott, Esq., present master mechanic of the eastern division of the Canadian Pacific Railway, has been appointed master mechanic of the lines east of Fort William, Ont.

THE B. GREENING WIRE CO.

The B. Greening Wire Co., Hamilton, Ont., have sent us their annual calendar for 1906, entirely similar to the ones which they have been sending us for many years past, and which, as usual, finds a prominent place in this office. It is a constant reminder of the fact that the company desire the patronage of the trade, and an assurance that they will at all times strive to merit the favors of their friends. In a circular note accompanying

the calendar is the following announcement: "Since last we had the pleasure of addressing you we have issued our new catalogue—one for each department. We hope you received yours safely, but should you not have done so, or should it have become mislaid, let us know, naming the line you are particularly interested in, and we shall have pleasure in forwarding you another.

"Our painting tower, destroyed by fire last March, has been rebuilt with all the latest improvements we could hear of or our experience could suggest, and we are now turning out screen cloth in 100 feet or 50 feet, either green or black. Kindly note 100 foot rolls are the standard.

"Our netting mill is running full time, and we fully expect to be able to meet any demand that may be made upon us for this or screen cloth.

"We particularly request correspondence regarding any of our lines.

"In wishing you the compliments of the season and a prosperous 1906, we desire to thank our numerous friends and customers for past favors, and solicit a continuance of same."

NEW ROUTE TO SOUTHERN CALIFORNIA.

The opening to traffic of the San Pedro, Los Angeles & Salt Lake Railroad, known as the Salt Lake Route, between Salt Lake City and Los Angeles, makes available a most desirable short line to Southern California. This will doubtless be of great interest to the ever-increasing number of people who journey each winter to this sunny clime.



CORNERS in QUALITY



We have "cornered" the brick market—so far as **quality** is concerned. It's an interesting story, but we have only space to outline it here:

The first chapter begins at the clay mines. It shows how particular we are about **good raw material**. The grading is very thorough. At every step—inspection—selection—rejection until our experts have the cream of the clay beds picked out.

The last chapter is a long way from the first, for it takes longer to wear out **Harbison-Walker Refractories** than any other fire-brick made.



This is a true story. You can see the proofs, any time, in this office—letters from users of refractories who have set down in black and white facts and figures which are the most valuable records of experience ever collected in the history of fire brick manufacturing.

1,100,000 Daily Capacity. 7,000 Regular Customers.



No order too small for our best attention; none too large for our capacity.
We have expert knowledge for your brick troubles.
Always state for what purpose brick are to be used.

Send for Catalogue "H"

Harbison-Walker Refractories Co.
PITTSBURG, PA.





In anticipation of a large volume of this class of traffic a handsome equipment of modern vestibuled trains has been placed in service in connection with the Overland Limited train of the Chicago, Union Pacific & North-Western Line, the most luxurious train in the world. This forms a new and interesting route by which first-class tourist travel can reach the sunshine and flowers of Southern California, travelling on fast schedules and in luxurious comfort. Rates, folders and full information can be obtained from B. H. Bennett, general agent, 2 East King St., Toronto, Ont.

THE HARBISON-WALKER REFRACTORIES CO.

The Harbison-Walker Refractories Co., Pittsburg, Pa., report the demand for their products as very large and constantly increasing. Some of the larger contracts on which they are now shipping or which they have recently completed are as follows:

Blast furnaces and stoves—Brick for complete lining for one blast furnace and four stoves, pipe connections, boiler settings, etc., for Midland, Pa.; brick for complete lining for two blast furnaces and eight stoves, pipe connections, boiler settings, etc., for Youngstown, Ohio; brick for complete lining

for one blast furnace and four stoves, pipe connections, boiler settings, etc., for Chicago, Ill.; brick for three complete furnace linings, to Sydney, N.S.; brick for one complete furnace lining to Wharton, N.J.; brick for two complete furnace linings to Bethlehem, Pa.; brick for two complete furnace linings to Buffalo, N.Y.; brick for one complete furnace lining to Detroit, Mich.; brick for one complete furnace lining to Canal Dover, Ohio; brick for one complete furnace lining to Sharpville, Pa.; brick for one complete furnace lining to Harrisburg, Pa.; brick for complete linings for nine stoves to an eastern iron company. The above orders call for approximately 17,125,000 brick.

Bee hive coke ovens—1,700,000 brick for the territory of New Mexico; 1,000,000 brick for the Connellsville Basin Coal & Coke Co.; 700,000 brick for the West Virginia Coal & Coke Co.; 200,000 brick for the Perry Coke Co.; 1,000,000 brick for the Washington Coal & Coke Co.

By product coke ovens—2,500,000 brick for the Harrisburg District.

Also many other orders from cement manufacturers, including one for complete linings for fifteen rotary kilns for Kansas and Texas.

The company are also experiencing an exceedingly large demand for Silica brick for open hearth steel furnaces, glass furnaces,

copper furnaces, etc., and magnesite and chrome brick from open hearth steel works, copper works, etc., and also a large run of carload orders from regular consumers for all classes of refractory materials.

As contracts for refractory material are usually placed considerably in advance of the date of completion of plants, the Harbison-Walker Refractories Co. are in a favorable position to judge of the possibilities and prospects for the future. The very large demand for refractory material is an excellent indication of an active state of business for some time to come.

The C. W. Hunt Co. West New Brighton, Staten Island, N.Y., in their new catalogue, No. 058 describe and illustrate "Hunt" steam hoisting engines, including the "Hunt" heavy duty engines, single drum hoisting engines, two-drum engine, two-drum universal hoisting engine and steam shovel engine with counterbalance. The catalogue also describes and illustrates the various parts of the engine. This catalogue also incorporates a number of tables of sizes, and illustrates various special engines manufactured by the company.

Take time to consider, then decide positively.



Natural gas—our location in the heart of the world's greatest foundry district—best imported materials—35 years' experience, combine to give McCullough-Dalzell Crucibles first rank. Send us your order.

McCULLOUGH-DALZELL CRUCIBLE CO., Pittsburgh, Pa.



WATCH FOR THE
ANNOUNCEMENT OF

The Power & Gas Machine Company

LIMITED

GALT - - ONTARIO

CASSELLA COLOR COMPANY

(American Branch of Leopold Cassella & Co.)

ARTIFICIAL

DYE STUFFS

New York, 182-184 Front Street.

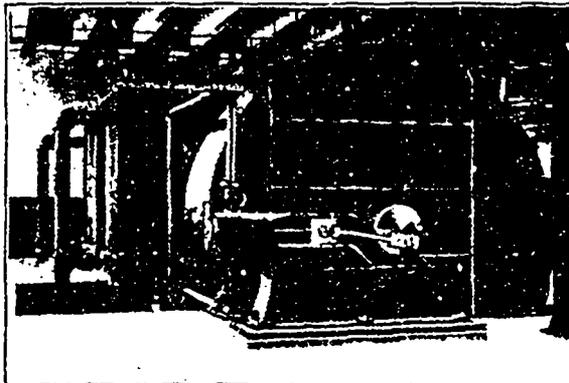
Boston, 68 Essex Street.

Philadelphia, 126-128 South Front St.

Providence, 64 Exchange Place.

Atlanta, 47 North Pryor Street.

Montreal, 86-88 Youville Square.



Positive Ventilation

as well as uniform heating is insured by the Sturtevant System. The air is forced where it is wanted, not merely allowed to go. It is thoroughly distributed; a slight pressure is maintained within the building, so that all leakage is outward. Not a steam pipe is needed in any room. It is all concentrated in connection with the fan.

B. F. STURTEVANT CO., Boston, Mass.
 General Office and Works, Hydo Park, Mass.
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Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus, Fans, Blowers and Exhausters, Steam Engines, Electric Motors and Generating Sets; Fuel Economizers; Forges, Exhaust Heads, Steam Traps, etc.

WANTED

SECOND-HAND DYNAMO, 10 to 15 hp power; also an AIR COMPRESSOR.

Address C.G.B.,

Care CANADIAN MANUFACTURER.

During the fiscal year ending June 30, 1905, the imports of fuel into Canada and value thereof were as follows:—Bituminous Coal and Dust, 4,826,535 tons, value \$46,352; Anthracite and Dust, 2,604,100 tons, value \$12,093,371; Coke, 371,000 tons, value \$807,842; Charcoal, value \$802. Under the general tariff the duty on Bituminous Coal is 53 cents per net ton and upon Bituminous Dust or Slack, 20 per cent. There is no duty imposed upon Anthracite or Coke.

EVERY STEAM POWER PLANT IN CANADA USES COAL

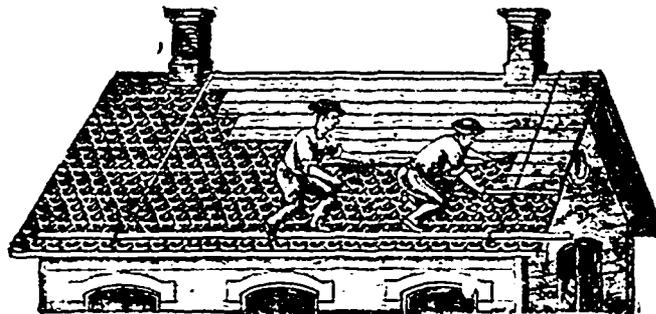
EVERY FOUNDRY USES COKE

THE CANADIAN MANUFACTURER

REACHES THEM.

"OSHAWA" STEEL SHINGLES

WIND,
 WATER,
 STORM
 and
 FIRE-
 PROOF



LOCKED
 ON ALL
 FOUR
 SIDES

Made from Painted or Galvanized Steel at prices varying from \$2.85 to \$5.10 per 100 square feet, covering measure. This is the most durable covering on the market and is an ideal covering for Factories, Houses, Barns, Stores, Elevators, Churches, etc. Any handy man can lay the "OSHAWA" Shingles. A hammer and snips are the only tools required.

We are the largest and oldest company of the kind under the British Flag and have covered thousands of the best buildings through Canada, making them

FIRE, WATER AND LIGHTNING PROOF

We also manufacture Corrugated Iron in long sheets, Conductor Pipe and Eave Trough, Etc. Metal Sidings in imitation of Brick or Stone. Metal Ceilings in 2,000 designs.

Write for Catalogue No. 14R and Free Samples of "OSHAWA" Shingles. Write to-day.

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Montreal, Que. 767 Craig St. Ottawa, Ont. 423 Sussex St. Toronto, Ont. 11 Colborne St. Winnipeg, Man. 76 Lombard St. Vancouver, B.C. 615 Pender St.

WRITE YOUR NEAREST OFFICE.

Head Office and Works, OSHAWA, ONTARIO, CANADA

The Canada Chemical Manufacturing Company, Limited

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Canada.

MANUFACTURERS OF

Acids and Chemicals

Commercial quality for all industrial purposes, and chemically pure chemicals for laboratory use

Offices and Chemical Works

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ANILINES

St. Denis Dyestuff and Chemical Co

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Manufacturers of

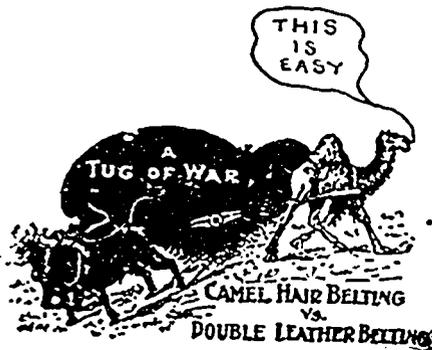
Aniline Colors, Aniline Oil and Salt, Archil Extra Cudbear, Cachou de Laval, Thiocatechines, etc.

A Complete Assorted Stock of the above always on hand.

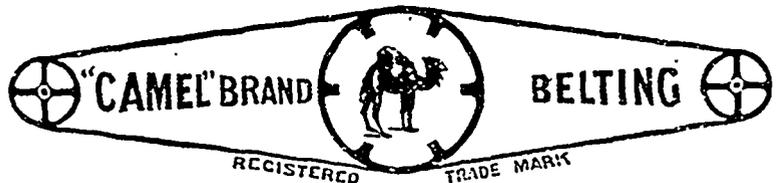
W. T. Benson & Co.,

Solo Agents for Canada.

164 St. James St., MONTREAL



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"CAMEL HAIR BELTING"

Is the **BEST BELT MADE** for paper and Pulp Mills, Sawmills, Portland Cement Mills, Chemical Plants, Steel Plants, Refineries, Coal Mines, Oil Well Drilling, Dyehouses, Bleacheries, Breweries, Cotton Mills.

MAIN DRIVING generally, and particularly where EXPOSED TO MOISTURE.

Head Office for Canada: 771 CRAIG ST., MONTREAL, P.Q.

F. REDDAWAY & CO.,

Manufacturers of
THE CAMEL HAIR BELT, STITCHED CANVAS
BELTING and LINEN FIRE HOSE

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Head Office—222 ST. JAMES ST., MONTREAL.

Works—CAPELTON, P.Q.

MANUFACTURERS OF HIGHEST QUALITY CHEMICALS

Sulphuric, Muriatic and Nitric Acids, Glauber's Salt, Salt Cake, Mixed Acid for
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AGENTS FOR STAR and TRIANGLE BRANDS

BLUE VITRIOL.

PUREST AND STRONGEST

PAPER MAKERS' ALUM.

Address all Correspondence to the Head Office, - MONTREAL.

THE IMPERIAL OIL COMPANY, Limited

Highest Awards at the World's Fair, Chicago, upon

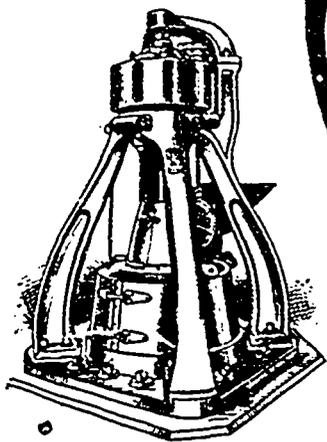
Lubricating, Water White Illuminating Oils,
Paraffine Wax, Etc.

We manufacture all grades of oils, greases, soap stocks, candles, wool stocks, leather and tanners' oils, fuel gas, machinery, cylinder oils, &c. And solicit opportunity to compete against any oil on the market. Write for prices and samples.

Refineries at **SARNIA and PETROLIA, CANADA.** Merchandising Branches at:

HALIFAX, N.S. HAMILTON, ONT. QUEBEC, QUE. LONDON, ONT. TORONTO, ONT. WINNIPEG, MAN. ST. JOHN, N.B. GUELPH, ONT.
MONTREAL, QUE. CHATHAM, ONT. PETERBORO, ONT. VANCOUVER, B.C. MONCTON, N.B. STRATFORD, ONT. KINGSTON, ONT. WINDSOR, ONT.

The GRIFFIN Mill



The Greatest Pulverizing Machine
in the World

Used Wherever Portland Cement is Made

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

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

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

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

Buy the GRIFFIN MILL and get the BEST. It holds the world record from every standpoint.

Send for Catalogue and full information.

Bradley Pulverizer Company, 92 State St., Boston

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Steam Geared or Electrically Driven.

Deep Well Pumping Systems for Cities, Railroad, Mines, Factories, etc.

DOWNIE PUMP CO., Downieville, Pa., U.S.A.



There are other Watchman's Clocks, but the pioneer of all is the

ECO MAGNETO



WATCHMAN'S CLOCK

Which is and always has been entirely constructed for magneto operation

Similar devices, cheaply gotten up, operated by battery or generators, are liable to faults of construction. The superiority of the Eco Magneto is easily proved.

It is approved by the National Board and all Underwriters. is fully guaranteed for 5 years. is installed on trial and subject to moderate cost when accepted.

Used by foremost Canadian firms and found entirely satisfactory.

ECO MAGNETO CLOCK CO. BOSTON, MASS.



DIXON'S SOLID BELT DRESSING

Positively stops all slipping the instant it is applied . . .

SAMPLE BAR FREE

Write for Circular 33-0

JOSEPH DIXON CRUCIBLE CO., Jersey City, N.J., U.S.A.

We Guarantee

TWICE

The Wear

WILLIAM R. PERRIN & COMPANY, Limited
530 King East, - Toronto



WRITE ME! WRITE ME! WRITE ME!

BETTER STILL—WIRE

If you want a real bargain in new or slightly used Engines, Machine Tools, Woodworking or Mining Machinery.

MONEY TALKS. MY VALUES SCREAM. HOW ARE THESE?

- One heavy duty Reynolds-Corliss simple condensing 16x42 Engine, used less than one year. Given away for **\$500.**
- One Prescott Band Saw Mill, little used. 8ft. wheels, 10 in. saw. Complete for **\$380.**
- One Cowan, Double Surface, Planer and Matcher. Planes 24 in. wide by 6 in. thick. Matches 18 in. wide. First check for **\$600** gets it.
- One Lodge & Shipley latest model 20 inch Engine Lathe, with full equipment of tools. Used about 18 months on light work. Price **\$400.**
- One 11 inch Barnes foot power Lathe. **\$50.**

The above are a few examples picked from my stock. If you want any machine for the wood-working, lumbering or mining business, any tool for the machine shop, or a dynamo or motor, write or wire me. Results will surprise you.

All equipment guaranteed to be as represented and in first-class working order.

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And are manufactured only by
THE ARMSTRONG MFG. CO.,
BRIDGEPORT, CONN.
NEW YORK OFFICE, 139 CENTRE STREET
Catalogue sent on request.

BARGAINS Money Savers.
First Class.

- 2-250 k.w., 3 phase, 10,000 volt G. E. Rerfield, Al. Gen., 450 rev., 3 bearing.
- 3-100 k.w., 3 phase, 60 cycle Transformers, 10,000 x 2,300 volts.
- 1-300 k.w., 2 phase, 60 cycle, 2,400 volt Stanley Direct Connected Gen. Set.
- 2-300 k.w., 3 phase, 60 cycle, 2,400 volt G. E. Direct Connected Gen. Units.
- 120-G. E. 35 h.p. Railway Motors.
- 40-Walker, 90 h.p. " "

Fire, Wrecking, Irrigation, Water Works, Mining Pumps, Air Compressors, Tanks, Cars, Pipe, Rail, Boilers, Engines, Beams, Scales, Dynamometers, Motors, Car Trucks. Our prices are of interest to close buyers.

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The following Canadian municipalities are offering inducements to secure manufacturing establishments. Inquiries should be addressed to the Mayor, Town Clerk or Board of Trade of the respective cities:

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

**WOOLLEN MILL
For Sale**

Water and steam power; one set Woollen Mill. Three story brick and stone 36 x 52 feet. Two story brick and stone addition 30 x 36 feet.

Good locality; wool plentiful.

Address,
S. M. HUTCHESON,
PAISLEY, ONT.

GASOLINE ENGINES

FOR LAUNCHES AND CANOES.

2-H.P. ENGINE COMPLETE FOR \$65.

M. O. CROSS ENGINE CO.
DETROIT.

The Firstbrook Box Co. Limited

PACKING CASES.
DOVETAIL BOXES.
Bottlers' SHIPPING CASES.
BOX SHOOKS, Etc.

TOP PINS, SIDE-BLOCKS & CROSS-ARMS
Write for prices. TORONTO, Canada.

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PRESTON ONT.



FINE BANK OFFICE, COURT HOUSE & DRUG STORE FITTINGS.
OFFICE, SCHOOL, CHURCH & LODGE FURNITURE
SEND FOR CATALOGUE

**WOOD ENGRAVING
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HALF TONES**

OR ANY CLASS OF ENGRAVING
FOR ADVERTISING PURPOSES,
CATALOGUES, MAGAZINES, &c

J. L. JONES ENG. CO.
168 BAY ST.-TORONTO

"IMPERIAL" PNEUMATIC TOOLS



Prejudice Overcome

Canadian Manufacturers are awakening to the fact that "Made in Canada" pneumatic tools are equal, if not superior to the "imported" article. We stand ready to prove this, by competitive tests, at any time.

See Bulletin No. 18

The Canadian Rand Drill Co.
55 Sovereign Bank Building
MONTREAL - QUE.

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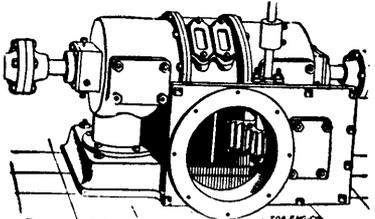
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Nichols Chemical Co. of Canada, Montreal.

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Belting (Cotton)

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McLaren, J. C. Belting Co., Montreal and Toronto.
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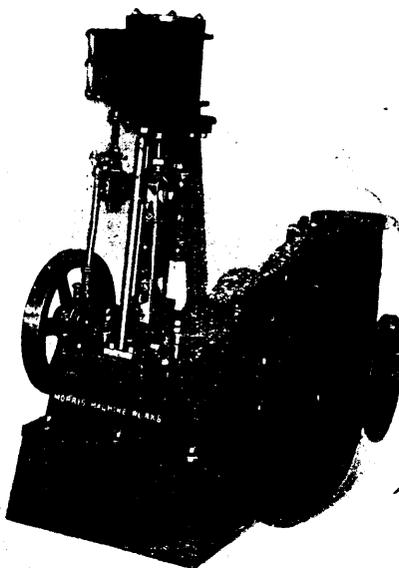
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McLaren, J. C., Belting Co., Montreal
Petrie, H. W., Toronto.
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McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Reddaway, F. & Co., Montreal.
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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., Pittsburg, 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 Boilers)

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Expanded Metal & Fireproofing Co., Toronto.

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Canada Foundry Co., Toronto.
Conduits Company, Limited, Toronto.
Expanded Metal & Fireproofing Co., Toronto.
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Hopkins, F. H. & Co., Montreal.
Sheldon & Sheldon, Galt, Ont.

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

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

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Peterborough Canoe Co., Peterborough, Ont

Caps

McCullough-Dalsell Crucible Co., Pittsburg, Pa.

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

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Canada Foundry Co., Toronto.
Montreal Pipe Foundry Co., Montreal.
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International Harvester Co., Hamilton, Ont.
Jenckes Machine Co., Sherbrooke, Que.
Kerr Engine Co., Walkerville, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.

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

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Morris Machine Works, Baldwinsville, N.Y.

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

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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.
Milnes, James H. & Co., Toronto.
Myles' Thos. 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 Road Drill Co., Sherbrooke, Que.
Jeffrey Mfg. Co., Columbus, Ohio.

Coal Tipples

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

Coil Chains

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

Coke Oven Brick

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

Collection Agency

Petrie, H. D., Hamilton, Ont.

Concrete Mixers

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

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

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Babcock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Jeffrey Mfg. Co., Columbus, Ohio.
Link-Belt Engineering Co., Philadelphia, Pa.
McDougall John, Caledonian Iron Works Co., Montreal.
Perrin, William R. & Co., Limited, Toronto.

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Phillips, Eugene F. Electrical Works, Montreal.
Syracuse Smelting Works, Montreal.

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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.
Cassella 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.

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Electric Mine Locomotives

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

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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.

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.

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.

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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.

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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.

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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.

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Fensom, C. J., Toronto.
Hawksworth, 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.

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

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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

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

Exhausters

Sheldon & Sheldon, Galt, Ont.
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.
Hutcheson, S. M., Paisley, Ont.

Feed Water Heaters

Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Robb Engineering Co., Amherst, N.S.

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.
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., 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 Economisers

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

Furniture (Lodge, Opera and School)

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

Galvanizing

Ontario Wind Engine & Pump Co., Toronto.

Galvanizing and Tinning Machinery and Furnaces (Wire)

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

Gas and Gasoline Engines

Morrison, T. A. & Co., Montreal.

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, Jos. Crucible Co., Jersey City, N.J.
McCullough-Daisel Crucible Co., Pittsburg, 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.

Hoists (Chain and Pneumatic)

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

Hose (Fire and Pneumatic)

Gutta Percha & Rubber Mfg. Co., Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
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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CLASSIFIED INDEX.

(CONTINUED).

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.
Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Leslie, A. C. & Co., Montreal.
London Rolling Mill Co., London, Ont.
Lysaght, John, Limited, Bristol, England and Montreal.
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. & Co., Chicago, Ill.

Lamps—Electric

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

Lathes

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 Reeds

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

Lubricators

Penberthy Injector Co., Windsor, Ont.

Machinists

Goldie & McCulloch Co., Galt, Ont.
Robb Engineering Co., Amherst, N.S.

Machinists' Supplies

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

Machine Tools

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.
Jenckes Machine Co., Sherbrooke, Que.

Mechanical Draft

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

Metal Stamping

Globe Machine & 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.
Hawthornthwaite, Alfred & Sons Co., Montreal.
Hay, Peter Knife Co., Galt, Ont.
Hopkins, F. H. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal.
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 Rand 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.
Jenckes Machine Co., Sherbrooke, Que.
Link-Belt Engineering Co., Philadelphia, Pa.
McDougall, John, Caledonian Iron Works Co., Montreal.
Perrin, William R. & Co., Limited, Toronto.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Motors and Dynamos

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
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 & Martin, Toronto.

Nozzles

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

Office and Bank Fittings

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

Oils and Lubricants

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

Oil Cloth

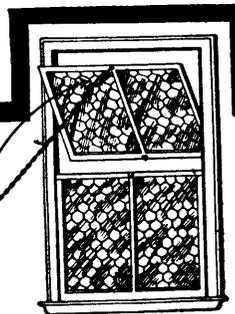
Dominion Oil Cloth Co., Montreal.

Oil Cups

Penberthy Injector Co., Windsor, Ont.

Paints and Colors

Berry Bros., Walkerville, Ont.
Geigy Aniline & Extract Co., New York City.
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TORONTO - CANADA

CLASSIFIED INDEX.

(CONTINUED).

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

Patents

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

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

Pipe Threading Machines

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

Pipes and Tubes

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
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 Hand 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.
Babcock & 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.

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.

Presses (Tile, Sewer Pipe, Nozzles and Sleeves)

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

Pulleys

Darling Bros., Montreal.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
McDougall, John, Caledonian Iron Works Co., Montreal.
McLaren, J. C., Belling 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., Downieville, Pa.
Goldie & McCulloch Co., Galt, Ont.
Jenckes Machine Co., Sherbrooke, Que.
Kerr Engine Co., Walkerville, Ont.
Morris Machine Works, Baldwinsville, 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

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

Purifying and Softening Systems (Water)

Babcock & 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

Algoma Steel Co., Sault Ste. Marie, Ont.
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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.

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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

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Bourne-Fuller Co., Cleveland, Ohio.
Leslie, A. C. & Co., Montreal.
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CLASSIFIED INDEX.

(CONTINUED).

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Smoke Stacks

Hamilton, Wm. Mfg. Co., Peterborough, Ont.
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Robb Engineering Co., Amherst, N.S.

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Globe Machine & Stamping Co., Cleveland, Ohio.
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Darling Bros., Montreal.
Goldie & McCulloch Co., Galt, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.

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

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Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.

Steam Shovels

Allis-Chalmers-Bullock, Limited, Montreal.

Steam Specialties

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

Steam Valves

American Steam Pump Co., Battle Creek, Mich.
Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
Kerr Engine Co., Walkerville, Ont.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Steel Balls

Algoma Steel Co., Sault Ste. Marie, Ont.
Drummond, McCall & Co., Montreal and Toronto.
Gartshore, John J., Toronto.
Hopkins, F. H. & Co., Montreal.

Steel Shafting

Darling Bros., Montreal.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Leslie, A. C. & Co., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Wilson, J. C. & Co., Glenora, Ont.

Stocks and Dies

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

Stoppers

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

Structural Steel

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Hopkins, F. H. & Co., Montreal.

Sulphate of Alumina

Nichols Chemical Co. of Canada, Montreal.

Suspension Furnaces

Continental Iron Works Co., New York City.

Tanks (Oil and Water)

Canada Foundry Co., Toronto.
Corbett, R. B., Brooklyn, N.Y.
Goldie & 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.
Petrie, H. W., Toronto.

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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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	Ladies' Home Journal.....	Philadelphia	Monthly	1 25	1 50
Architect and Builders Magazine	New York..	Monthly	2 00	2 25	Leslies' Monthly Magazine....	New York..	Monthly	1 00	1 25
Architectural Record.....	New York..	Monthly	3 00	3 25	Literary Digest.....	New York..	Weekly	3 00	3 25
Architectural Review.....	London....	Monthly	4 00	4 25	Machinery (Engineering Edition)	New York..	Monthly	2 00	2 25
Atlantic Monthly.....	Boston....	Monthly	4 00	4 25	McClure's Magazine.....	New York..	Monthly	1 00	1 25
Boys' Own Paper.....	London....	Weekly	1 75	2 00	Mines and Minerals.....	Scranton..	Monthly	2 00	2 25
Brick-Builder.....	Boston....	Monthly	5 00	5 25	Modern Methods.....	Detroit....	Monthly	50	1 50
British Architect.....	London....	Weekly	6 00	6 25	Montreal Herald.....	Montreal..	Daily...	3 00	3 25
Buffalo Express, Illustrated.....	Buffalo....	Weekly	2 00	2 25	Montreal La Presse.....	Montreal..	Daily...	3 00	3 25
Builders' Journal.....	London....	Weekly	3 50	3 75	Montreal Witness.....	Montreal..	Daily...	3 00	3 25
Camera.....	Philadelphia.	Monthly	1 00	1 25	Motor Age.....	Chicago....	Weekly	2 00	2 25
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Cassiers' Magazine.....	New York..	Monthly	3 00	3 25	National Builder.....	Chicago....	Monthly	2 00	2 25
Chemical News.....	London....	Weekly	5 25	5 50	National Monthly.....	Toronto....	Monthly	1 00	1 25
Colliers' Weekly.....	New York..	Weekly	5 20	5 25	New York Clipper.....	New York..	Weekly	4 00	4 25
Commercial Intelligence.....	London....	Weekly	5 00	5 25	New York Commercial.....	New York..	Daily...	6 00	6 25
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Gentleman's Magazine.....	London....	Monthly	4 00	4 25	Toronto Saturday Night.....	Toronto....	Weekly	2 00	2 25
Girl's Own Paper.....	London....	Weekly	1 75	2 00	Toronto Sunday World.....	Toronto....	Weekly	2 00	2 25
Good Housekeeping.....	Toronto....	Monthly	1 00	1 25	Youth's Companion.....	Boston....	Weekly	1 75	2 00
Good Road's Magazine.....	New York..	Monthly	1 00	1 25	Weldon's Ladies' Journal.....	London....	Monthly	1 25	1 50
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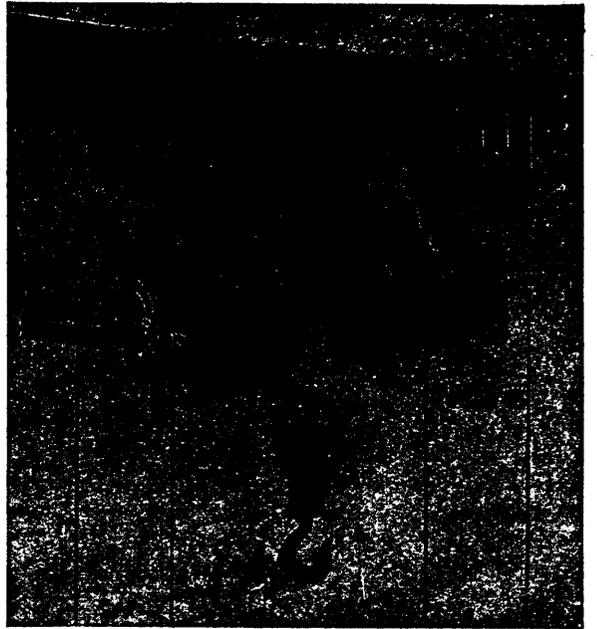
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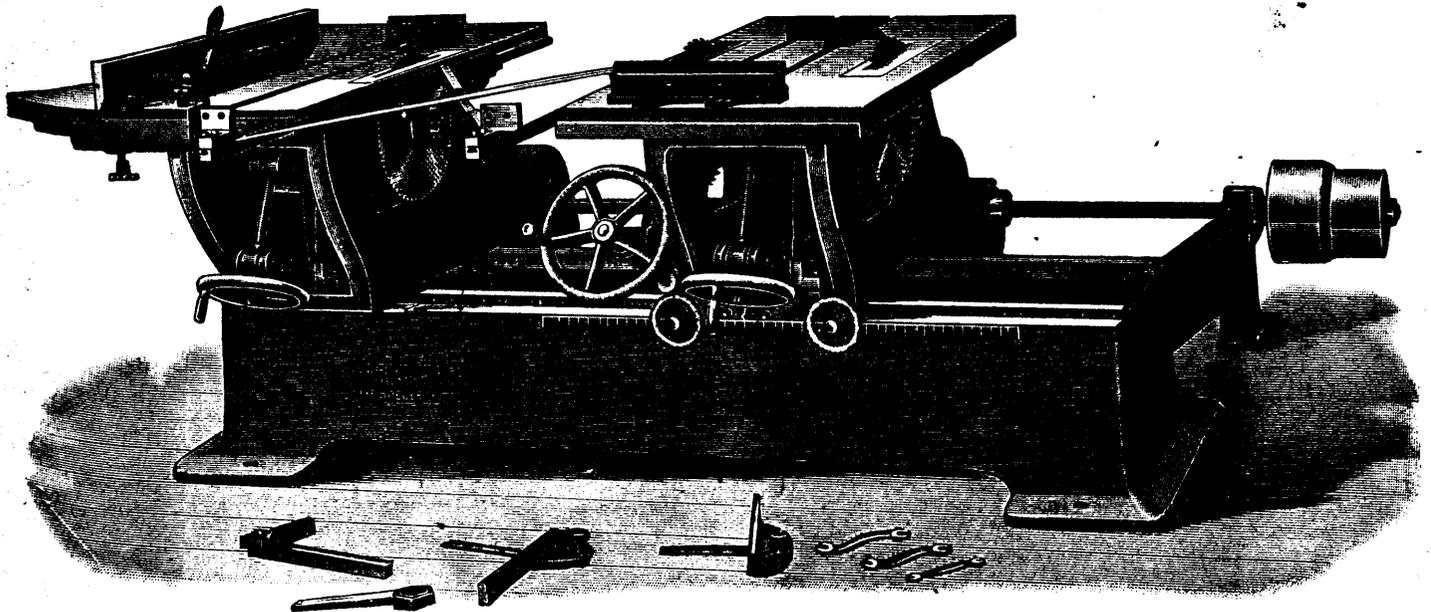
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Personally we cannot speak too highly of the advantages we have derived from your advice on several occasions, advice which has been the means of saving us considerable money.

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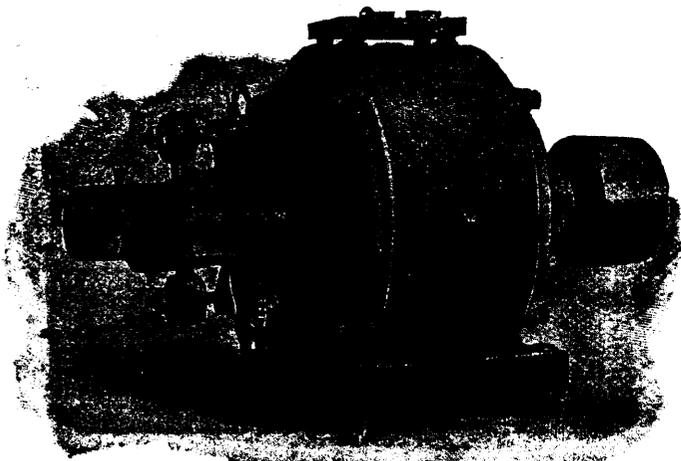
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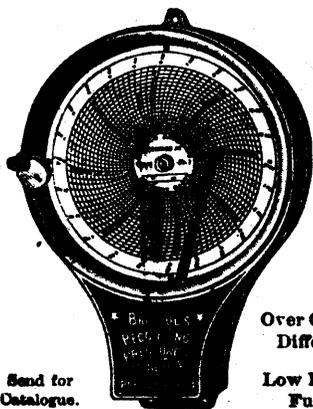
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